I Z A Institute
of Labor Economics
Initiated by Deutsche Post Foundation

DISCUSSION PAPER SERIES

IZA DP No. 14109

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

Sandy Baum
Harry J. Holzer
Grace Luetmer

FEBRUARY 2021

I Z A Institute
of Labor Economics

Initiated by Deutsche Post Foundation

DISCUSSION PAPER SERIES

IZA DP No. 14109

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

Sandy Baum
The Urban Institute

Grace Luetmer
The Urban Institute

Harry J. Holzer
Georgetown University and IZA

FEBRUARY 2021

ISSN: 2365-9793

IZA – Institute of Labor Economics

Schaumburg-Lippe-Straße 5–9
53113 Bonn, Germany

Phone: +49-228-3894-0
Email: publications@iza.org

www.iza.org

ABSTRACT

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

We consider whether the US should extend Pell grant eligibility to short-term certificate programs (i.e., below the current floor of 600 hours). We provide new descriptive evidence on who enrolls in certificate programs, who completes them, how students finance them, who defaults on loans, and on their labor market value. We find that certificate holders earn about 10 percent more than high school graduates and 20 percent more than those with GEDs. The variance in their labor market value across fields is very high. But we find no evidence that certificates above and below the current cutoff generate differing labor market value. Thus, reducing the floor for program eligibility would improve the opportunity of low-income workers to receive effective job training.

JEL Classification: J24

Keywords: short-term training, certificates, pell grants, community college

Corresponding author:
Harry J. Holzer
Georgetown University
3700 O St NW
Washington, DC 20057
USA
E-mail: hjh4@georgetown.edu

A large share of the occupational training in the United States takes place in postsecondary institutions. The community colleges that award associate degrees that prepare students for transfer to four-year institutions also offer terminal associate degrees leading to specific occupations, as well as shorter-term certificates. Some of these certificates require a year or more of study, but others are much shorter. Because of the scarcity of funding designated for workforce development, the federal student aid system has emerged as the primary source of funding 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 at least two-thirds of an academic year—600 credit hours and 15 weeks in length—qualify for Pell grants. Students enrolled in programs requiring between 300 and 600 hours (10 to 15 weeks) can receive federal loans, but not grants, if the program meets certain completion and placement standards

Because of the importance of making postsecondary education accessible to as many people as can possibly benefit from it, support for making Title IV aid available to students in very short certificate programs 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 grant program funding that could lead to diminished funding for other recipients.

In addition to meeting program-length requirements, to be eligible for Title IV aid programs must be offered by a participating postsecondary institution and offered for credit. Including shorter-term programs in the federal student aid system might also eliminate these requirements, but that need not be the case.

This paper reviews existing evidence about the economic returns to certificate programs and adds to that evidence using a range of data sources. Based on this evidence, we evaluate the justification 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.

Data limitations make it impossible to reach definitive conclusions about the characteristics of certificate programs that have a high probability of significantly increasing earnings for participants. . But the general message of the available data is that certificate programs in a wide range of 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 are not. That said, opening the door to funding of a wide range of short-term programs risks funding many programs that do not significantly contribute to students' prospects for stable and remunerative careers, or even increases in earnings above current levels.

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 in for-profit institutions tend to lead to lower earnings than those earned in public institutions. Accountability measures directed at these variables are likely to be more effective than the current 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 and complete their

programs. However, expanding Pell eligibility may not be the ideal solution. It might be better to expand programs designed specifically 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 fund programs approved for this specific 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 new programs that have the potential to make them financially secure. This puts the focus back on Title IV.

DATA SOURCES

In addition to our review of results from the earlier literature, we provide our own estimates from three data sources: The National Postsecondary Student Aid Study (NPSAS) 2016[1] and the Beginning Postsecondary Students (BPS) Survey, 2003–04 and 2011–12 cohorts, administered by the US Department of Education;[2] and The Adult Training and Education Survey (ATES) of 2016, administered by the US Census Bureau of the Department of Commerce.[3]

We present descriptive empirical results from these data sources—including summary data and some regression results. These are not rigorous causal estimates, but instead provide some broad background on certificate students and their labor market earnings. These data are useful complements to the existing research literature, particularly as they shed some light on the employment and financial outcomes of certificates of different lengths.[4]

BPS includes only data on students who are enrolled in a postsecondary education institution, so we can only compare outcomes for certificate completers to noncompleters, rather than to students

[1] 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 (NCES Handbook of Survey Methods, 2018, "National Postsecondary Student Aid Study (NPSAS)," https://nces.ed.gov/statprog/handbook/pdf/npsas.pdf)/

[2] 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 re-interviewed twice—once in the third year and once in the sixth year, regardless of whether they were still enrolled or not. The analyses below reply primarily om the final year of the second cohort, 2016–17. We also use data on student debt repayment and default from the 2003/09 BPS 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 over 22,000 were re-interviewed by 2016–17.

[3] The ATES data are drawn from a one-time cross-sectional survey of US adults ages 16 to 65, administered in 2016 to over 45,000 people. The survey focuses on any education or job training individuals 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/labor force status.

[4] Each of the datasets we use 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. It provides detailed data on enrollments and completions, as well as early post-college 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—over 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 as well.

with only high school education. As we note below, comparisons to those with only high school generate larger (and likely upwardly biased) estimates of certificate earnings effects, while comparisons to the noncompleters in similar educational programs generate smaller (and likely downward biased) estimates.

In contrast, the ATES data cover the full range of educational attainment outcomes, from high school dropouts to those with advanced postsecondary degrees. The sample size is large and representative of the US noninstitutional population and 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.[5]

At the same time, the ATES data only measure educational attainments—they tell us nothing about those who enrolled but did not complete higher education, nor about completion rates and any other outcomes during the period of enrollment or soon after.

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

I. Certificates: Who Has Them, Where Do Students Earn Them, How Do Enrollees Pay for Them, and What Is Their Labor Market Value?

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

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

A. Which Adults Have Earned Certificates?

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. A large majority of certificates earned—59 percent of all certificates and 64 percent of those held by adults without AAs—were not for credit.

[5] Since we don't know exactly the age at which respondents have finished their final credentials, we don't exactly have estimates of long-term impacts. But, since the vast majority of credential attainers have finished their higher education by age 40, and the median age in our sample is 44, we believe observe relatively long-term outcomes for most certificate attainers.

Source: ATES 2016, calculations by the authors.

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)
Total 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%

This is important, as some (usually administrative) education data on certificate attainment omit those that are not for academic credit. Nearly two thirds (and 69 percent among adults without AAs) required less than a full year of study; nearly half required less than a half year (480 hours) (table 1).

When estimating the returns to certificate holders, the results are very different when the comparison is to the large share of Americans with no college as opposed to the 15 percent of adults who enrolled in college but did not complete a credential.

Slightly larger shares of women than of men and of adults age 45 or 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 across age and racial/ethnic groups. A larger share of certificates earned by older adults than by younger adults were noncredit. Asian and Native Hawaiian/Other Pacific Islander certificate holders are most likely to hold noncredit certificates (table 2).

About half of all certificates are in either healthcare or mechanical fields.[6] The third most common field is business. A very small share is in academic rather than occupational 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 (table 3). 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 fields is very different for men and women, with the share held by men ranging from 13 percent in healthcare to 91 percent in mechanical fields (table 3).

Table 2: Certificate Attainment, Credit Status and Hours by Demographic Group
The share of adults holding certificates varies by race and ethnicity.

[6] "Mechanical" includes construction, manufacturing, transportation and logistics.

			Share with Certificates					
		Total (1)	For Credit (2)	Not for Credit (3)	960+ hours (4)	480-959 hours (5)	160-479 hours (6)	Less than 160 hours (7)
Sex								
Male		13	36	64	30	19	14	36
Female		15	37	63	32	19	14	35
Age Group								
25-44		13	44	56	30	23	12	35
45-64		15	31	69	32	17	16	35
Race/Ethnicity								
White	s	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: American Training and Education Survey (ATES), 2016.

Notes: All numbers refer to percentages. Column 1 contains the percentage 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%. Columns 4-7 contain the share of certificate holders by the length of certificate program. Rows across columns 4, 5, 6 and 7 sum to 100%.

Table 3: Certificate Fields of Study

The most common fields for certificates are healthcare and mechanical studies.

		Types of Certificates						
		Share of Total (1)	For Credit (2)	Not for Credit (3)	960+ hours (4)	480-959 hours (5)	160-479 hours (6)	Less than160 hours (7)	M (
Field of Study								
Healthcare	22	45	55	34	25	14	27	
Mechanical	26	29	71	32	16	14	37	
Technical	9	39	61	29	21	13	37	
Business/Administrative	16	41	59	32	17	13	38	
Culinary/Cosmetology/Funeral Services	7	24	76	48	25	8	20	
Law Enforcement	6	26	74	8	24	27	41	
Liberal /Fine Arts/Education	3	51	49	38	11	5	46	
Other	10	35	64	23	10	19	47	

Source: American Training and Education Survey (ATES), 2016.

Notes: All numbers refer to percentages. Column 1 reports the percentage of certificate holders by field of study. Column 1 sums to
Columns 2 and 3 report the share of certificate holders who completed for-credit and not-for credit certificates. Rows across colum
to 100%. Columns 4-7 report the share of certificate holders by the length of certificate program. Rows across columns 4, 5, 6 and
Columns 8 and 9 report the percentage of certificates holders who identify as male and female, respectively. Rows across columns 8
100%.

B. How and Where Do Students Get Certificates? Enrollments and Completion

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; the share earned at for-profit institutions fell from 42 percent to 27 percent over the decade (*Digest of Education Statistics 2019*, table 318.40).

Before reviewing the existing studies of the labor market returns to postsecondary certificates, it is useful to ask about 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 institutions accrue significantly larger amounts of debts than those attending public colleges.

1. Enrolled Student Characteristics

In 2015–16, 18 percent of degree-seeking sub-baccalaureate students were in 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. Although the gender and racial/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). Over half of the students in associate degree programs were age 23 or younger; 30 percent of certificate students were in this age group and one-third were over the age of 30. Consistent with the age differences, certificate students were less likely than associate degree students to be dependent for financial aid purposes and were significantly more likely to have dependents of their own (table 4).

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 (18%)	Associate degree (82%)
Institution sector		
Public	53%	90%
Private nonprofit	6%	3%

Private for-profit	41%	7%
Gender		
Male	41%	43%
Female	59%	57%
Race/ethnicity		
White	48%	48%
Black	20%	16%
Hispanic	24%	24%
Asian	5%	6%
Other	4%	5%
Parents' highest education level		
HS or less	32%	29%
Vocational/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 either parent's education level	1%	1%
Age		
23 or younger	39%	53%
24 to 30	27%	23%
Over 30	33%	24%
Dependency status		
Dependent	28%	43%
Independent without dependents	32%	29%
Independent with dependents	41%	29%

Source: NPSAS 2016, PowerStats, calculations by the authors

2. *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 or for-profit institutions. However, as discussed in more detail below, some recent research finds that for-profit certificates 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 that sector.

In 2015–16, 49 percent of women in certificate programs attended for-profit institutions, compared with 29 percent of men. This difference is related to gender differences in fields of study. For example, the majority of 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).

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 their certificates at for-profit institutions.

	Share for-profit
All	**9%**
Subbaccalaureate	12%
Subbaccalaureate occupational	16%
Certificate	37%
Occupational certificate	40%
Certificate Students	
Gender	
Male	29%
Female	49%
Age	
Younger than 24	44%
24–29	44%
30 or older	35%
Race/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 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, &science technologies	17%
Healthcare	51%
Manufacturing, construction, repair, & transportation	29%
Protective services	5%
Public, legal, and social services	16%

Source: NPSAS 2016 calculations by the authors; NCES Career and Technical Education Statistics, Postsecondary /College Tables, https://nces.ed.gov/surveys/ctes/tables/index.asp?LEVEL=COLLEGE.

3. Completion Rates

A larger share of students enrolling in certificate programs than of those enrolling in associate degree programs complete their programs within six years: 56 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, those from small racial/ethnic groups, veterans, and students from households with incomes above the 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, the sectoral differences (i.e., public versus private for profit versus private non-profit institutions) in completion rates 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 institution.

However, 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 Appendix for regression results.) Students pursuing certificates in different fields also had similar probabilities of completing, with the exception that those majoring in general studies, humanities, and social sciences were less likely than others to earn a credential within six years of enrolling. Independent students with dependents, Black students, and student 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.

	Share completed	
	Associate	Certificate
Total	**39%**	**57%**
Sector		
Public	39%	48%
Private not-for-profit	42%	66%
Private for-profit	43%	61%
Age		
20 or younger	41%	56%
21 to 29	32%	58%
30 or older	36%	58%
Race/Ethnicity		
White	42%	58%
Black	29%	45%
Hispanic	37%	61%
Asian	49%	40%
Other	42%	68%
Veteran Status		
Not a veteran	39%	57%
Veteran	38%	69%
Household Income		
At or below poverty	33%	52%

101-150%	35%	62%
151-200%	35%	69%
201% or above	47%	60%
No dependents	41%	59%
Has dependents	31%	54%
Dependency status 2011-12		
Dependent student	42%	59%
Independent student	32%	55%
Dependent Students' Parents' Incomes		
Less than $30,000	36%	56%
$30,000-63,499	41%	66%
$63,500-106,999	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: National Center for Education Statistics, Beginning Postsecondary Students Longitudinal Study, 2012/17, calculations by the authors.

C. How do Certificate Students Pay for their Education? Grants, Loans, and Default Rates

Because of their socioeconomic circumstances, many certificate students are dependent on financial aid to pay for their education and support themselves while they are in school. Despite the short length of the 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 much 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).

Table 7: Student Aid:2015–16 Certificate Students

Less than half of all certificate students receive federal student aid.

		All			Dependent			Independent		
	Applied for federal aid	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/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%
American Indian/Alaska Native	65%	41%	48%	80%	NA	NA	NA	42%	46%	81%
Native Hawaiian/ Pacific Islander	43%	58%	38%	72%	NA	NA	NA	58%	39%	74%
More than one race	67%	42%	47%	59%	44%	40%	56%	41%	51%	60%
Gender										
Male	59%	55%	35%	75%	49%	38%	68%	57%	33%	78%
Female	73%	41%	51%	60%	37%	49%	55%	42%	52%	62%

Source: National Center for Education Statistics, National Postsecondary Student Aid Study 2016

1. *How much debt do certificate recipients accumulate?*

Students from for-profit schools leave with much larger amounts of 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 of certificate recipients 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 began in a certificate program but 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 the students who completed certificates at for-profit institutions—who comprise more than half of those earning these credentials.

Table 8: Cumulative debt Levels of Students Who First Enrolled in Certificate Programs in 2011–12

Debt levels are highest 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						
All	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						
All	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	19%	23%	30%	16%	6%	6%

Source: National Center for Education Statistics, Beginning Postsecondary Students Longitudinal Study 2012/2017, calculations by the authors.

2. 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. This includes 21 percent of borrowers who earned certificates—a much larger share than among associate and bachelor's degree recipients. Because certificates require less time 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).

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.

	Share defaulting	
	2011–12 cohort, 6 years	2003–04 cohort, 12 years
All	17%	28%
Bachelor's	1%	8%
Associate	9%	21%
Certificate	21%	46%
No degree	41%	40%
Borrowers Who Completed Certificates		
Sector		
Public	29%	35%
Private nonprofit	42%	31%
For-profit	35%	53%

Source: National Center for Education Statistics, Beginning Postsecondary Students Longitudinal Study 2004/09 and 2012/2017, calculations by the authors.

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

Those 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.

D. How Much Value Do Short-Term Certificates Have in the Labor Market?

1. Literature Review: The Earnings Associated with Short-Term Certificate Recipients

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 data that are available on earnings of certificate holders do not distinguish between shorter- and longer-term certificates or between non-credit and for-credit certificates. Much of the existing 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 (ATES) shed some light on these categories.

Analyses of the payoff to certificate programs focus on the earnings levels 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 or not 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 to the earnings of those who enroll in certificate programs—whether or not they complete those programs? To what extent do the higher completion rates of certificate programs relative to associate degree programs narrow the earnings gap between these alternative paths? As noted above, about 60 percent of students who first enroll in certificate program 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 to higher education have focused on degrees, at community colleges as well as four-year institutions. Indeed, it has been well established that associate degrees provide significant returns to workers, 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 to bachelor's degrees and particularly advanced degrees have grown most (Autor, 2014), reflecting higher relative labor demand for these with advanced postsecondary skills; yet the return to 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 those 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 last decade or so, interest in the labor market value of certificates has grown. The number of workers with these credentials has risen over time; certificates are now a primary workforce credential for those 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, a number of studies in the past decade have provided estimates of labor market returns to both shorter- and longer-term certificates. Estimates of the labor market value of short -term certificates have been mixed, for a number of reasons.

First, the data used to estimate these returns are quite varied; they include both cross-sectional and longitudinal survey data, as well as administrative data linking individual higher education outcomes to earnings records from public sources.

Survey 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 time 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 (though not all) studies using administrative data are from individual states, generating a lot of cross-state variation in outcomes.[7]

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.[8] Studies also use different definitions to define short-term—frequently less than a year, but sometimes less than six months or requiring a small number of credits.

Second, studies use different statistical methods. Some only compare summary earnings outcomes of certificate holders to those with high school or associate degrees; others 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 difference" 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. However, there is some question as to whether fixed effects estimates are appropriate for these studies, since 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 traditional age students—are employed only in low-wage and part-time/part-year service jobs before college.

[7] The cross-sectional survey data from which estimates are generated include the American 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).

[8] When using state-specific longitudinal data, researchers can often follow students who leave the state for college using the 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. To date, only the micro data of the Longitudinal Employment Household Dynamics (LEHD) at the Census Bureau follow workers across states, and access to these data is restricted.

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 the problem of differences in student quality and in other forms of self-selection into groups with more or less educational attainment.[9] 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 some important light on the returns to postsecondary certificates.

Third, and perhaps most important, the reference group to which certificate holders are compared varies across studies. Some use high school graduates or even those with GEDs, while others use community college students who do not complete any credential. Studies using GEDs generate the largest returns, since 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 non-completers, who may be systematically different from those who never even attempt college. In studies that don't control for achievement or other personal characteristics that may differ significantly between community college enrollees and non-enrollees, the estimated returns to certificates relative to high school graduates will be biased upwards.

Community college enrollees who complete 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 non-completers and certificate completers. In addition, the value of any credits earned by the non-completers would be deducted from the value of those earned by completers, also generating some downward bias.[10] And, from a policy point of view, high school graduates and those 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.[11]

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

[9] 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 very similarly on some key outcome, but one gets access to a treatment almost randomly and the other does not. The DD method used in the non-experimental 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.

[10] The more credits that have been accumulated by the non-completers, the more the estimate 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.

[11] Scott-Clayton and Wen (2018) consider the directions and biases generated in these studies. They specifically note the full range of upward and downward biases noted here and argues that they are fairly comparable in magnitude.

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

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

Review of Studies: Survey and Administrative Data

Table 10 lists the relevant studies of earnings of certificate holders relative to those with other levels of education. Part A of the table lists studies using survey data; Part B includes those based on administrative data. For each study, column 2 specifies whether the study separated short-term from other certificates and summarizes the available findings about the positive earnings effects of 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; for administrative data, it lists the states from which the data come. The survey data include certificates from for-profit and private nonprofit 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

The existing studies differentiating the earnings returns of certificates by program length show mixed results .

Part A: Survey Data Literature
Comparison Group: High school graduates

Study	*Effects of Short-Term Certificates*	*Relevant Survey*
Bailey, T., Kienzl, G., & Marcotte, D. (2004).	N/A	Several longitudinal surveys of youth
Burns, R., & Bentz, A. (2020).	N/A	Beginning Postsecondary Students Longitu
Carnevale, A., Rose, S., & Hanson, A. (2012).	Positive effects	Survey of Income and Program Participatio
Kim, C., & Tamborini, C. (2019).	N/A	SIPP (linked to Social Security Earnings Da

Part B: Administrative Data Literature
Comparison group: Students who left community colleges without completing a program

Study	*Effects*	*Relevant Administrative Data*
Backes, B., Holzer, H.J., & Velez, E.D. (2015).	N/A	Florida
Bahr, P.R., Dynarski, S., Jacob, B., Kreisman, D., Sosa, A., & Wiederspan, M. (2015)	Mixed effects	Michigan
Belfield, C., & Bailey, T. (2017) T	Mixed effects	Summary of results from Arkansas, Californ Michigan, North Carolina, Ohio, Virginia, W
Bettinger, E., & Soliz, A. (2016).	N/A	Ohio
Cellini, S.R., & Turner, N. (2018)	N/A	U.S. Department of Education and IRS data
Dadgar, M., Trimble, M. J. (2014).	No significant effect	Washington
Holzer, H.J., & Xu, Z. (2019).	Positive effects	Kentucky
Itzkowitz, M. (2020).	N/A	Integrated Postsecondary Education Data
Jepsen, C., Troske, K., & Coomes, P. (2014).	Small positive effects	Kentucky
Minaya, J., & Scott-Clayton, J. (2016)	Mixed effects	Texas
Stevens, A., Kurlaender, M., & Grosz, M. (2015).	Positive effects	California
Liu, Y.T.V., Belfield, C., & Trimble, M. (2015).	Mixed effects	North Carolina
Xu, D., & Trimble, M. (2016).	Small positive effects	North Carolina and Virginia

Note: 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" 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" indicates larger significant effects.

Survey data

The majority of the studies using national survey data on adults show that those who have completed certificates (of any length) earn about 10 to 20 percent more in the labor market than high school graduates.[12] 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;[13] the results also depend on whether or not 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 studied, as well as the methodologies, can lead to inconsistent results.

In contrast to the generally positive outcomes relative to high school graduates, 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 with certificates only.

[12] A number of papers use the 2008 panel of the SIPP, since it contains unusually detailed information on certificate attainment, including the amount of time needed by students to complete these credentials. A SIPP panel consists of a large and representative population of individuals (age 15 and higher) who are asked extensive questions about their use of public programs, along with other demographic and labor market information. Each SIPP panel is re-interviewed about every four months for a period of roughly four years.
[13] Results in Bailey et al. using the ELS or NLSY data for earnings after certificate completion bounce around somewhat. Apparently analyses of young students who have recently left college for the labor market are very sensitive to who remains enrolled and who does not, generating samples whose results are not very credible.

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 all postsecondary credentials (as well as of having attended college without earning a credential). Although they are unable to differentiate certificates by program length, their results clearly show, in both summary and regression-adjusted data, that certificate attainers outpace high school graduates in earnings—with male certificate attainers earning about 20 percent more than high school graduates, and women's earnings premium being closer to 10 percent.

At least part of the higher impact for men reflects their chosen fields of study. Men are more likely than women to pick technical fields or those in construction, manufacturing, transportation, and logistics. Certificates in all of these fields tend to pay well. Interestingly, certificates in health care can be of either low or high value, with workers more likely to earn low-paying certificates for careers as nurse or medical assistants, while those choosing technical work such as being an x-ray technician earn more.[14]

Of the survey studies listed, only Carnevale et al. 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 male and female short-term (less than one-year) certificate holders earned about $44,000 and $27,000 in 2009, respectively, with the former clearly being higher than the $35,000 median earnings among male high school graduates, but the earnings for women only slightly higher than the $24,000 median for high school graduates.[15] Carnevale et al. also report earnings data for short-term certificates in many fields that clearly 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 required. To date, none of the survey-based studies separate earnings effects of certificates earned at private for-profit institutions from those earned at public institutions.

A few caveats are important at this point. Most studies of annual earnings omit respondents with no earnings in the previous year, since it is likely that many have left the labor force. Labor force participation has dropped quite dramatically in recent decades for male high school graduates, whose inflation-adjusted earnings have stagnated over time, relative to other demographic groups.[16] Had these studies included some of the nonworkers still marginally attached to the workforce, or if effects on employment as well as earnings were calculated, average earnings of high school graduates would likely fall most, increasing the estimated gaps between those with certificates and high school graduates.

As noted earlier, 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 to those who have enrolled and earned certificates, since those not enrolling in postsecondary programs likely lag behind in both cognitive and noncognitive skills, including ambition. On this issue, Carnevale et al. show that literacy test scores of certificate earners are nearly identical to those of high school graduates, while

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

[15] Median earnings for the entire population that year are approximately $27,000; they are significantly higher than that for males and lower for females.

[16] For recent studies of the rising trends over time in labor force non-participation include Krueger (2017) and Abraham and Kearney (2020).

those 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 of 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 (BPS).

Since the BPS includes only students who have enrolled in college somewhere, it is not possible using these data to compare certificate earners to non-enrolled high school graduates. Instead, Burns and Bentz compare them to other students enrolled in certificate programs who did not complete credentials. Despite the evidence on the similarities between high school graduates and certificate students found in Carnevale et al, non-completers 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 non-completers and completers bring to the labor market will be cancelled out in such an analysis, perhaps causing downward bias in measures of certificate impacts on earnings.

Burns and Bentz 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 from their samples, which could cause additional biases in the results (as we noted above). Still, this study yields some interesting findings.

On the one hand, certificate earners have significantly higher employment rates right after college than noncompleters who have left college—with 72 and 59 percent of these groups respectively reporting employment. This finding suggests that studies omitting zero earners might understate the impact 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 don't, with each group reporting median earnings of about $20,000. To the extent that some of those now reporting earnings were enrolled in college during the previous year, their annual earnings may be downward biased, especially among the certificate completers.

When Burns and Bentz cut their sample in a variety of ways, earnings differentials between certificate completers and non-completers do appear. For instance, *within* samples of both males and females, those who earned certificates earn more than those who did not.[17] Also, within occupational categories for certificate students—in this case, health care and manufacturing—completers outperform non-completers in the labor market. Burns and Bentz do not present earnings data separately for those who have earned certificates at public versus private for-profit institutions (though these data are available in the BPS) or distinguish between shorter- and longer-term certificates.

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

In sum, most studies based on survey data do not differentiate certificate programs by their 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 10–20 percent relative to high school graduates, by less relative to adults who enrolled in college but left without a credential after less than a year, and not 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 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 (2020)—that compares earnings among certificate holders (with all program lengths) with those of typical high school graduates. His findings are based on aggregate IPEDS data from institutions, rather than individual-level student or worker data. He finds that, six years after enrollment, the majority of certificate completers at most institutions did not earn more than the national median high school graduate; this outcome was much more prevalent among students from for-profit than 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.[18]

Of the studies using individual level state administrative data, only Backes et al. (2015) and Holzer and Xu (2019) compare earnings of certificate holders to those of high school graduates; both studies find substantial earnings gains associated with certificates. Backes et al. control for a wide range of personal and academic characteristics, including test scores, and find average earnings premia in the range of 20–30 percent for certificates overall in Florida. In contrast, Holzer and Xu could only provide 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 males and 23 percent among females. The average earnings premium for (longer-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 earning includes those associated with the Center for the Analysis of Postsecondary Education and Earnings (CAPSEE), among others.[19] These studies, all of which are summarized in Part B 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 to community college enrollees who have not completed any credential.

Unlike Burns and Bentz, the comparison group does not distinguish between non-completers who were enrolled in certificate programs and those in associate degree programs; as a result, the

[18] In particular, Itzkowitz' finding cannot differentiate between larger and smaller institutions (so students who attended smaller 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.

[19] Among the state-specific econometric studies discussed here, only Stevens et al. was not part of the CAPSEE group. Below we also report results from Xu and Trimble, summarizing results in separate studies of North Carolina and Virginia by Liu et al. and Xu et al.

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 on only those who attend public community colleges, omitting for-profit certificates, which might affect earnings differently (as we discuss below).

A good review of the results of eight CAPSEE studies appears in Belfield and Bailey (2017).[20] They summarize the estimated effects of sub-BA community college credentials—both certificates and associate degrees—on the earnings of students five to nine quarters (or roughly one to two years) after finishing school. They note that all of the authors estimate "difference in difference" (or DD) 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, as well as broken down by gender.

This review does not differentiate between short-term and longer-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 and $740 per quarter for men and women respectively, or about $2,000–$3,000 per year, raising earnings by at least 7 to 10 percent and likely more.[21] Separate results by gender vary a great deal across states, with the earnings premium over non-completers larger for males in some states and females in others. In a few but not all 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 premia, as do those in business and law enforcement as well as manufacturing/construction/transportation. Certificates in health care again show high variance (with those in more technical fields generating higher pay and those in nursing assistance paying less).[22]

Some studies using administrative data do generate separate impacts for short-term certificates; these include Bahr et al. for Michigan, Xu and Trimble for North Carolina and Virginia, Stevens et al. for California, and Jepsen et al. for Kentucky (where certificates denote short-term credentials and diplomas are longer). 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, or under two-thirds of a year. But Bahr et al. define short-term as those requiring 15 or fewer credits (or roughly one semester of full-time attendance), while Stevens et al. estimate separate effects for 18–29 (under two semesters) and 6–17 credits (about one semester or less).

The results of these studies vary a great deal. Some, including Dadger and Trimble, find no significant impacts of short certificates. In others, such as Jepsen et al. and Xu and Trimble, estimated effects

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

[21] These estimates of earnings impacts are based on all credential non-completers in community colleges, rather than only those in certificate programs (the comparison used by Bentz and Burns). Almost certainly, comparisons with the latter would generate larger certificate impacts.

[22] Data on detailed occupations within health care are available annually in the Occupational Employment Statistics (OES) of the Bureau of Labor Statistics.

are quite modest, in the range of 2–7 percent increases in quarterly or annual earnings. Some studies find positive effects for men but not women. For example, Bahr et al. find estimates of about 8 percent only for men with short-term certificates. Bettinger and Soliz estimate no consistent impacts for women in Ohio but quite large impacts for men (40 percent or more), On the other hand, Minaya and Scott-Clayton find modest impacts of short-term certificates, but only for women.

Stevens et al. find average estimates of 17 and 13 percent earnings premia for certificates in California requiring 18–29 and 6–17 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 variance in certificate impacts across fields, with men more frequently choosing the higher-impact fields.

It is important to remember that these results might well understate the true impacts of short-term certificates for two reasons: 1) They usually include in the reference group all non-credential completers at community colleges, many of whom might have enrolled in associate rather than certificate programs;[23] and 2) Any credits and skills attained by these non-completers are deducted from the estimated impacts of completers. It is likely that the true impacts of certificates fall somewhere in between the estimated premia relative to high school graduates (which may be biased upwards) and those relative to college non-completers.

Another reason that these estimates might be understated is that they include only those showing earnings in the relevant post-college time period. Quarters with no earnings tend to be omitted from the analysis. But Xu and Trimble, as well as Jepsen et al. and Minaya and Scott-Clayton, estimate impacts on the probabilities of quarterly employment as well as 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 in which these estimates might overstate the overall impacts of certificates, especially shorter-term ones. The omission of credentials from private for-profit institutions might well raise the average, since recent evidence suggests they have lower (if any) labor market value than those from public institutions. Two very different studies—one using administrative data linked to IRS earnings data (Cellini and Turner, 2018) and the other using experimental data (Deming et al., 2017)—have found these differential estimated impacts. These issues are relevant for evaluating public policy options.[24]

In addition, all of 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 very specific workplace tasks that regional employers demand but have relatively little academic content and little portability across

[23] Holzer and Xu op. cit. note that students in community colleges frequently enroll in associate degree programs but shift to certificates after some time.

[24] Cellini and Turner, using micro data from the US Department of Education on type of institution attended linked to IRS earnings data, show both lower employment rates and lower earnings for those who attended for-profit institutions than for public college attendees. Deming et al. sent fictitious resumes with credentials attained at either online for-profit or nonselective public institutions to real online job postings in business and health care. The resumes showing for-profit credentials earned fewer callbacks in both sectors.

sectors.[25] How to treat noncredit credentials is another important dimension to the policy debate, as we note more fully below.

In all, these estimates suggest that many certificates—especially shorter-term ones—generally have modest impacts on earnings, and that the average earnings associated with associate degrees—and probably longer-term certificates—are clearly greater. However, the 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, op. cit.).

One more caveat must be kept in mind: for less-prepared students, *the probability that they will complete the credential is higher in certificate than in associate degree programs*; and therefore the *expected values* of certificates—where the earnings gains of various credentials are weighted by their probabilities of attainment—compare more favorably to those of associate degrees than the earnings premia among those who complete them imply.

As noted above, in the BPS data, six-year completion rates are nearly 60 percent for certificates, compared with under 40 percent for those 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).

Since the costs of attaining certificates—both in terms of requirements for completion and possibly foregone earnings and direct expenditures—are lower than for associate degrees at similar institutions, it makes sense that many students with weaker academic preparation might choose certificate over associate degree programs, despite the larger earnings premia associated with the latter.[26] 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 fully 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—high school graduates or community college non-completers—as well as on the data and methodology. The general consensus is that, 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; and, since completion rates in certificate programs are substantially higher than in associate programs, while costs (in time and money) are lower, the expected values of certificates (especially net of costs) are closer to those of associate degrees than the earnings differences alone suggest.

[25] See, for instance, Van Nuys (2008). Noncredit programs often reflect local industry needs; for example, Macomb Community College in the Detroit suburbs have many programs generating technicians for the auto industry.

[26] According to Minaya and Scott-Clayton (2017), in Ohio associate degree completers took an average of 3.9 years to graduate; those in short certificate programs, defined as less-than-one-year in length, took an average of three years, and longer certificates an average of 3.8 years from initial entry to completion.

Most (though not all) studies that focus specifically on short-term certificates (requiring a year or less of full-time studies and sometimes less than that) find smaller but still positive average impacts on earnings. But the variance 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 the extent to which returns vary between programs of different lengths and have little or nothing to say about noncredit programs. Moreover, all of these studies focus on certificates awarded by accredited non-profit postsecondary institutions, not alternative providers, or even for-profit institutions

2. Employment and earnings of certificate holders: New evidence

The Adult Training and Education Survey (ATES) provides a unique source of information about adults with postsecondary certificates and other types of workforce training. It provides a snapshot of earnings and employment in 2016 by type of educational experience. Of particular importance 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 or not they are for credit.

Before detailing findings from the ATES survey, we provide some background from the BPS data. In contrast to ATES, it includes only recent certificate attainers and provides information only on early-career outcomes. BPS also does not enable us to distinguish short-term certificates from longer-term or for-credit from noncredit. It also only allows us to compare certificate completers to non-completers (as opposed to those who never enroll), generating a likely downward-biased estimate of the return to certificates.[27]

However, BPS allows us to distinguish between those who earn their certificates at public colleges and those who attended for-profit institutions. It also provides information about individuals who began certificate programs but did not complete them and allows comparison 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 college in a certificate program in 2011–12 and graduated (71 percent) was lower than the employment rates of those who completed associate and bachelor's degree program (76 percent, 77 percent). Non-completers 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 systematic 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: 2017 Employment Status of 2011–12 Beginning Students

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

Those 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, percent in job related to major
Certificate		
Completers	71%	54%
Non-completers	59%	32%
Associate degree		
Completers	76%	50%
Non-completers	70%	22%
Bachelor's degree		
Completers	77%	65%
Non-completers	73%	27%

Source: NCES, BPS 2012/17, calculations by the authors

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 non-completers. The difference between the two groups from associate degree programs was larger. However, dividing by gender reveals that male certificate completers earned significantly more than non-completers. Female completers were more likely than non-completers to earn $30,000 or more six years after beginning certificate programs (24 percent versus 19 percent).

Table 12: Earnings in 2017 by gender and degree attainment : Students first enrolling in 2011–12

Men who dropped out of certificate and associate degrees 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
ALL				
Certificate				
Completers	34%	29%	20%	18%
Non-completers	34%	32%	20%	14%
Associate Degree				
Completers	27%	29%	19%	24%
Non-completers	32%	32%	20%	16%
MALE				
Certificate				
Completers	14%	24%	25%	37%
Non-completers	25%	21%	30%	24%
Associate Degree				
Completers	23%	21%	21%	35%

Non-completers	23%	27%	24%	26%
FEMALE				
Certificate				
Completers	41%	36%	16%	8%
Non-completers	41%	41%	13%	6%
Associate Degree				
Completers	44%	32%	17%	7%
Non-completers	42%	36%	15%	7%

Source: National Center for Education Statistics, Beginning Postsecondary Students Longitudinal Study 2012/2017, calculations by the authors.

Both overall and in most fields, those holding certificates from public institutions earn more than those from for-profit institutions (table 13). For example, among STEM graduates, 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 public and 40 percent for-profit. Overall, 38 percent of those with certificates from profit for-profit institutions and 29 percent of those from public institutions earned less than $30,000.

Table 13: Earnings by Field and Institutional Sector, 2011–12 Beginning Students Who Earned Certificates

In most fields, certificates from public institutions pay more than those from for-profit institutions.

	Share <$20,000	$30,000 to $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			
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: National Center for Education Statistics, Beginning Postsecondary Students Longitudinal Study 2012/2017, calculations by the authors.

ATES: Earnings of Certificate Holders Over Entire Career

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

Table 14: Employment and Median Earnings by Education Level

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

	Median Earnings	Percent Employed	Percent Unemployed	Percent 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 1 year college	$30,800	65	7	28
1 or more years college credit	$34,400	69	6	25
Certificate	$32,800	60	9	30
Associate's degree	$38,700	72	6	21
Bachelor's degree +	$57,400	79	3	18

Source: American Training and Education Survey (ATES), 2016.

Notes: ATES 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 hundreds. Rows may not add to 100% due to question nonresponse.

Table 15: Median Earnings of Certificate Holders by Field of Study

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

	Median Earnings
All certificate holders	$32,800
Credit Status	
For credit	29,900
Not for credit	34,700
Sex	
Male	44,300
Female	25,500
Field of Study	
Healthcare	24,100
Mechanical	44,000
Technical	42,000
Business/Administrative	31,700
Culinary/Cosmetology/Funeral Services	20,400
Law Enforcement	43,900
Liberal Arts/Fine Arts/Education	21,000
Other	33,600

Source: American Training and Education Survey (ATES), 2016.
Notes: ATES 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 hundreds.

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 earnings of the average adult with less than a year of college, but $1,600 less than the earnings of those with one year or more of college and no degree

(table 14).[28] Certificate holders are more likely to be unemployed or out of the labor force than those with some college but no credential, but less likely than workers with only high school education, to be in these circumstances.

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

In some of these fields—health care in particular—we find very high variance, according to data from the Bureau of Labor Statistics (BLS). 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.[29]

Examining Earnings Controlling for Student Characteristics

Regression analysis provides a deeper understanding of 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.[30] The analysis controls for education, race, 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, such as whether they are for academic credit, whether they are short-term or longer-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 kind of 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, 160–479, 480–959; 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 fields of study.

The results in Table 16 are for all workers; Table 17 separates workers by gender; and Table A.2 in the appendix separates workers by age group (44 or younger versus 45 or older).

Comparing the earnings of all certificate holders to those with high school diplomas or other levels of education while controlling for personal characteristics and hours/weeks worked, we find that certificate holders (without an associate degree) earn 10 percent more than high school graduates,

[28] The ATES survey 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.

[29] US Department of Labor (2020), *Employment and Earnings by Occupation,* Women's Bureau, https://www.dol.gov/agencies/wb/data/occupations.

[30] We used interval regression analysis, since ATES reports respondent earnings as one of a series of 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.

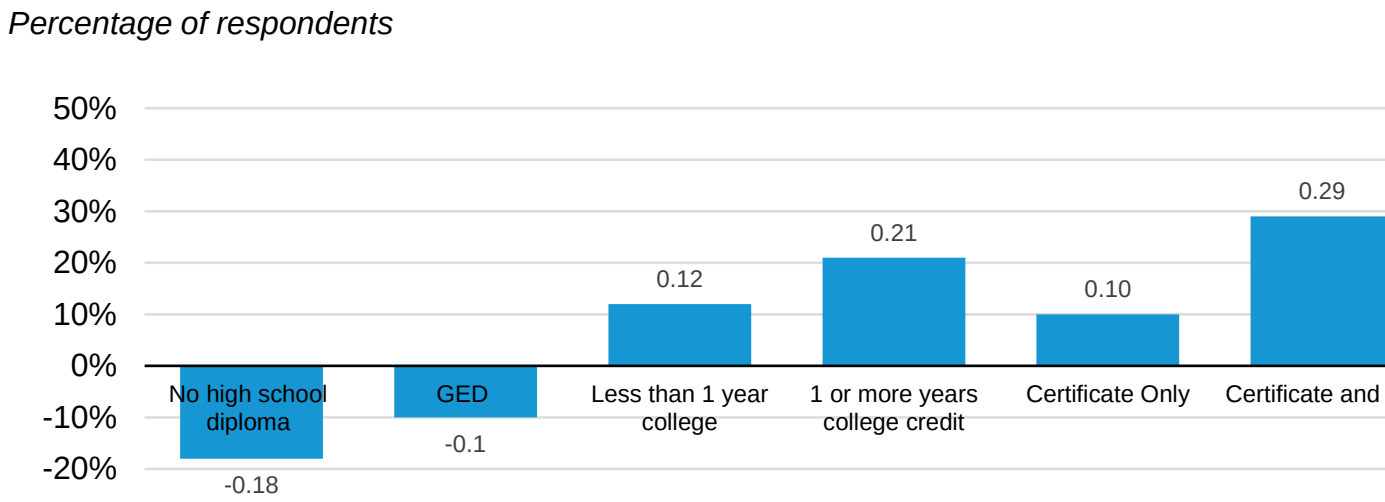
and roughly the same amount as those with less than a year of college and no degree. They also earn about 20 percent more than those with GEDs, who earn significantly less than those with high school diplomas. Those with a year or more of college earn more, as do those with associate degrees (figure 1).[31,32]

[31] We included separate dummies for those 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. Those with bachelor's degrees and higher were omitted from the sample.

[32] These estimated impacts might be biased upwards if the unobserved characteristics of workers with certificates are more positive than those who have high school only. On the other hand, the estimated impacts of certificates relative to GEDs are much larger than those reported in these tables, and perhaps some of this reflects real certificate impacts (as opposed to even weaker unobserved characteristics of the GED holders).

Figure 1 Earnings Differentials Relative to High School Graduates Associated with Educational Attainment

Average earnings of certificate holders are 10 percent higher than the average earnings of otherwise similar high school graduates (and 20 percent higher than the earnings of those with GEDs), but lower than earnings for those with year or more of college but no degree and those with associate degrees.



Source: American Training and Education Survey (ATES), 2016.
Note: Estimated impacts are from the first regression in Table 16.

Our regression analysis for the entire sample of workers (Table 16) indicates that the estimated effects of certificates on earnings vary with their characteristics. While the average effect is 10 percent relative to high school graduates (and considerably more relative to those with GEDs), for-credit certificates are associated with higher earnings than non-credit certificates, with earnings premia of 12 percent and 6 percent, respectively, relative to high school graduates. Of particular relevance for this policy discussion, certificates requiring more hours are associated with higher earnings than shorter-term certificates. Adults with certificates of less than 480 hours (about half a year) earn about 7 percent more than high school graduates; those with longer-term certificates earn about 10 percent more than high school graduates. However, the differences between short-term and long-term appears to be limited to non-credit programs.

Certificates in different fields are associated with widely divergent labor market outcomes. On average, adults with certificates in culinary services/cosmetology,[33] as well as liberal arts and education, earn less than high school graduates. On the other hand, those with technical certificates

[33] Culinary services, cosmetology, and funeral services are combined into one category because of small sample sized. 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.

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 Impacts of Certificates and their Characteristics on Earnings

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

	1	2	3	4
Variable	Coefficient			
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				.070 *
Healthcare				
Mechanical				
Technical				
Business				
Culinary, Cosmetology and Funeral Services				
Law enforcement				
Lib. Arts and education				-.
Other				

Source: ATES, 2016.

Notes: Regressions include respondents ages 25-64. The certificate group includes only those whose highest level of education is the certificate. All for age, race, sex, number of weeks worked each year, number of hours worked the previous week, employer training certificates, high school vocat certifications and licenses. Asterisks indicate significant coefficients at the .10 level or above.

The average returns to certificates also conceal significant differences by gender (table 17). On average, men with certificates earn 13 percent, ($3,800) more 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 non-credit certificates. Fields of study appear to pay off quite differently for men and women. Most notably, men with healthcare certificates earn less on average than high school graduates; the average earnings premium for women in these fields is small but positive. Women do poorly in mechanical fields—where they are a small minority. The largest earnings premia 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 males with certificates is larger than the earnings premium for women.

	1		2		3		4		5	
Variable	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Certificate	.128 *	.074 *								
For Credit			.143 *	.105*						
Not for Credit			.091*	.034						
160 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		
Healthcare									-.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: ATES, 2016.

Notes: Regressions include respondents ages 25-64. The certificate group includes only those whose highest level of education is the certificate. All regressions control for age, race, 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 .10 level or above.

Earnings premia for certificates also differ by age group (Table A.2 in the Appendix). The data do not allow us to distinguish between how the payoff changes over the workers' lives and how it differs across cohorts. But, the appendix table where the sample is broken down by age, indicates that adults between the ages of 25 and 44 with certificates earn 14 percent more than high school graduates after adjusting for other characteristics; those between the ages of 45 and 64 earn only 9 percent more. The difference between for-credit and non-credit 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 high school graduates. Technical certificates 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). While non-credit certificates provide earnings gains, especially for some sub-groups, including males and younger workers, the impacts of those for academic credit generally are larger. Certificates requiring more hours tend to have larger effects than shorter ones, but these differences are small and are not observed consistently across subgroups, or within the for-credit and non-credit

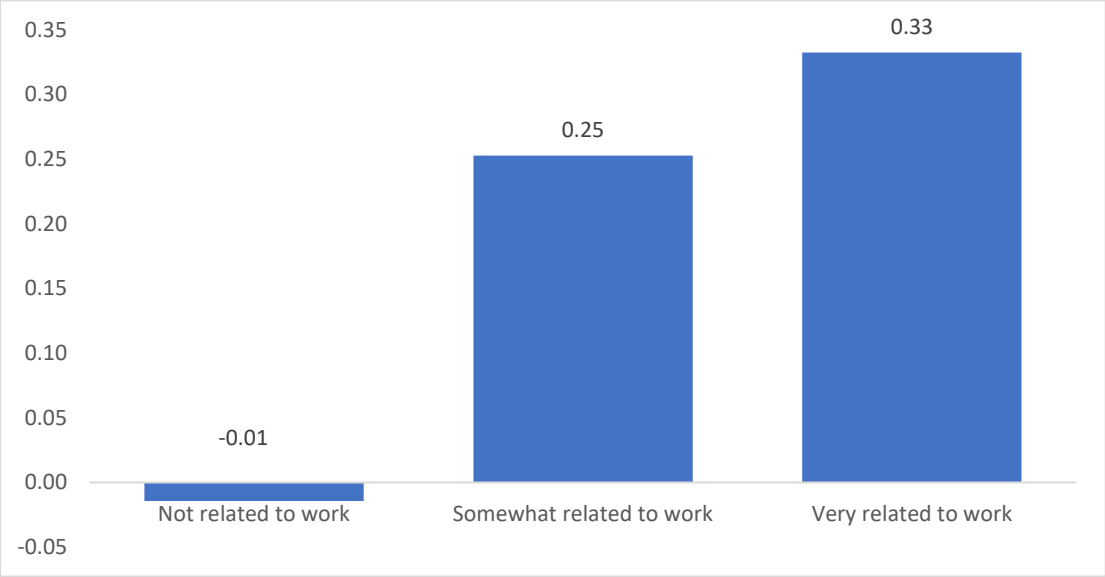
categories.[34] In contrast, gender matters a great deal—men are better rewarded in the labor market for the certificates they earn. Fields of study explain some of this difference, and certificate value depends on field of study for both men and women. but there are also gender gaps within fields,

We also performed regression analysis focusing only on certificate holders which confirms that average earnings of adults with for-credit certificates are higher than those for non-credit certificates. The most notable finding from this analysis is that adults whose jobs are related to their certificates get much higher earnings premia than others—30 to 36 percent versus 3 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.



Source: ATES, 2016.

Notes: Based on regression including only those who reported earning a college certificate with controls for race, sex, age, weeks worked per year, hours worked the previous week, employer training certificates, high school vocational certificates, and certifications and licenses.".

II. Policy implications

[34] Again, we note that differences in earnings effects between the hours categories might be downward biased due to errors in recall of exactly how many hours were required.

The evidence is clear that many postsecondary certificate programs increase the incomes of participants significantly beyond what they would earn with only a high school diploma or particularly 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 offering preparation for specific occupations should incorporate effective accountability measures, if only to ensure that poorly performing programs are improved or scrapped.

The population for whom certificate programs are 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 those between the ages of 25 and 34), most of these adults are not in a position to pay the bills 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 sufficient to generate an adequate standard of living for adults who do not have college degrees requires helping them to 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 existing 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 non-credit 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 the conclusion that *the best strategy at this point 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 160-479 hours and those requiring more than 480 hours, the existing 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 existing restrictions on length of program are arbitrary and no other approach to the funding of these programs is politically feasible, at least in the immediate future.

In this section, we discuss the relevance of the evidence in this report about differences associated with program length, credit status, and fields 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 to a great extent 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, as well as with better health outcomes, 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 society as a whole. Nonetheless, increased earnings are a primary motivation for students and supporting students to choose postsecondary programs that are unlikely to pay off for them in monetary terms 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. Students enrolled in programs of 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 existing 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 2/3 of a full year.

So, some programs widely considered “short term” already qualify for Pell grants. As detailed in the review of existing literature above, the evidence about the labor market returns to these programs is mixed. On average, they generate higher wages than those earned by 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 fields such as engineering or in technical jobs in construction, manufacturing or transportation/logistics tend to have relatively large earnings premia. Certificates in culinary arts and cosmetology do not pay off well for most recipients. And there is wide variation in healthcare fields—the most common area for certificate students.

Our analysis of ATES 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 to certificates for women. And for men, the earnings premia for shorter-term certificates are as high as the average returns to certificates of any length for women. Overall, length of program is far less of a predictor of earnings than either gender or field of study.

In other words, although some short-term certificates do not pay off well in the labor market, many 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 non-credit certificates are consistently lower than the earnings associated with for-credit certificates, though the estimated magnitude of the difference in returns is not very large. For younger workers, non-credit certificates generate average returns similar to for-credit certificates and for men, the average returns relative to high school graduates are also quite positive. Still, the lower overall average return for non-credit 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 for-credit programs.

A cautious approach

A number of proposals that seek to expand Title IV eligibility to shorter-time certificates would build in restrictions for quality control. For example, the bipartisan Senate JOBS Act of 2019 (JOBS Act S.839) proposes ensuring that students who receive Pell Grants are earning high-quality postsecondary credentials by requiring that, among other conditions, the credentials meet standards under the Workforce Innovation and Opportunity Act (WIOA) such as meaningful career counseling and aligning programs to in-demand career pathways or registered apprenticeship programs; aligning with the skill needs of industries in the state or local economy; approval by the state workforce board in addition to the U.S. Department of Education. The House College Affordability Act (College Affordability Act) stipulates that the newly eligible programs would have to be included on WIOA Eligible Training Programs lists and have annual earnings greater than the median earnings of people with only a high school diploma. 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 some caution. For instance, proposals in federal legislation that might 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 a great deal 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 in order for programs to be funded) that ignores these important sources of variation would not be appropriate. Using state-level wage standards, while appealing in the abstract, raises some red flags in reality. 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 those with a particular credential, but the extent to which that credential *raises* earnings (which is 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 those that help students with lower skills get the help they need to boost their earning power. And, unfortunately, 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).

Clearly, concerns about program quality are widely shared and designing effective guardrails is challenging. The evidence discussed in this report confirms that there is wide 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 too many programs. Just as the existing 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 appropriate opportunity to ensure the integrity of the whole program, particularly as it applies to students in non-degree 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 non-credit certificates is weaker than it is regarding for-credit programs. Although the substantive differences between for-credit and non-credit programs is are often minimal, and about

40 percent of community college students now are in non-credit programs (American Association of Community Colleges 2019), non-credit 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.[35]

We recognize that the line between programs that are for-credit and non-credit is not carved in stone, and, at the institutional level can be somewhat arbitrary, deriving from a desire to get a program established as quickly as possible. Indeed, funding only the former with Title IV would likely generate incentives and pressures on colleges to make some programs credit-bearing that should be non-credit, even when the latter could be set up more quickly and more flexibly, with fewer bureaucratic barriers and regulations, to meet current labor market needs.

At the same time, the existence of some non-credit programs with significant labor market rewards (especially for men and younger workers) generates a reasonable argument for providing some financial support to these programs and/or directly to their students. Below we discuss some other options for doing so, 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, as under current law. Other entities can certainly provide valuable occupational preparation, but the Pell grant program is specifically designed for college students attending institutions that have .

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, 2020). Our own analysis, detailed in this report, also indicates positive impacts of loans on completion, as well as lower default rates for students who borrow more, controlling for their other characteristics.

Still, high default rates among students who borrow for certificate programs—including those who complete credentials—raises serious questions about the existing practice of offering loans but not grants to students in some short-term programs and about any 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, those who complete certificates default at much lower rates than noncompleters. But over a 12-year period 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.

The majority of certificate 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 for-profit than among public college borrowers. In other words, the student loan issues related to

[35] We note that Bailey and Belfield (2017) show that relatively few students currently "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.".

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 300–600 hours does—is not a promising direction. 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 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 single-person household.

Making federal loans unavailable to students in short-term programs might be counterproductive, given the positive impact of loans on student success. However, 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 help to 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, the evidence cited above suggests that for-profit certificates generate lower average labor market returns. These institutions also charge much higher tuition than community colleges. It is not surprising, then, that students in this sector borrow significantly more than certificate students at public colleges and default rates in this sector are considerably higher.

This evidence suggests the need for the reinstatement of some type of "gainful employment" regulations to provide institutional accountability. Even outside of the for-profit sector, such accountability should limit the ability of institutions to offer programs with low completion rates and low earnings.[36] Applying such regulations at the *program*, rather than the *institutiona*l level, as was done in regulations issued by the Obama administration, more effectively accounts for the variation in outcomes across programs and fields, but could proved cumbersome to administer and generated 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 above provides strong evidence that field of study has very large effects on the earnings premia associated with certificate programs, especially short ones. Indeed, technical programs and those 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

[36] A number of researchers, including Miller (2013). Baum and Schwartz (2018), Matsudaira and Turner (2020), and Chou et al. (2017a) have made specific proposals about designing institutional accountability programs.

not. And a great deal of evidence suggests that while students may choose fields of study for other reasons 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 and/or more loans with higher default rates.

Students need better information and advice about labor market prospects for particular programs before they enroll. Just providing information on relative expected returns will likely not have a large impact on students' choices (Baker et al., 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 a trained and knowledgeable staff, either at community colleges or American Job Centers (formerly known as One-Stop offices). In addition to providing information about employment prospects, this guidance could improve the fit between students and programs by providing advice about academic requirements and the challenges students might face in meeting those requirements.

As many analysts have noted (Scott-Clayton, 2013; Bailey et al., 2015, Holzer and Xu, op. cit), lack of academic guidance at community colleges (in associate as well as certificate programs) likely reduces completion rates, as without that support students can meander aimlessly across programs or waste time in those for which they are not academically prepared. Appropriate guidance might raise completion rates, which in turn 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.[37] Indeed, requiring such guidance in order 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, Rethinking Pell Grants Study Group, 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 some additional funding for non-credit programs—especially if combined with effective regulations to prevent weak-performing institutions and/or programs from qualifying for federal aid, as well as the guidance needed to steer students towards programs with better labor market returns. And, even in the case of Pell-eligible for-credit programs, more institutional funding might 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.

[3737] Programs such as Accelerated Study in Associate Programs (ASAP), Stay the Course, and Inside Track have raised student completion rates cost-effectively in community colleges, though the evidence to date is mostly for associate programs.

Below we consider some 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 institutions [??]. Regardless of which approaches are ultimately implemented, it is critical that lower-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:

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

1. *Providing Alternative Funding Streams for Students*

Providing funding for workforce education programs a longstanding political challenge. Since the average returns to 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 non-college 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 those that are ineligible is arbitrary, provides an argument for expanding Pell eligibility rather than fighting for alternative funding for these students.

However, it would be problematic to expand Pell to cover non-credit 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 not subject to accountability standards. Moreover, adding to the programs Pell covers will increase its cost and could end up diminishing the funds available for students in for-credit programs.

But non-credit programs open doors to many students who need financial assistance. Perhaps the most obvious alternative source of funding for non-credit training programs would be the Workforce Innovation and Opportunity Act (WIOA), which delivers US Department of Labor funds to state and local workforce boards. Currently, 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 the funding for WIOA and other workforce programs is inadequate. After peaking in 1980 (under WIOA's predecessor program then known as the Comprehensive Employment and Training Act, or CETA), funding has declined consistently for four decades. Currently, funding for the entire stream of disadvantaged adult programs is under $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 (ITAs), average only a few thousand dollars. Funding for the over 3000 job centers now open amounts to under $700 million for the entire country—or about $200,000 per center—to cover personnel, building maintenance, computers, and other sources of 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, with training programs for disadvantaged adults outperforming those for dislocated workers and youth, but even the adult programs show uneven effects.[38] Part of the problem is that the ITAs 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.

Student support for non-credit programs could be included in in HEA 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 to what extent student eligibility should be based on household income or other criteria, as in WIOA. But, given the preference for funding programs offer at collegs elative to non-college options, funding non-credit programs elsewhere in the HEA might be the most promising route for expanding financial support for students in these programs.

2. *Funding institutions to provide 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 anything close to 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 cost of such short-term programs, it is worth exploring the possibility of funding a list of programs at the regional level (based on regional labor demand) to offer students high-quality, low- (or even no-) tuition certificates that would improve their earnings.

As we noted earlier, large local employers often prod local colleges to develop non-credit certificate programs that serve their particular skill needs—a practice often called “customized training.” ”. Most economists believe that, all else equal, programs customized to meet the needs of a single employer should be paid for by that employer, since the skills generated by the program would not generally be portable if a trained worker moved to another employer. Public assistance in paying for

[3838] For credible non-experimental evidence on the impacts of these programs on earnings see Heinrich et al. (2011) 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 quite clearly cost-effective, yet funding levels for them continue to be very low.

a training program should rise with the extent to which the training could be more broadly useful in the labor market. 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 also grows stronger.[39]

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 there are clear, measurable outcomes that can be monitored. Relatively few students with ample financial resources are likely to choose to enroll in these programs.

Moreover, most students enrolling in these programs are older than traditional-age college students: 60 percent of certificate students are over the age of 23, so are automatically considered independent of their parents for federal financial aid purposes. In contrast, 30 percent of bachelor's degree students are over the age of 23 (NPSAS 2016). It is very difficult to distinguish among older students' financial circumstances because, in contrast to the 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.[40]

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 the cost of their education. About three quarters qualify for Pell Grants. For bachelor's degree students, these figures are 31 percent and 43 percent (NPSS 2016).[41]

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—whether or not the more problematic noncredit programs are eligible—would have to be effectively 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 cost of providing up-to-date occupational training is especially high in technical fields because of high equipment and instructor costs (Holzer and Baum, 2017). Because institutions can only afford to provide 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 these programs is critical. And

[39] Economists often invoke a range of "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 also 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.

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

[41] 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 individual older students (Sandy Baum and Judith Scott-Clayton 2013, *Redesigning the Pell Grant Program for the Twenty-First Century,* Hamilton Project; Sandy Baum et al 2013, *Rethinking Pell Grants,* College Board.)

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.[42] A number of existing proposals suggest strategies for developing and strengthening these partnerships.[43] These efforts have the potential to 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.[44]

The argument for providing more aid directly to higher education institutions, for their overall efforts generally but for workforce programs specifically, is particularly compelling in the aftermath of the Covid-19 pandemic, since higher education institutions are so starved for resources. This is, of course, part of a much broader conversation about the financial future of higher education in America; we are now 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 non-credit programs.

3. *Expanding Aid to Employers for Work-Based Learning – Possibly Linked to Post-secondary Education*

Data from ATES 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 an important complementary strategy; and at least some evidence (Holzer et al., 1993; Hollenbeck, 2008; Goger et al., 2018) suggests that existing state programs to fund on-the-job training have raised the amount of such training provided by employers.

In recent years, attention has shifted towards apprenticeship as a particularly effective way to raise 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,

[42] 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).
[43] 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.
[44] See, for example, Thomas Bailey et al (2019*), Restoring the American Dream: Providing Community Colleges with the Resources They Need,* Report of the Century Foundation Working Group on Community College Financial Resources; Katie Spiker (2019), *Partnering Up: How industry partnerships can bring work-based learning to scale ,*National Skills Coalition.

2009), giving them both job-specific and broader higher education credentials (either certificates or associate degrees) when they finish.

On the other hand, apprenticeships entail a significant commitment of time and resources on the employer's part, and employer participation has been limited to date. Since very limited information and high start-up costs for smaller employers likely restrict their provision of apprenticeships or work-based learning more broadly, a strong case can be made for greater public support of apprenticeships at the state or federal level. And including some targeted assistance in the HEA to employers and community colleges who partner to generate apprenticeships or other work-based learning makes sense as well (Holzer, 2019).

III. Conclusion

We have reviewed the evidence on labor market returns to 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 those who have enrolled in certificate programs are high—especially in the for-profit sector and for non-completers, 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 [any new ??]programs eligible for federal student aid.

More federal assistance for non-credit higher education programs outside of Title IV might also be constructive. Such assistance could go either to students or to institutions (or both). Particular support could also be provided to employers who provide work-based learning along with higher education credentials. Extending support to non-accredited institutions would, however, introduce a new set of risks.

Students in all programs offering preparation for specific occupations need more guidance on choosing programs that will actually raise their earnings. A risk of expanding the reach of Pell Grants is that some students mightbe redirected into short programs with less positive outcomes than those they might otherwise have pursued.

The best solution is to ensure that there is stronger regulation of all 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.

While adults holding a range of certificates have higher earnings than similar adults with only a high school education, there are other certificates that do not appear to raise earnings. Even many

certificates in health care fields are not likely to improve life prospects for those pursuing these paths. A strategy that provides considerable guidance in choosing programs and/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. However, as the line between academic college programs and occupation-specific programs has blurred, and as funding for workforce preparation has failed to garner adequate support even as college financial aid has grown 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 a segment of programs serving a group of students who are disproportionately members of under-represented racial and ethnic groups and from low-income backgrounds is inequitable and counter to the purpose of the program.

References

Abraham, Katherine, & Kearney, Melissa. *Explaining the Decline in the U.S. Employment-to-Population Ratio: A Review of the Evidence.* Cambridge, MA: The National Bureau of Economic Research.

American Association of Community Colleges 2019, *Fast Facts 2019*. https://www.aacc.nche.edu/wp-content/uploads/2019/05/AACC2019FactSheet_rev.pdf

Andersson, Fredrik, Holzer, Harry .J., Lane, Julia I., Rosenblum, David, & Smith, Jeffrey. (2013) *Does federally-funded job training work? Nonexperimental estimates of WIA training impacts using longitudinal data on workers and firms.* (NBER Working Paper No. 19446). Cambridge, MA: National Bureau of Economic Research.

Autor, David. H. (2014). *Skills, education, and the rise of earnings inequality among the "other 99 percent."* Science, 344(6186), 843–851.

Avery, Christopher, Howell, Jessica, Pender, Matea, & Sacerdote, Bruce. (2019). *Policies and Payoffs to Addressing America's College Graduation Deficit.* Washington, DC: Brookings Papers on Economic Activity. BPEA conference Drafts.

Backes, Ben, Holzer, Harry.J., & Velez, Erin D. (2015). *Is it worth it? Postsecondary education and labor market outcomes for the disadvantaged.* IZA J Labor Policy 4(1).

Bahr, Peter R., Dynarski, Susan, Jacob, Brian, Kreisman, Daniel, Sosa, Alfredo, & Wiederspan, Mark. (2015). *Labor Market Returns to Community College Awards: Evidence From Michigan.* New York, NY: Center for Analysis of Postsecondary Education and Employment.

Bailey, Thomas, et al (2019*). Restoring the American Dream: Providing Community Colleges with the Resources They Need.* Report of the Century Foundation Working Group on Community College Financial Resources.

Bailey, Thomas, Jaggars, Shanna S., & Jenkins, Davis. (2015). *Redesigning America's Community Colleges.* Cambridge, MA: Harvard University Press.

Baker, Amanda, Andrews, Benjamin, & McDaniel, Anne. (2017). *The impact of student loans on college access, completion, and returns.* Sociology Compass 11(6).

Baum, Sandy, et al. (2013). *Rethinking Pell Grants.* College Board Advocacy & Policy Center.

Baum, Sandy & Schwartz, Saul. (2018). *Unaffordable Loans: When Should Schools Become Ineligible for Student Loan Programs?* Washington, DC: Urban Institute.

Baum, Sandy & Scott-Clayton, Judith. (2013). *Redesigning the Pell Grant Program for the Twenty-First Century.* Washington, DC: The Hamilton Project.

Belfield, Clive, & Bailey, Thomas. (2017). *The Labor Market Returns to Sub-Baccalaureate College: A Review.* New York, NY: Center for Analysis of Postsecondary Education and Employment.

Bettinger, Eric, & Soliz, Adela. (2016). *Returns to Vocational Credentials: Evidence from Ohio's Community Colleges.* A CAPSEE Working Paper. New York, NY: Center for Analysis of Postsecondary Education and Employment.

Burns, Rachel, & Bentz, Alexander. (2020). *First-Time Subbaccalaureate Students: An Overview of Their Institutions, Programs, Completion, and Labor Market Outcomes After 3 Years.* Washington, DC: Institution of Education Sciences.

Carnevale, Anthony, Rose, Stephen, & Hanson, Andrew. (2012). *Certificates: Gateway to Gainful Employment and College Degrees.* Washington, DC: Center on Education and the Workforce.

Cellini, Stephanie R., & Turner, Nicholas. (2018). *Gainfully Employed? Assessing the Employment and Earnings of For-Profit College Students Using Administrative Data.* The Bureau of Economic Research.

Chou, Tiffany, Looney, Adam, & Watson, Tara. (2017) *A Risk-Sharing Proposal for Student Loans.* Washington, DC: The Hamilton Project.

College Affordability Act, H.R.4674, 116th Congress (2019-2020).

Community College to Career Fund in Higher Education Act, S.1612, 116th Congress (2019-2020).

Dadgar, Mina, Trimble, Madeline J. (2014). *Labor market returns to sub-baccalaureate credentials: How much does a community college degree or certificate pay?* Educational Evaluation and Policy Analysis.

Deming, David, Yuchtman, Noam, Aulafi, Amira, & Goldin, Claudia. (2017) *An Experimental Study of the Value of Postsecondary Credentials in the Labor Market.* American Economic Review (106)3 778-806.

Dynarski, Susan., & Scott-Clayton, Judith. (2013). *Financial Aid Policy: Lessons from Research*. Princeton, NJ: The Future of Children 23(1) 67-91.

Fortson, Kenneth, Rotz, Dana, Burkander, Paul, Mastri, Annalisa, Schochet, Peter, Rosenberg, Linda, McConnell, Sheena, & D'amico, Ronald. (2017). *Providing Public Workforce Services to Job Seekers: 30-Month Impact Findings on the WIA Adult and Dislocated Worker Programs.* Washington, DC: Mathematica Policy Research.

Goger, Annelies, Negotia, Marcin, DeFever, Renatta, & Nowaczyk, Przemyslaw. (2018). *State of California Employment Training Panel Program Assessment.* Social Policy Research Associates.

Heckman, James, & Rubinstein, Yona. (2001). T*he Importance of Noncognitive Skills: Lessons from the GED Testing Program.* American Economic Review(91) 2 145-149.

Heinrich, Carolyn, Mueser, Peter, Troske, Kenneth, Jeon, Kyung-Seong. & Kahvecioglu, Daver. (2013). *Do Public Employment and Training Programs Work?* IZA Journal of Labor Economics 2(6).

Hendra, Richard, Greenberg, David H., Hamilton, Gayle, Oppenheim, Ari,. Pennington, Alexandra. Schaberg, Kelsey, and Tessler, Betsy L. (2016). *Encouraging evidence on a sector-focused advancement strategy*. New York, NY: MDRC.

Hollenbeck, Kevin. (2008). *State Use of Workforce System Net Impact Estimates and Rates of Return.* Kalamazoo, MI: W.E. Upjohn Institute for Employment Research.

Holzer, Harry J. (2019). *Making HEA work: Reauthorizing the Higher Education Act to improve employment for the disadvantaged.* Brookings Institute.

Holzer, Harry J., Block, Richard, Cheatham, Marcus, & Knott, Jack. (1993). *Are Training Subsidies for Firms Effective? The Michigan Experience.* Industrial and Labor Relations Review 46(4).

Holzer, Harry J., & Xu, Zeyu. (2019). *Community College Pathways for Disadvantaged Students.* IZA Discussion Paper No. 12319.

Itzowitz, Murray. (2020). *As students return to the classroom, will career education programs help the most vulnerable succeed economically?* Washington, DC: Third Way.

Jepsen, Christopher, Troske, Kenneth, & Coomes, Paul. (2014). *The labor-market returns to community college degrees, diplomas, and certificates.* Journal of Labor Economics (32) 95–121.

JOBS Act of 2019, S.839 116th Congress (2019-2020).

Kane, Thomas, & Rouse, Cecilia E. (1995). *Labor-Market Returns to Two-and Four-Year College.* The American Economic Review (85)3 600-614.

Kim, Changhwan, & Tamborini, Christopher. (2019). *Are They Still Worth It? The Long-Run Earnings Benefits of an Associate Degree, Vocational Diploma or Certificate, and Some College.* The Russell Sage Foundation Journal of the Social Sciences 5 (3) 64-85.

Krueger, Alan. (2017). *Where have all the workers gone? An inquiry into the decline of the U.S. labor force participation rate.* Washington, DC: Brookings Institution.

Lerman, Robert. (2009). *Training Tomorrow's Workforce: Community College and Apprenticeship as Collaborative Routes to Rewarding Careers*. Washington, DC: Center for American Progress.

Liu, Vivian Y. T., Belfield, Clive R., & Trimble, Madeline J. (2015). *The medium-term labor market returns to community college awards: Evidence from North Carolina.* Economics of Education Review, 44, 42–55

Maguire, Shelia, Freely, Joshua, Clymer, Carol, Conway, Maureen, & Schwartz, Deena. (2010). *Tuning in to local labor markets: Findings from the Sectoral Employment impact study*. Philadelphia, PA: Public/Private Ventures.

Marx, Benjamin, & Turner, Lesley. (2019). *Student Loan Nudges: Experimental Evidence on Borrowing and Educational Attainment.* American Economic Journal: Economic Policy 11(2).

Matsudaira, Jordan and Lesley Turner (2020). "Towards a Framework for Accountability in Higher Education." Presented at the conference on Accountability in Higher Education, Brookings Institution, Washington DC, September 8..

Miller, Ben. (2013). *Improving Gainful Employment: Suggestions for Better Accountability.* Washington, DC: New America.

Minaya, Veronica, & Scott-Clayton, Judith. (2016). *Labor Market Outcomes and Postsecondary Accountability: Are Imperfect Metrics Better than None?* Cambridge, MA: The National Bureau of Economic Research, 22880.

Reed, Debbie, Liu, Albert Y-H., Kleinman, Rebecca, Mastri, Annalisa, Reed, Davin, Sattar, Samina, & Ziegler, Jessica. (2012). *An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 states.* Washington, DC: Mathematica Policy Research.

Roder, Anne, and Elliott, Mark. (2019). *Nine year gains: Project QUEST's continuing impact*, New York: Economic Mobility Corporation.

Scott-Clayton, Judith, & Wen, Qiao. (2018). *Estimating Returns to College Attainment: Comparing Survey and State Administrative Data-Based Estimates.* SAGE journals.

Spiker, Katie. (2019), *Partnering Up: How industry partnerships can bring work-based learning to scale.* Washington, DC: National Skills Coalition.

Stevens, Ann, Kurlaender, Michal, Grosz, Michel. (2015). *Career-technical education and labor market outcomes: Evidence from California community colleges*. Cambridge, MA: National Bureau of Economic Research. Working Paper No. 21137.

US Department of Labor (2020). *Employment and Earnings by Occupation.* Women's Bureau, https://wwww.dol.gov/agencies/wb/data/occupations.

Van Noy, Michelle, Jacobs, James, Korey, Suzanne, Bailey, Thomas, & Hughes, Katherine. (2008). *Noncredit enrollment in workforce education: State policies and community college practices*. Washington, DC: American Association of Community Colleges and Community College Research Center.

Xu, Di, & Trimble, Madeline. (2016). *What About Certificates? Evidence on the Labor Market Returns to Nondegree Community College Awards in Two States.* Sage Journals (38)2.

APPENDIX

Table A.1

A. 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	NA	NA
Control of institution 2011-12 (Reference: Public)		
Private non-profit	0.01	0.70
Private for-profit	0.04	0.38
Gender		
Male (Reference: Female)	0.02	0.65
Race/ethnicity (References: White)		
Black or African American	-0.08	0.06
Hispanic	0.04	0.29
Asian	-0.03	0.36
Other	0.04	0.40
Dependency status (Reference: Dependent)		
Independent, no dependents, unmarried	-0.06	0.13
Independent, no dependents, married/separated		
Independent, with dependents, unmarried	-0.15	0.00
Independent, with dependents, married/separated		
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: Healthcare		
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: National Center for Education Statistics, Beginning Postsecondary Students Longitudinal Study 2012/2017, calculations by the authors.

B. 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/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: National Center for Education Statistics, Beginning Postsecondary Students Longitudinal Study 2004/09, calculations by the authors.

Table A.2

Impacts of Certificates and their Characteristics: By Age Group (ATES)

	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			.142*	.119*						
Not for Credit			.122*	.050*						
160 hours or less					.183*	.041				
160 to 479 hours					.015	.087*				
480 to 959 hours					.167*	.057				
960 hours or more					.073	.112*				
							.057	.161*		
For Credit, Short							.137*	.127*		
For Credit, Long							-.011	.059		
Not for Credit, Short							.081	.066*		
Not for Credit, Long										
Healthcare									.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: ATES, 2016.

Notes: The certificate group includes only those whose highest level of education is the certificate. All regressions control for age, race, 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. The table contains coefficients followed by z-scores in parentheses.