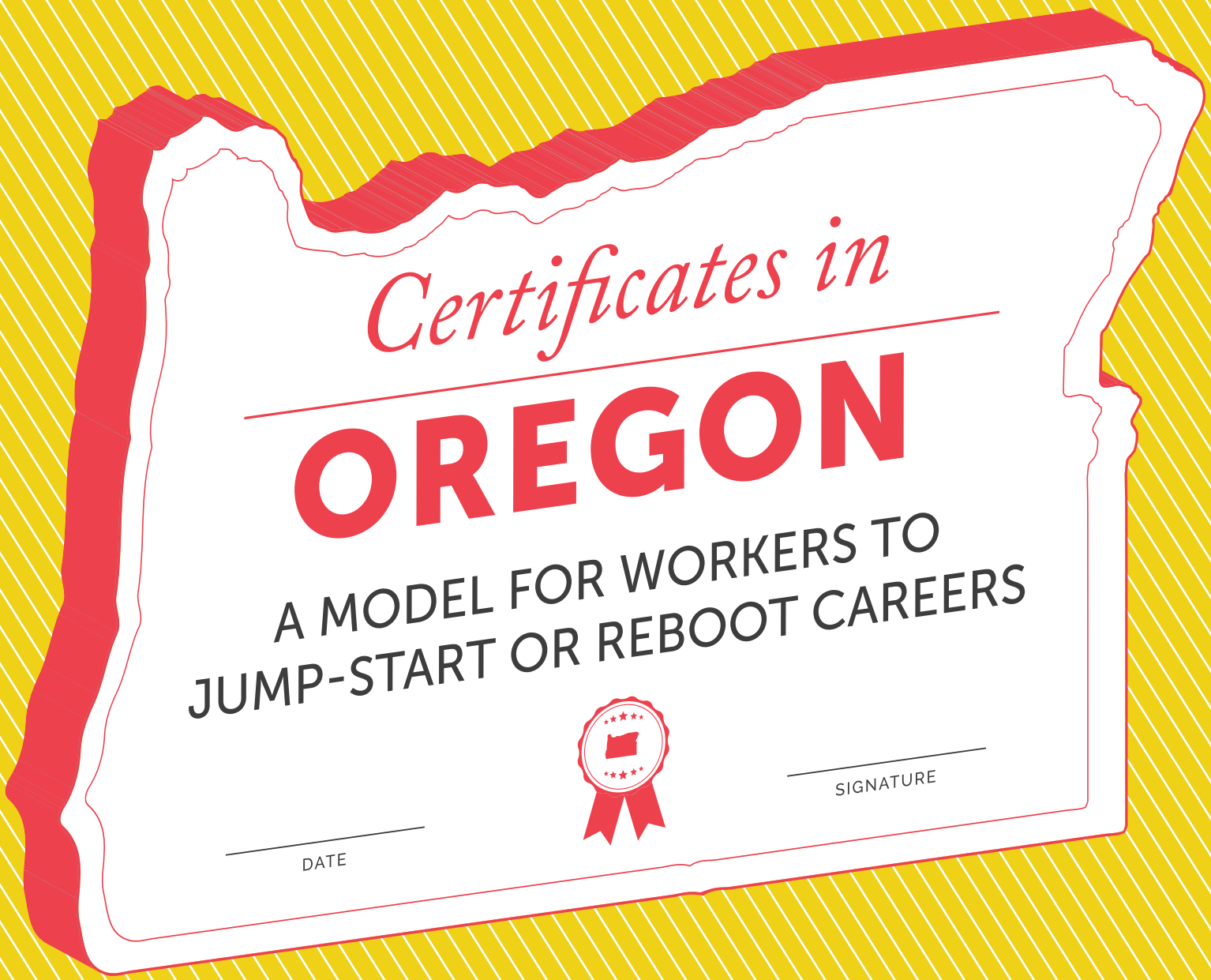

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2018

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Certificates in Oregon

A Model for Workers to Jump-Start or Reboot Careers

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Neil Ridley
Megan L. Fasules

2018

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INTRODUCTION

Across the country, individuals are turning to postsecondary certificates as an accessible, low-cost route to economic opportunity. Certificates, which typically recognize completion of a program of study between high school and the associate's degree, are expanding rapidly, especially at public colleges. Since 2000, awards of certificates have grown much faster (70%) than awards of bachelor's degrees (54%) and at about the same pace of growth as associate's degrees (74%).[1]

This growth has sparked interest from advocates who view certificate programs as a promising way to increase postsecondary access and attainment. But it has also drawn intense scrutiny from policymakers who want to understand the value of certificates for people seeking to enter the labor market.

Certificate holders without postsecondary degrees earn an average of 20 percent more than workers with no more than a high school diploma.[2] But the benefits vary widely, especially based on field of study. Certificate holders in technical fields, such as computer and information services, earn as much as many degree holders, while those in fields such as cosmetology make much less.[3]

The benefits also vary for workers at different career stages. This is one of the key insights from an in-depth exploration of community college programs in Oregon. Certificates are particularly valuable for workers in the early days of their careers and those from low-income backgrounds. Because they start out with limited job experience, young certificate holders benefit from strong earnings growth. Students from low-income backgrounds also increase their pay by earning a certificate.

Certificates work in a different way for older adults who are in midcareer or even the later stages of their working lives. These workers often enter a certificate program after a job loss or another setback that resulted in lower earnings and reduced work hours. Some also may enroll in a program to upgrade their skills while they are still employed. Earning a certificate helps more-experienced workers achieve a rebound, if not always a full recovery, in their pay and work hours. In short, finishing a certificate program helps them to regain their footing or even take a step forward in the labor market.

This report extends the findings from our previous national research and adds greater detail on certificate holders in Oregon, one of the first states to include certificates as part of a broader educational attainment goal. The combination of postsecondary and workforce data allows us to follow students before, during, and after they earn a certificate. While the findings are limited to a single state, they open a window on this often-overlooked credential and its role in postsecondary education and training.

The key findings include:

- **The number of certificates awarded at Oregon community colleges has more than tripled since 2007.** Much of the certificate growth in Oregon stems from rising numbers of short-term credentials designed for occupational preparation.

- **Younger certificate holders increase their earnings dramatically as they enter the workforce, build their skills, and gain work experience.** Certificate recipients ages 29 or younger reap sizable earnings gains, in some cases more than doubling their pay, as they enter the workforce.

1 The growth in awards of certificates was particularly fast before and during the Great Recession with a gradual falloff since 2011. The years measured are 2000-01 to 2015-16 in National Center for Education Statistics, "Postsecondary Certificates and Degrees Conferred," Updated in January 2018, https://nces.ed.gov/programs/coe/indicator_cts.asp.
2 Carnevale et al., *Certificates: Gateway to Gainful Employment*, 2012.
3 Ibid.

- **Older certificate holders experience a sharp decline in earnings followed by a gradual rebound as they return toward, if not always reach, their previous level of employment and earnings.** Older adult students earn more than younger students before and after completing certificates. But these workers, especially those age 45 and older, experience more of a V-shaped earnings trajectory as their pay falls initially and then recovers as they are re-established in the workforce.[4]

- **Students from low-income backgrounds boost their pay by earning a certificate.** Pell Grant recipients who earn certificates increase their earnings by $9,600, compared to a much smaller increase for those who did not receive Pell Grants ($500). Pell Grant recipients are more likely than those who do not receive them to be younger certificate holders, with limited work experience and lower earnings.[5]

- **Earnings growth is a direct reflection of the number of hours that certificate holders work before they enter a program and after they finish.** Certificate holders who work less than half time before they enter a program (mostly younger students and Pell Grant recipients) experience particularly large earnings gains as they start at a low level and then greatly increase their hours of work. Those who work more than 20 hours per week (mostly older students) experience a sharp decline in hours worked followed by a recovery that matches their earnings trajectory.

- **Completing a community college certificate typically boosts workers' overall earnings by almost $5,000, or 19 percent, compared to their previous wages.** Students on average earn less before they enroll in a program and experience an increase in pay in the years following completion.

- **For certificate recipients as for degree holders, the choice of field of study is an important decision that influences future earnings.** Certificates in health generate the greatest relative earnings gains (nearly $10,600), while those in business offer the highest earnings post-completion ($40,000).

- **Men out-earn women, but women experience much stronger earnings growth.** The gender earnings gap in Oregon starts out at nearly $15,000 before men and women enter certificate programs, but it narrows considerably to just over $7,000 four years after program completion. Women who start out with less work experience and lower earnings than men have robust earnings growth after they finish a certificate program.

- **Certificate programs can support career transitions.** Certificate holders in Oregon who switch industries often leave jobs in traditional blue-collar industries and become employed in fast-growing healthcare services.

4 This pattern of declining earnings prior to enrollment is the classic "Ashenfelter's dip"—first identified by the economist Orley Ashenfelter in the early days of training-program evaluation. Belfield and Bailey, *The Labor Market Returns to Sub-Baccalaureate College*, 2017.

5 Federal Pell Grants are a widely used proxy for students who come from low-income backgrounds.

ABOUT THIS REPORT

This report utilizes Oregon administrative data to examine the earnings of workers before, during, and after they complete a certificate program. We define ***certificate holders*** as workers who have completed a certificate awarded by an Oregon community college, but who have not earned an associate's degree or a transfer-related academic certificate during the study's time frame. Most of the workers in this study completed their programs during the Great Recession and its aftermath—a time when community colleges across the country experienced surging enrollment as unemployed adult workers joined younger students on campus.

Most researchers who have studied certificate attainment have not been able to use wage records that show the number of hours worked. The Oregon administrative dataset provides rich information about the number of hours worked as well as the amount of earnings.

The primary measure used throughout the report is change in real earnings—measured as the difference in an individual's median earnings four years prior to enrollment and four years following completion. The earnings-change metric uses an individual's own earnings history as the basis for comparison, so any increase reflects the benefit to the individual, but not necessarily the value of the certificate relative to not earning one. Differences in median earnings following completion are also compared, especially for programs in different fields of study. Because of data constraints, it was not the goal to construct a comparison group and conduct an impact analysis that rigorously controls for participant characteristics, such as gender, age, and previous work history. Therefore, any earnings gains or differences cannot be attributed solely to program participation or credential attainment. For more information about our methodology, see Appendix C.

PART 1 THE GROWTH AND DIVERSITY OF CERTIFICATES IN OREGON

During the past decade, new types of academic and workforce credentials have proliferated in states. These include transfer certificates that make it easier for students to transition from a two-year to a four-year institution.[6] Colleges also have begun to break degree and certificate programs into shorter programs by creating new options called "stackable" certificates that are structured in a way to lead to employment as well as further education, including degree programs. Oregon is one of the states at the forefront of these trends.

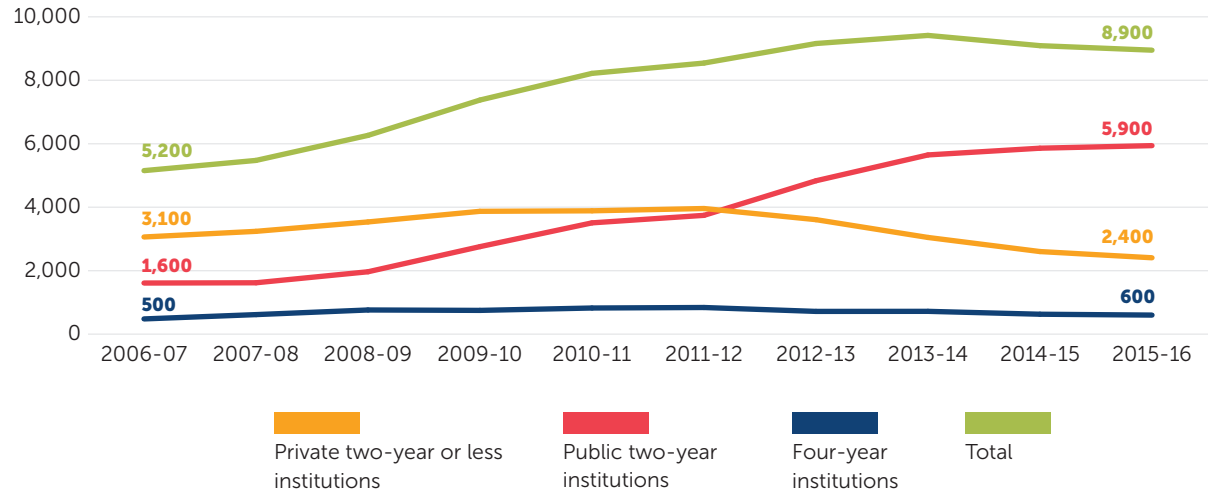
6 Miller et al., *Collecting and Disseminating Data on Certificate Awards*, 2016.

Certificate production at Oregon community colleges has been growing rapidly.

Certificates in Oregon are awarded primarily at public two-year institutions and private for-profit colleges. Two-thirds of the certificates issued in 2015-16 (66%) were awarded at the 17 public two-year community colleges. Another quarter of certificates (27%) were issued at private two-year institutions, including for-profit colleges.

While Oregon's 17 community colleges still produce far more degrees than certificates, the number of certificates awarded has more than tripled in the last decade, rising from 1,600 in 2006-07 to 5,900 in 2015-16 (Figure 1). A major driver of the overall growth is the increase in the number of short-term certificates—a trend that is seen across the country.[7]

Figure 1. Oregon has experienced rapid growth in certificates, driven by increased production at community colleges.



Note: These production numbers do not include the Oregon Transfer Module (OTM), a transfer-oriented credential awarded by colleges. Private two-year or less institutions and four-year institutions include non-profit and for-profit colleges. Four-year institutions include both public and private colleges. The award count represents the total number of awards issued during the year and may include multiple awards and award types earned by the same individual.
Source: Georgetown University Center on Education and the Workforce analysis of US Department of Education, *Integrated Postsecondary Education Data System (IPEDS)* completions data for Oregon, 2006-07 to 2015-16.

In recent years, the total number of certificates awarded in Oregon has spiked in line with increased production at community colleges. At the same time, production at private two-year institutions (including for-profit colleges) has declined since 2011-12. These trends probably underestimate certificate growth because a significant number of awards are also issued by non-Title IV-eligible workforce programs or private career schools that do not report to the Integrated Postsecondary Education Data System (IPEDS).[8]

7 Miller et al., *Collecting and Disseminating Data on Certificate Awards,* 2016.
8 Many certificates are issued by private career schools that may not be eligible to participate in the federal Title IV student-aid programs and therefore do not report to IPEDS, meaning the private, for-profit sector is likely underrepresented here. In recent years, the Oregon Higher Education Coordinating Commission (HECC) has been collecting more complete data from these private career schools that also award certificates.

Oregon's community college system has created new types of non-degree credentials designed for career preparation and academic transfer.

Oregon has been a leader among states in developing new types of academic and career-oriented certificates. Prior to 2007, Oregon had three major types of certificate programs classified by the amount of instructional time required to complete a course of study:

- less than one year
- one year and more than one year
- two years or more

In 2007, Oregon approved a new short-term certificate called the Career Pathway Certificate of Completion (CPCC), which was designed to prepare students for an entry-level job and to be "stackable"—that is, to provide an intermediate step on the way toward an associate's degree.[9] Since then, Oregon has also added an academic, transfer-oriented curriculum called the Oregon Transfer Module (OTM) to support students' transition from community colleges to four-year colleges and universities (Table 1).

Table 1. Oregon community colleges offer four major types of certificate programs.

Certificate of completion type	Length	Credits
Career Pathway	Less than one year	12 to 44
Short Term	Less than one year	
Medium Term	One year or more	45 or more
Long Term	Two years or more	

Note: Colleges also award a very small number of apprenticeship certificates as well as the Oregon Transfer Module (OTM).

In 2011, Oregon became one of the first states to set a postsecondary attainment goal that includes certificates awarded by all institutions.[10] The statewide goal, known as "40-40-20," calls for 40 percent of Oregonians to have an associate's degree or a postsecondary certificate with labor market value by 2025. Because attainment goals now include certificates as well as degrees, policymakers in Oregon (and across the nation) increasingly want to track certificate growth and know which programs and types of credentials pay off for students and, ultimately, for the state.

9 Oregon Department of Community Colleges and Workforce Development, *Pathways in Oregon*, 2013.

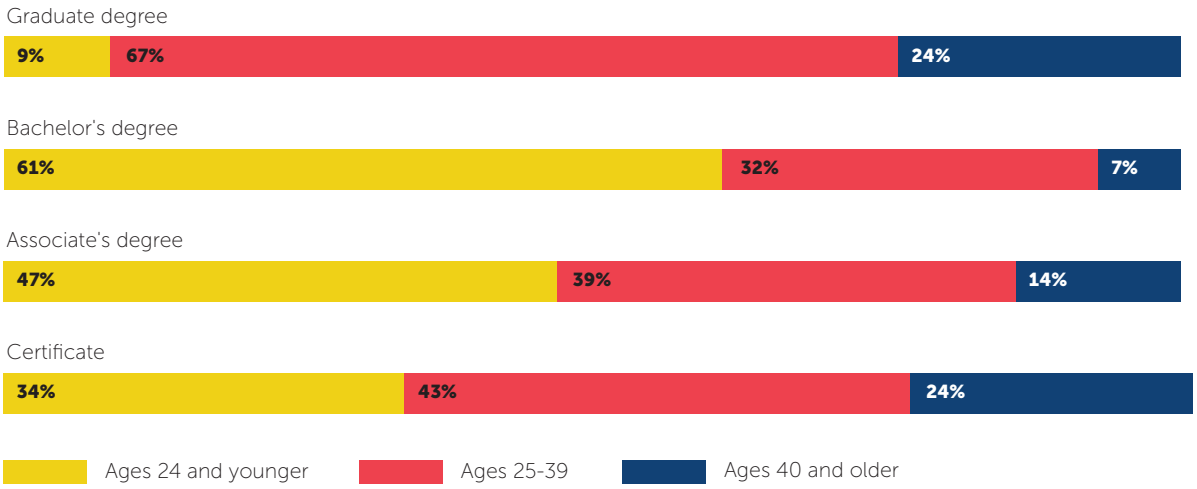
10 The statewide goal, known as "40-40-20," states that by 2025, 40 percent of Oregonians will have an associate's degree or a meaningful postsecondary certificate, 40 percent will hold a bachelor's or advanced degree, and an additional 20 percent will have a high school diploma or equivalent (the current high school graduation rate is about 80%).

PART 2 THE BENEFITS OF CERTIFICATES FOR WORKERS AT DIFFERENT CAREER STAGES

Career-oriented certificate programs attract people of all ages who want to prepare for a job, advance in a career, or build skills in a new field. Nationally, certificate holders are older than students finishing degree programs.[11] In Oregon, certificate programs also serve an older population than associate's and bachelor's degree programs. Two-thirds of certificate holders are age 25 and above, compared to 53 percent of those who earn an associate's degree and nearly 40 percent of bachelor's degree recipients (Figure 2).

11 About one-third of certificate holders earned an award when they were age 30 or older, with about 16 percent receiving a certificate at age 40 or older. By comparison, only 11 percent of associate's degree holders and 6 percent of bachelor's degree holders earned their degrees after age 40. See Carnevale et al., *Certificates*, 2012.

Figure 2. Certificate holders in Oregon earn their credentials at an older age than undergraduate degree holders.

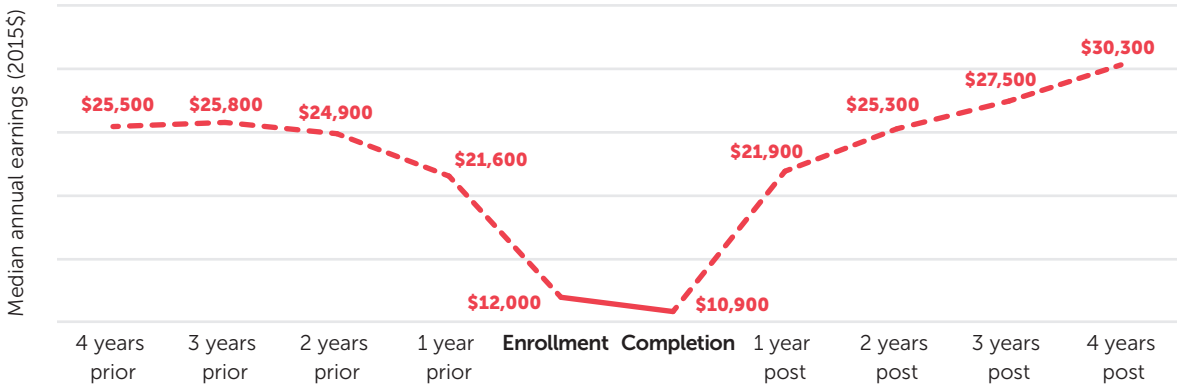


Note: Rows might not add to 100 percent due to rounding.
Source: Georgetown University Center on Education and the Workforce analysis of US Department of Education, *Integrated Postsecondary Education Data System* (IPEDS) completions data for Oregon, 2014-15.

Certificate holders typically experience an increase in pay when they finish their program.

Workers who complete an Oregon community college certificate program boost their overall earnings by almost $5,000, an average 19 percent increase (Figure 3). Not surprisingly, certificate holders have low earnings while they are enrolled in the program. Their earnings decline in the year or so before they enter a program, probably because of a job loss, reduction in work hours, or another labor market setback. This drop in earnings prior to enrollment is widely known as "Ashenfelter's dip."[12]

Figure 3. Certificate recipients generally earn more after they finish the program than they did before they enrolled.



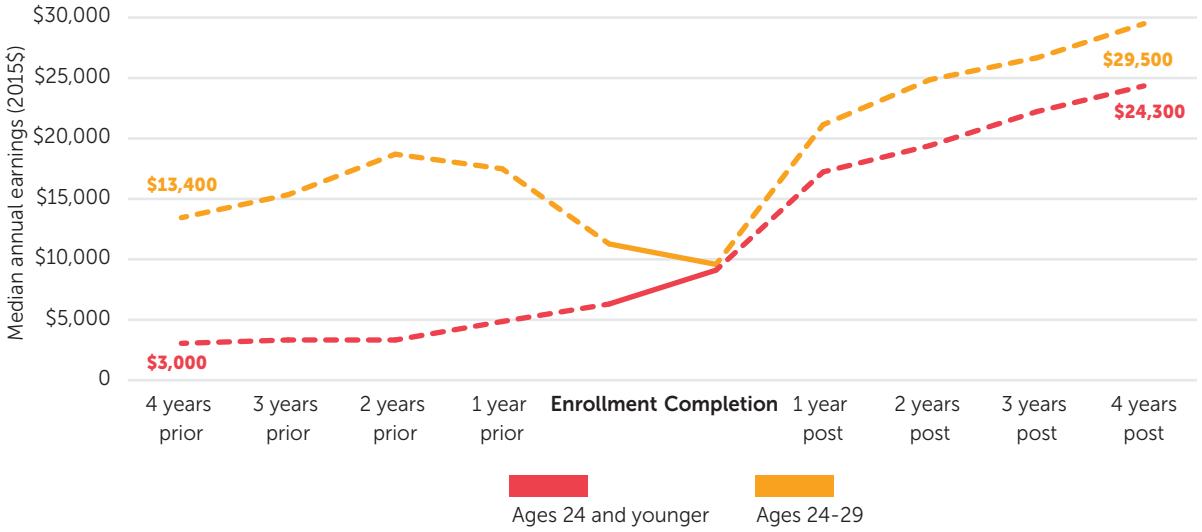
Source: Georgetown University Center on Education and the Workforce analysis of the Oregon Higher Education Coordinating Commission (HECC) 2007-2011 certificate data matched with wage record data.

12 This is consistent with national research on the experience of community college students and displaced workers who enter retraining programs. Belfield and Bailey, *The Labor Market Returns to Sub-Baccalaureate College*, 2017.

Young certificate holders benefit from strong earnings growth as they build their skills, gain work experience, and become established in the workforce.

Certificate recipients ages 29 and younger reap substantial earnings gains, often more than doubling what they earn before they enter a program (Figure 4). Students under age 24 experience the greatest earnings gains (about $21,000), while those ages 24 to 29 also benefit from substantial increases (about $16,000). For these younger students, completing a certificate generates strong earnings growth as they enter and become established in the workforce.[13]

Figure 4. Certificate holders ages 29 and younger experience large earnings gains.



Source: Georgetown University Center on Education and the Workforce analysis of the Oregon Higher Education Coordinating Commission (HECC) 2007-2011 certificate data matched with wage record data.

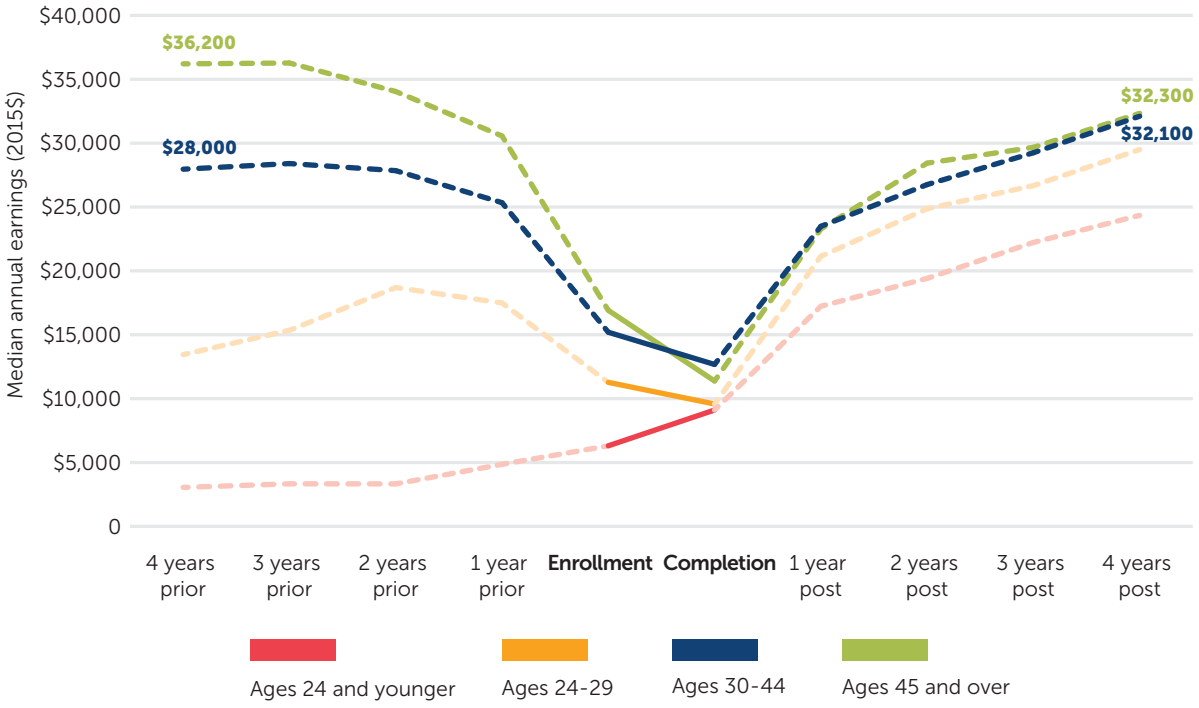
Older certificate holders sustain a steep earnings decline followed by a rebound in pay.

Certificate holders ages 30 and older make more than younger ones. But their earnings are more volatile, with an initial decline followed by a recovery in pay as they regain their footing in the labor market. Adults ages 30 to 44 who complete certificates earn more ($4,100) than they did before they enrolled (Figure 5). However, certificate recipients ages 45 or older suffer sharp declines in earnings and then recover somewhat. On average, though, they do not reach their previous earnings levels.[14]

13 Using data from the US Census Bureau *American Community Survey* to estimate earnings of similarly aged workers with only a high school diploma or its equivalent, we found that younger certificate holders (ages 24 to 29) out-earn their high school educated peers ($29,500 vs. $24,400, respectively, four years following completion). This suggests that younger students earning certificates experience a wage premium over their high-school educated peers.

14 This finding is consistent with studies showing the heterogeneity of returns to certificates by age and research on the earnings losses and post-layoff labor market experience of displaced workers. See Jepsen et al., "The Labor-Market Returns to Community College Degrees, Diplomas and Certificates," 2014.

Figure 5. Certificate holders ages 45 and older experience a particularly sharp decline in earnings and then a gradual recovery.



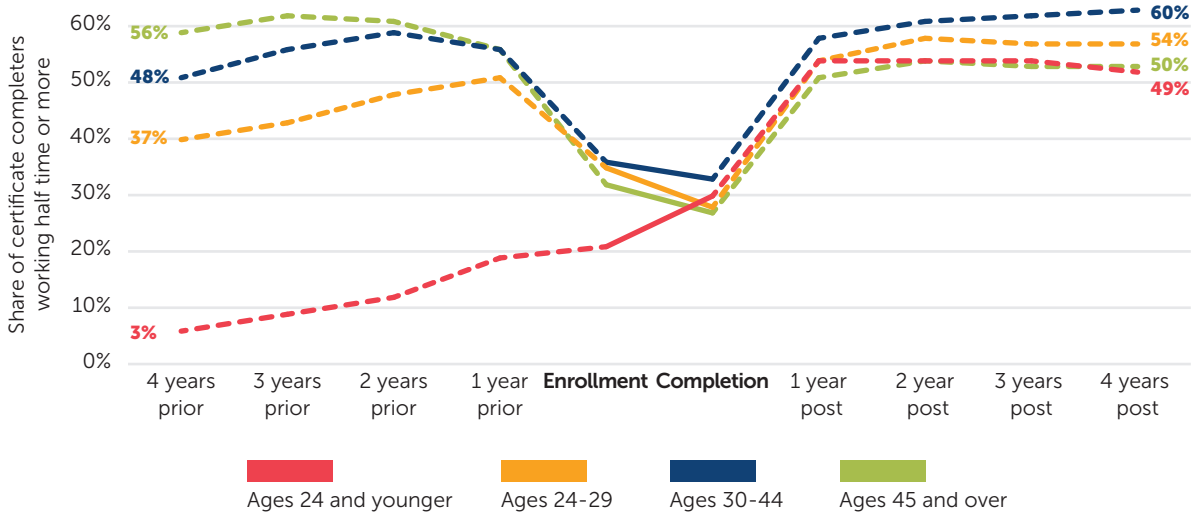
Source: Georgetown University Center on Education and the Workforce analysis of the Oregon Higher Education Coordinating Commission (HECC) 2007-2011 certificate data matched with wage record data.

Older and younger certificate holders enroll in different types of programs. Adults ages 30 and older often choose short-term certificate programs—such as Career Pathways—that will get them back on the job as soon as possible. Younger certificate holders are concentrated in medium and long-term certificate programs.

The return to certificates is a direct reflection of each worker's level of labor market experience, especially the number of hours worked before they enroll in a certificate program.[15] Students under age 30 who have limited work experience increase their work hours dramatically (Figure 6). Only two out of five young adults ages 24 to 29 (37%) work more than half time before they enroll in a program, but this rises to a majority (54%) after they finish. Not surprisingly, students under age 24 experience even larger gains in hours worked, rising from only 3 percent who work more than half time to nearly 50 percent.

15 Most states that collect wage records from employers are able to show what people earn, but not how much they work. An uncommon feature of the Oregon administrative dataset is its ability to show hours worked as well as the amount of earnings. For this analysis, working half time or more is defined as at least 1,000 hours in a year.

Figure 6. Certificate holders ages 44 and younger increase their work hours, while those ages 45 and older sustain a drop in hours worked that closely mirrors their earnings decline.



Source: Georgetown University Center on Education and the Workforce analysis of the Oregon Higher Education Coordinating Commission (HECC) 2007-2011 certificate data matched with wage record data.

The ups and downs in the number of hours worked also explain the experience of older certificate holders. More-experienced workers suffer a sharp reduction in hours worked and then undergo a recovery as they put in more hours at work, though they do not reach their previous level of employment. About 56 percent of certificate holders age 45 or older work at least half time before they enter a program, but this drops to 50 percent after they receive a certificate. For older and younger certificate holders alike, the progression in the number of hours worked matches their earnings trajectory.[16] In fact, the results for hours worked are almost a mirror image of their earnings over time (Figure 6 vs. Figure 4 and Figure 5).

Pell Grant recipients, who tend to be younger certificate holders, also experience a sizable earnings boost.

In Oregon, about two out of five certificate holders receive federal Pell Grants, which are a widely used proxy for students who come from low-income backgrounds.[17] Younger certificate holders are more likely to be Pell Grant recipients. They tend to enroll in certificate programs that are one year or more in length, which typically meet the requirements for the federal student-aid programs authorized under Title IV of the Higher Education Act. Because Pell Grant eligibility is also based on past income, older certificate completers are less likely to qualify for financial assistance because they may have substantial earnings from their job or other household income.

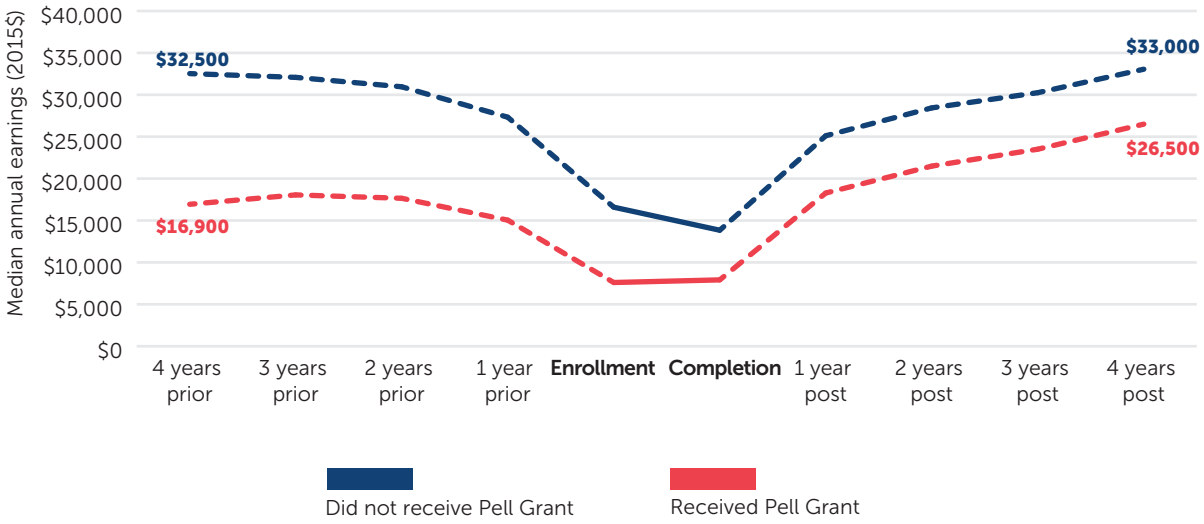
16 Eberts et al., "Recent Advances in Performance Measurement of Federal Workforce Development Programs," 2011. The regression analysis conducted by these authors reveals that prior employment is a major determinant of labor market outcomes. Also, research on the Washington State Worker Retraining Program found that high-wage displaced workers who enroll in community college training programs typically experience earnings reductions when they take a new job. See Washington State Board for Community and Technical Colleges, *Accountability Report for the Worker Retraining Program*, 2013.

17 Nationally, more than 70 percent of students who receive Pell Grants come from families with annual incomes of $30,000 or less. Carnevale and Van Der Werf, *The 20% Solution*, 2017.

Certificate holders who received Pell Grants earn less than those who did not receive Pell Grants. But this earnings gap, which is sizable before they enter a program, narrows by more than 50 percent after they finish (Figure 7).

A different picture emerges when earnings growth rather than earnings level is measured. Pell Grant recipients who start out with lower pay increase their earnings much more than certificate holders who did not receive Pell Grants. The earnings increase for Pell Grant recipients is almost $9,600, or more than 50 percent of their previous pay, compared to a much smaller increase of $500 for those who did not receive federal grant assistance.

Figure 7. Certificate holders who receive Pell Grants benefit from larger earnings increases than those who did not receive Pell Grants.



Source: Georgetown University Center on Education and the Workforce analysis of the Oregon Higher Education Coordinating Commission (HECC) 2007-2011 certificate data matched with wage record data.

PART 3 VARIATION OF EARNINGS RETURNS BY FIELD OF STUDY AND GENDER

The choice of field of study matters for certificate holders and for degree holders alike.[18] Certificate holders who enter technical and some blue-collar fields make much more than those who choose cosmetology or food service. Men who complete certificates earn more than women, partly because men and women tend to enter different fields.[19] This variation in earnings returns holds true in Oregon.

18 Carnevale et al., *The Economic Value of College Majors*, 2015.
19 Carnevale et al., *Certificates*, 2012.

The choice of field of study is an important decision that influences future earnings.

The returns to certificates vary widely based on field of study. To analyze earnings, we aggregated two-digit Classification of Instructional Programs (CIP) fields into five general areas: (1) health; (2) manufacturing, industrial arts, and construction; (3) consumer and public services; (4) business; and (5) science, technology, engineering, and mathematics (STEM).

Certificate holders in business earn the most ($40,000), well above the statewide median earnings ($30,300) (Table 2). Certificate recipients in health have the lowest median earnings ($28,000). But health draws the largest number of certificate holders (36%), compared to only 16 percent who enter business. Manufacturing, industrial arts, and construction—a group of programs that prepare students for a range of blue-collar occupations—is the next largest field after health with 20 percent of certificate holders.

To demonstrate the value of certificates in more detailed fields, we also calculated earnings at the two-digit CIP level. Certificate holders in public administration, biological sciences, and business have the highest earnings ($47,600, $41,700, and $40,000, respectively). Workers who complete certificates in STEM and manufacturing, industrial arts, and construction also earn more than the statewide median ($30,300). The lowest paying certificate programs by far are personal and culinary services ($8,700).

Table 2. Students who earn certificates in business, public administration, and biological sciences have the highest earnings.

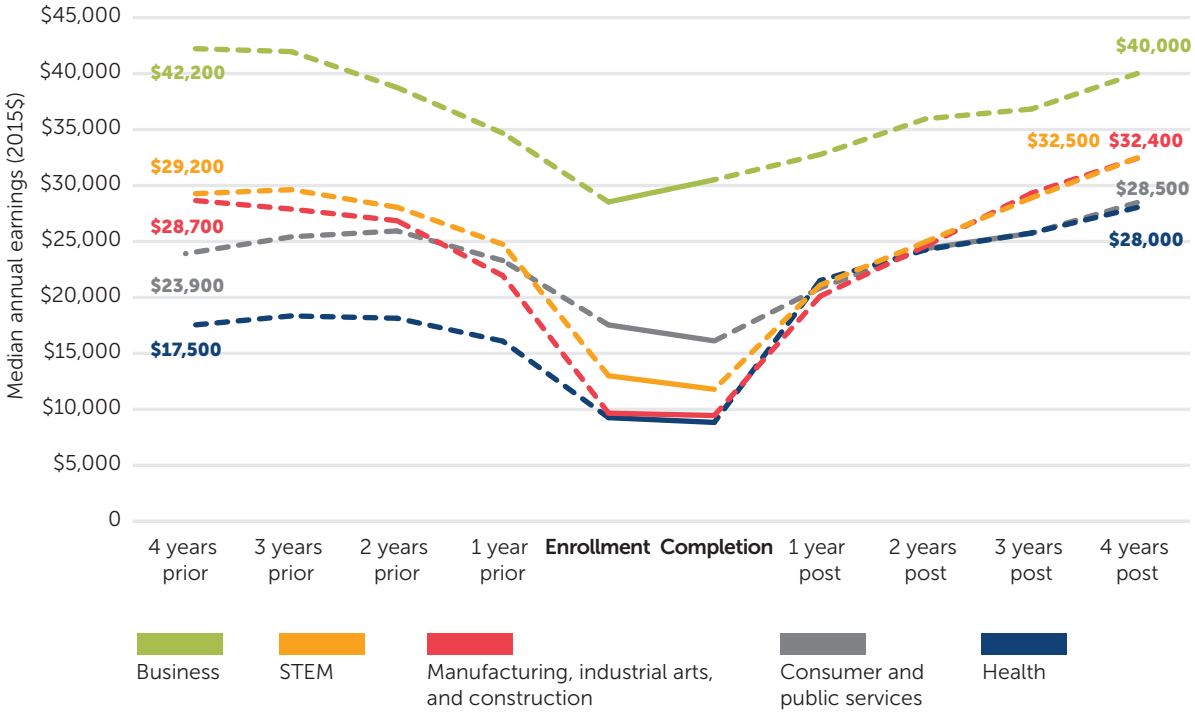
Field of Study	Median Earnings
Health	**$28,000**
Health professions and related programs	$27,700
Biological and biomedical sciences	$41,700
Manufacturing, Industrial Arts, and Construction	**$32,400**
Mechanic and repair technologies/technicians	$32,100
Precision production	$33,400
Consumer and Public Services	**$28,500**
Public administration and social service professions	$47,600
Education	$22,400
Personal and culinary services	$8,700
Multi/interdisciplinary studies	$30,800
Protective services	$27,700
Family and consumer sciences/human sciences	$24,000
Business	**$40,000**
Business, management, marketing, and related support services	$40,000
STEM	$32,500
Engineering technologies and engineering-related fields	$32,200
Computer and information sciences and support services	$31,800

Note: CIP fields of study and their wages are not reported for fields with fewer than 30 observations.
Source: Georgetown University Center on Education and the Workforce analysis of the Oregon Higher Education Coordinating Commission (HECC) 2007-2011 certificate data matched with wage record data.

Health certificate holders experience the most dramatic earnings growth.

While business certificates offer the highest earnings, health certificates result in the largest increase in annual earnings ($10,500) (Figure 8). Certificates in consumer and public services produce the next largest earnings gains ($4,600). Certificate holders in every field experience declining earnings before they enter a program, followed by a recovery in pay after they finish.

Figure 8. Students who earn certificates in health have the largest earnings gains.



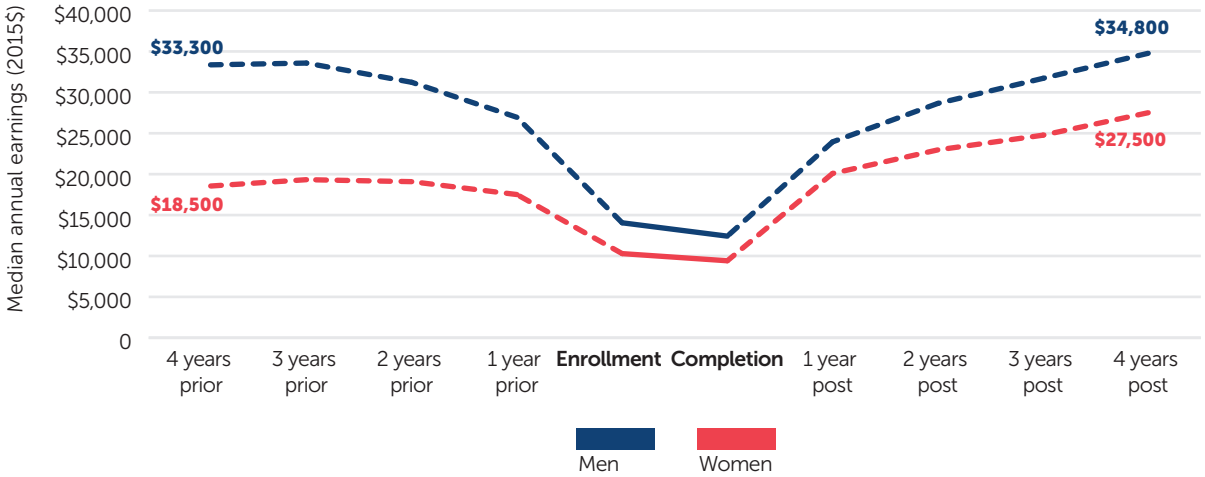
Source: Georgetown University Center on Education and the Workforce analysis of the Oregon Higher Education Coordinating Commission (HECC) 2007-2011 certificate data matched with wage record data.

As noted, earnings returns reflect the number of hours that certificate holders work and their wage level before they enter a program. This suggests that health certificates—which provide workers with the largest earnings gains—serve as an entry-level workforce credential, particularly for those who start out with low earnings and limited work experience. In fact, health fields have a relatively high concentration of workers under age 30. Business fields have a high concentration of workers age 30 and older.

Men who complete certificates in Oregon out-earn women, mirroring national trends.

It is a familiar story by now: men out-earn women.[20] This gender wage gap holds true for certificate holders in Oregon, but the gap narrows considerably in the years after men and women complete their programs (Figure 9). The gap starts out at nearly $15,000 and closes by more than half to just over $7,000.

Figure 9. Men who complete certificates out-earn women, but women benefit from larger earnings gains.



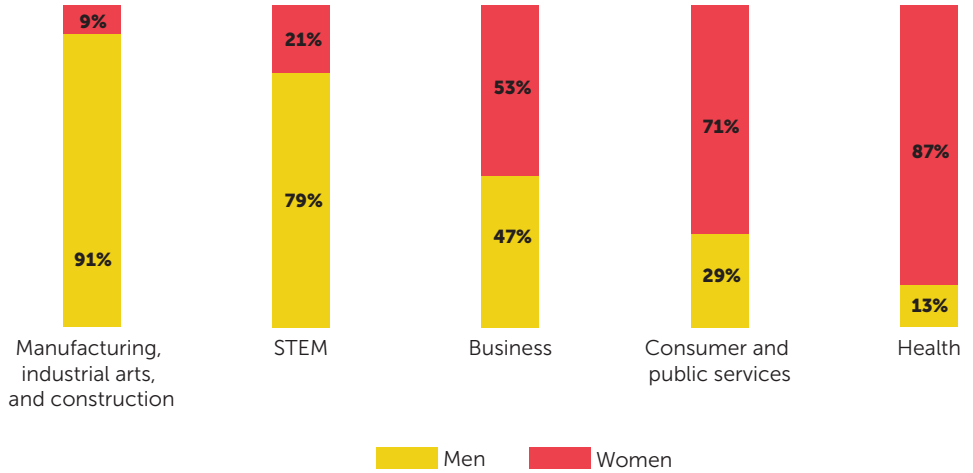
Source: Georgetown University Center on Education and the Workforce analysis of the Oregon Higher Education Coordinating Commission (HECC) 2007-2011 certificate data matched with wage record data.

20 Carnevale et al., *Women Can't Win*, 2018.

The gender wage gap stems partly from the choice of field of study.

Nationally, men are concentrated in physical, technical, and blue-collar fields, such as automotive repair, construction trades, and metalworking. Women complete certificates at much higher rates than men in health as well as administrative and office management fields.[21] This is also true in Oregon. Men are clustered in STEM fields and in manufacturing, industrial arts, and construction, while women dominate in health as well as consumer and public services (Figure 10).

Figure 10. Men represent most of the certificate holders in STEM and manufacturing, industrial arts, and construction, while women account for most of the certificate recipients in health and consumer and public services.



Note: The chart aggregates two-digit CIP fields into five general program areas: (1) health; (2) manufacturing, industrial arts, and construction; (3) consumer and public services; (4) business; and (5) science, technology, engineering, and mathematics (STEM).
Source: Georgetown University Center on Education and the Workforce analysis of the Oregon Higher Education Coordinating Commission (HECC) 2007-2011 certificate data matched with wage record data.

The gender wage gap endures overall as well as within most fields of study. Men outpace women in four out of the five broad fields of study, with the largest earnings gap in business. The only field in which women have higher median earnings than men is consumer and public services, which includes education and social services.

This gap looks quite different when earnings gains rather than earnings levels are measured. Large differences in earnings gains are associated with the fields in which men or women are concentrated. Certificates in male-dominated program areas—such as manufacturing, industrial arts, and construction—generate sizable earnings gains for men ($4,400). Women reap a large earnings boost from completing certificates in health ($11,600) and consumer and public services ($7,300), both of which are dominated by women. The flip side is that earnings returns are equivalent in business ($1,700 for both sexes) where men and women are equally represented.

21 Carnevale et al., *Certificates*, 2012.

PART 4 CERTIFICATE PROGRAMS AND WORKERS IN TRANSITION

The choice of field of study strongly influences what certificate holders earn. It is also associated, in a looser way, with where they end up working. Identifying the type of industry where they are employed offers a glimpse into the working life of people who earn certificates.[22] In Oregon, many workers start out in one industry and end up in another after they finish a program—a sign of a substantial career transition.

22 While the exact occupation or field of employment could not be determined from the state data, it was possible to determine the type of industry in which people were employed. The industry-of-employment data are available for those who were employed in any industry two years prior to program enrollment and two years following completion. Industry switchers are defined as those who were employed in one industry prior to enrollment and were found to be employed in a different industry following completion.

Certificate holders shift from jobs in traditional blue-collar industries to jobs in the growing skilled-services industries, especially in healthcare.

Certificate holders are far more likely to be employed in the fast-growing healthcare services industry than they were before they enrolled in a certificate program. The share of certificate holders working in healthcare services increased almost fourfold—from 8 percent two years prior to enrollment to 30 percent two years following completion, reflecting a sizable transition of workers who switched to healthcare from previous employment in another industry (Table 3).

Workers who earn certificates are less likely to be working in traditional blue-collar industries—especially manufacturing—than they were before they entered a program. Fewer workers were employed in manufacturing after earning a certificate (11%) than there were before entering a certificate program (22%). A similar shift occurred in wholesale and retail trade, as that industry's employment share dropped from 22 percent before the certificate program to 16 percent after the program was completed.

Within the smaller group of workers who switched industries, the shift away from employment in blue-collar industries is pronounced. More workers left jobs in manufacturing than the number who moved into the industry—more than 20 percent left manufacturing while only 7 percent started working in manufacturing after completing their certificate.

This shift in employment among certificate completers mirrors the national shift of workers without bachelor's degrees from traditional blue-collar industries to skilled-services industries, which include healthcare services.[23] It also suggests that a key role for certificate programs is to support career transitions, especially for experienced workers who want to prepare for a job in a new field.[24]

Table 3. Certificate holders are more likely to be employed in healthcare services and less likely to be working in manufacturing after they finish a program.

Industry	2 years pre-enrollment	2 years post-completion
Construction	5%	<5%
Manufacturing	22%	11%
Wholesale and retail trade services	22%	16%
Professional and business services	11%	11%
Education services	<5%	5%
Healthcare services	8%	30%
Leisure and hospitality services	10%	5%
Government services	5%	6%
Other	14%	12%
Total	100%	100%

Note: "Other" includes natural resources, transportation and utilities services, information, financial services, and personal services. Those who were not employed in any industry prior to enrollment or following completion are excluded from this analysis. Columns may not add up to 100 percent due to rounding.
Source: Georgetown University Center on Education and the Workforce analysis of the Oregon Higher Education Coordinating Commission (HECC) 2007-2011 certificate data matched with wage record data.

23 Carnevale et al., *Good Jobs That Pay without a BA,* 2017.
24 The finding related to shifting industry employment is consistent with other studies of returns to certificate programs and research on programs for displaced workers. See Xu and Trimble, *What About Certificates?* 2014; and Washington State Board for Community and Technical Colleges, *Accountability Report for the Worker Retraining Program,* 2013.

CONCLUSION

The decision to earn a certificate has become more challenging as a result of the increasing number and variety of programs. While the returns from certificate programs based on field of study and gender are well documented, this report shows that the benefits of earning a certificate play out in different ways for workers across their careers. Young certificate holders benefit from large earnings gains as they enter the workforce and set a course at the start of their careers. Certificates have a different role for older adult workers who have lost a job or suffered a job-related setback before entering a community college program. Older workers also may enter a certificate program to upgrade their skills while they remain employed. These older workers—especially those ages 45 and over—experience a rebound, if not a full recovery, in their earnings. Completing a certificate program, in effect, helps them to regain their footing in the labor market.

Certificate holders in Oregon who switch industries reflect the shift in national employment away from traditional blue-collar industries and toward skilled-services industries, especially healthcare services. These industry shifts, particularly the sharp increase in employment in healthcare services, suggest that completing a certificate program can help workers prepare for a career transition. Experienced workers who earn a certificate may be able to switch to a more stable and growing field, even though they may not reap immediate earnings gains.[25] Having better data on the occupations that certificate holders fill would provide even stronger evidence of the multiple benefits of these career transitions.[26]

The past decade has been an era of innovation for non-degree postsecondary credentials, including certificates. New types of academic and career-oriented certificates have emerged and multiplied across the country. In Oregon and other states, these credentials are no longer designed solely for workforce or career preparation. They are increasingly being used both as a pathway to employment and as a stepping stone toward an associate's degree or beyond.[27]

As the growth in certificates continues apace and their role becomes more complex, there is a pressing need for greater transparency about results. Policymakers and community college leaders alike need better data about the value of certificates to know which programs work and for whom.

25 Xu and Trimble, *What About Certificates?* 2014.

26 For an example of this line of inquiry, see Kodrzycki, "Training Programs for Displaced Workers," 1997. Most research on displaced workers' experience with community college programs and workforce training programs has overlooked the role of industry and occupational changes in the ability of experienced workers to recover from job loss.

27 To date, there is still limited evidence on the ability of students to use certificates as milestones toward completing a degree program or as steps in a career progression.

APPENDIX A OREGON COMMUNITY COLLEGES

Figure A1. The majority of Oregon's community colleges are located in the western half of the state.

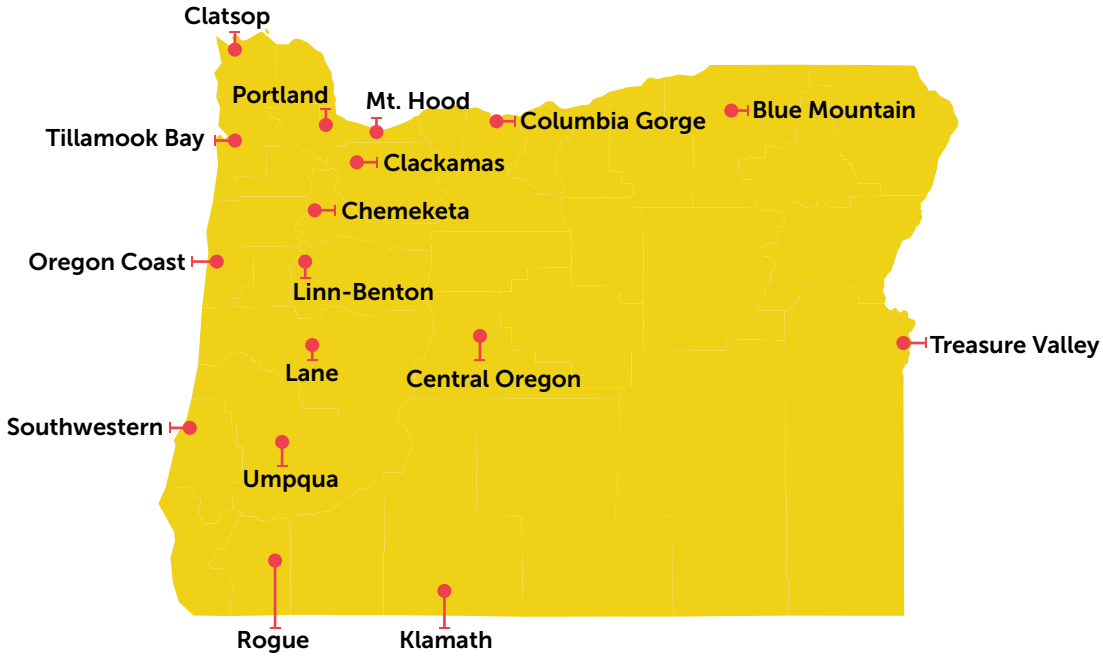


Table A1. Community colleges in Oregon are assigned to five regions.

Coast	Eastern	Metro	Southern	Valley
Clatsop	Blue Mountain	Clackamas	Umpqua	Chemeketa
Oregon Coast	Central Oregon	Mt. Hood	Rogue	Lane
Southwestern	Columbia Gorge	Portland		Linn-Benton
Tillamook Bay	Klamath			
	Treasure Valley			

APPENDIX B ANALYSIS OF EARNINGS BY REGION AND RACE AND ETHNICITY

Table B1. Students who complete certificates in the Metro region have the highest median wages, but this does not hold across every field of study.

Field of Study	Metro	Eastern	Valley	Coast	Southern	Overall median
Business	$47,600	*	$25,100	*	*	$40,000
STEM	$34,100	$24,700	$32,200	*	*	$32,500
Manufacturing, industrial arts, and construction	$33,900	$25,300	$38,900	*	$30,400	$32,400
Consumer and public services	$33,300	*	$24,500	$32,600	$23,500	$28,500
Health	$32,400	$28,500	$26,400	$26,700	$24,800	$28,000
Overall median	$35,800	$27,600	$27,000	$26,700	$25,500	$30,300

* Suppressed because there are fewer than 30 observations.
Source: Georgetown University Center on Education and the Workforce analysis of the Oregon Higher Education Coordinating Commission (HECC) 2007-2011 certificate data matched with wage record data.

Table B2. Certificate completers have the highest median wages in the Metro region, regardless of the award type they earned.

Certificate Type	Metro	Eastern	Valley	Coast	Southern	Overall median
Career Pathway	$39,300	$28,400	$29,000	*	*	$34,200
Short term	$38,100	$22,600	$26,300	-	$24,500	$31,600
Medium term	$33,100	$28,400	$26,500	$25,700	$25,600	$29,200
Long term	$27,100	*	*	*	*	$27,100
Overall median	$35,800	$27,600	$27,000	$26,700	$25,500	$30,300

* Suppressed because there are fewer than 30 observations.
Observations for apprenticeship certificates were too low to report.
Source: Georgetown University Center on Education and the Workforce analysis of the Oregon Higher Education Coordinating Commission (HECC) 2007-2011 certificate data matched with wage record data.

In Oregon, Whites make up the overwhelming majority (82%) of students completing certificates. Racial and ethnic minority groups make up a much smaller proportion of students (8% Latino; 5% Asian; 2% Black; and 2% other).[1] Latino students are more likely to complete certificates at a younger age than Whites.[2]

Latino certificate completers experience larger earnings gains than Whites. They also earn more than Whites, both prior to enrollment and after they leave their particular program.

In addition, choice of field of study helps to explain these wage differences. White certificate completers are concentrated in lower-paying health fields (42%). Latino certificate completers are less concentrated in health (26%). Rather, they are concentrated (32%) in the better paying manufacturing, industrial arts, and construction fields.

1 In this report, we use the term Black to refer to people who identify as Black or African American and the term Latino to people who identify as Hispanic or Latino. We use single terms for different racial/ethnic groups—White, Black, Latino, and Asian—to alleviate ambiguity and enhance clarity.

2 Sample sizes for the earnings of Black students who completed certificates were too small to report.

APPENDIX C
METHODOLOGY

This analysis draws on data from the US Department of Education's Integrated Postsecondary Education Data System (IPEDS); de-identified administrative records on completions from the Oregon Higher Education Coordinating Commission's (HECC) database; enrollment and student background data from the Oregon community college system; and matched quarterly unemployment insurance wage records from the Oregon Employment Department. Wage record data cover 2001 to 2015; Oregon community college and IPEDS data cover the 2006-07 to 2014-15 academic years. The award count in IPEDS represents the total number of awards issued during the year and may in some cases include multiple awards earned by the same individual.

Our analysis focuses on labor market outcomes for occupational and technical certificates. As a result, we omit individuals who received the Oregon Transfer Module (OTM), those in general basic skills and developmental or remedial education courses (CIP Code 32 program), and those who also went on to earn any type of associate's degree.

Certificate holders' earnings four years before first enrollment are compared to their earnings four years after their last certificate completion. We focus on a designated pool of completers in order to ensure both adequate follow-up for labor market outcomes and a large enough cohort of certificate holders to disaggregate outcomes for subgroups by various characteristics. This timespan also allowed enough time for students to complete certificate programs of different lengths (anywhere from 12 to 108 credits) with varying enrollment intensity (full-time, part-time, or some combination).

We count individuals under the type and field of the longest program in which they received a certificate on their most recent date of completion. For the vast share of individuals, this was also their highest certificate completed. The labor market outcomes analysis is based on a pool of individuals who earned one or more certificates and whose first enrollment and last completion in the period we have data for was between fall 2007 and fall 2011. Because of incomplete data, we could not definitively describe the educational attainment of these individuals prior to the study period. The vast majority (85%) of certificate earners obtained only one certificate within the study time frame. In total there were 3,255 certificate holders in this cohort.

This window also allowed for an adequate period for collection of earnings data for the entire group as quarterly unemployment insurance wage records were available through calendar year 2015. As a robustness test, the analyses were conducted using alternative specifications for the earnings outcomes cohorts with generally consistent findings.

Earnings data are drawn from the Oregon Employment Department's unemployment insurance wage record database. Employers participating in the state's unemployment insurance program are required to report the wage earnings of eligible employees each quarter to the state employment agency in order to calculate payouts for those who might eventually apply for benefits. Earnings data on individuals employed in other states, the military or federal government, the self-employed, and other workers not covered by the unemployment insurance program are not available. As a result, our findings may not be generalizable to these excluded categories.

Earnings and hours worked across all jobs and quarters are added together for each individual in a calendar year. Annual employment outcomes are measured relative to the calendar year in which individuals first enrolled in or completed their last certificate. To account for inflation, earnings are adjusted to constant 2015 dollars, based on the Consumer Price Index Research Series Using Current Methods (CPI-U-RS). Working half time or more is defined as working at least 1,000 hours in a year, which is roughly the equivalent of working 20 hours per week.

For analysis of fields of study, we used the following crosswalk to aggregate two-digit CIP codes into five broad program areas: health; manufacturing, industrial arts, and construction (MIC); consumer and public services; business; and science, technology, engineering, and mathematics (STEM) (Table C1). To estimate how certificates influence job transitions, we look at industry of employment two years prior to first enrollment and two years following completion. Industry switchers are defined as those who were employed in one industry prior to enrollment and were employed in a different industry following completion.

Table C1. Field of study by two-digit Classification of Instructional Programs (CIP)

Field of study	2-Digit CIP
MIC	01 - Agriculture, agriculture operations, and related sciences
MIC	03 - Natural resources and conservation
Services	09 - Communication, journalism, and related programs
MIC	10 - Communications technologies/technicians and support services
STEM	11 - Computer and information sciences and support services
Services	12 - Personal and culinary services
Services	13 - Education
STEM	14 - Engineering
STEM	15 - Engineering technologies and engineering-related fields
Services	19 - Family and consumer sciences/human sciences
Services	22 - Legal professions and studies
Services	25 - Library science
Health	26 - Biological and biomedical sciences
Services	30 - Multi/interdisciplinary studies
Services	31 - Parks, recreation, leisure, and fitness studies
Services	43 - Homeland security, law enforcement, firefighting, and related services
Services	44 - Public administration and social service professions
STEM	45 - Social sciences
MIC	46 - Construction trades
MIC	47 - Mechanic and repair technologies/technicians
MIC	48 - Precision production
MIC	49 - ransportation and materials moving
Services	50 - Visual and performing arts
Health	51 - Health professions and related programs
Business	52 - Business, management, marketing, and related support services

Note: "MIC" represents manufacturing, industrial arts, and construction. "Services" represents consumer and public services.

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