

U.S. Department of Education

**Examining the Influence of the
Florida *Career and Professional
Education Act of 2007*:
Changes in Industry Certifications
and Educational and Employment
Outcomes**

Examining the Influence of the Florida *Career and Professional Education Act of 2007*: Changes in Industry Certifications and Educational and Employment Outcomes

NATIONAL CENTER FOR INNOVATION
IN CAREER AND TECHNICAL EDUCATION

PREPARED BY
ELIZABETH GLENNIE
ERICH LAUFF
RANDY OTTEM
RTI INTERNATIONAL

Prepared for the
U.S. Department of Education
Office of Career, Technical, and Adult Education

AUGUST 2017

This report was produced under U.S. Department of Education Contract No. ED-VAE-12-C0051 with RTI International, which administers the Department of Education's National Center for Innovation in Career and Technical Education. Carolyn Lee served as the contracting officer's representative. The views expressed herein do not necessarily represent the positions or policies of the Department of Education. No official endorsement by the U.S. Department of Education of any product, commodity, service or enterprise mentioned in this publication is intended or should be inferred.

U.S. Department of Education

Betsy DeVos

Secretary

Office of Career, Technical, and Adult Education

Kim R. Ford

Deputy Assistant Secretary

Delegated the duties of the Assistant Secretary for Career, Technical, and Adult Education

August 2017

This report is in the public domain. Authorization to reproduce it in whole or in part is granted. While permission to reprint this publication is not necessary, the citation should be U.S. Department of Education, Office of Career, Technical, and Adult Education, *Examining the Influence of the Florida Career and Professional Education Act of 2007: Changes in Industry Certifications and Educational and Employment Outcomes*, Washington, D.C., 2017.

This report is available on the Department's website at <http://cte.ed.gov> and on the National Center for Innovation in Career and Technical Education's website at <http://ctecenter.ed.gov/index.php/page/our-research>.

Availability of Alternate Formats

Requests for documents in alternative formats such as Braille or large print should be submitted to the Alternate Format Center by calling 202-260-0852 or by contacting the 504 coordinator via email at om_eos@ed.gov.

Notice to Limited English Proficient Persons

If you have difficulty understanding English, you may request language assistance services for Department information that is available to the public. These language assistance services are available free of charge. If you need more information about interpretation or translation services, please call 1-800-USA-LEARN (1-800-872-5327) (TTY: 1-800-437-0833), or email us at Ed.Language.Assistance@ed.gov, or write to U.S. Department of Education, Information Resource Center, 400 Maryland Ave., SW, Washington, DC 20202.

Content Contact: Carolyn Lee at Carolyn.Lee@ed.gov

CONTENTS

	PAGE
List of Figures	v
List of Tables	vi
Abbreviations	xvi
Executive Summary.....	xvii
Chapter 1. Introduction: Industry Certifications in Florida	1
Background.....	1
Florida — <i>The Career and Professional Education Act of 2007</i>	3
Chapter 2. Data and Methods.....	6
2.1 Interview Data	6
2.2 Administrative Data Used in Analyses.....	6
2.3 The Rollout of the CAPE Program for Two Cohorts	7
2.4 In-Depth Analysis of Educational Outcomes of Certification Earners	8
Chapter 3. Rollout of the <i>CAPE Act</i>	11
3.1 Certifications Awarded.....	12
3.2 Certification Pass Rates	24
3.3 Outcomes for Certification Earners.....	28
Chapter 4. Educational Outcomes for Certification Earners	34
4.1 High School Outcomes	37
4.2 Postsecondary Educational Enrollment	41
4.3 Postsecondary Financial and Social Services Status.....	48
Conclusion	57
Implications For Policy and Practice	60
References	63
Appendix A. Interviews	A-1
Appendix B. Technical Appendix.....	B-1
Appendix C. Rollout of CAPE Results	C-1
Appendix D. Glossary	D-1

LIST OF FIGURES

FIGURE	PAGE
Figure 4a. Percentage point differences in the percentage of students in cohort 2 found employed in Florida, by industry certification type and area: Fall of 2011, 2012, 2013, 2014, and 2015.....	51
Figure 4b. Differences (in dollars) in average 4th-quarter earnings among students in cohort 2 found employed full-time full-quarter in Florida, by industry certification type and area: Fall of 2011, 2012, 2013, 2014, and 2015	53
Figure 4c. Percentage point differences in the percentage of students in cohort 2 receiving Temporary Assistance for Needy Families and/or food stamps in Florida, by industry certification type and area: Fall of 2011, 2012, 2013, and 2014	55



LIST OF TABLES

TABLE	PAGE
Table 1a. Sample certification titles in each certification area	4
Table 1b. Number of certifications awarded each year, 2007–08 through 2011–12	5
Table 3a. Research questions pertaining to the rollout of the CAPE Act, by research area	11
Table 3b. Number and percentage of industry certifications earned in Florida, by cohort and certification area: 2007–08 to 2010–11	14
Table 3c. Percentage distribution of students, both overall and among those earning certifications, by cohort, sex, race/ethnicity, and eligibility for free or reduced-price lunch: 2007–08 to 2010–11	15
Table 3d. Percentage of certifications earned by cohort, sex, race/ethnicity, and eligibility for free or reduced-price lunch: 2007–08 to 2010–11	18
Table 3e. Comparison of the percentage of certifications and the percentage of Florida public schools with a grade 12, by school locale, percent underrepresented minority, percent eligible for free or reduced-price lunch, and locale poverty level: 2009–10 and 2010–11	21
Table 3f. Percentage of certifications earned by students in cohort 2, by certification area, school locale, percent underrepresented minority, percent eligible for free or reduced-price lunch, and locale poverty level: 2009–10 and 2010–11	23
Table 3g. Number of certifications earned and/or attempted, and certification pass rate by cohort and certification area: 2007–08 to 2010–11	25
Table 3h. Number of students in cohort 2 who earned and/or attempted a certification and who passed, by sex, race/ethnicity, and eligibility for free or reduced-price lunch: 2009–10 and 2010–11	26
Table 3i. Number of certifications attempted and passed by students in cohort 2, by school locale, percent underrepresented minority, percent eligible for free or reduced-price lunch, and locale poverty level: 2009–10 and 2010–11	28
Table 3j. High school completion status among students in cohort 2, both overall and among those who earned a certification: 2010–11	30

Table 3k.	Postsecondary enrollment and persistence rates among high school credential earners in cohort 2, both overall and among those who earned a certification: 2013–14.....	32
Table 3l.	Highest postsecondary credential earned among high school credential earners in cohort 2 who immediately enrolled in a Florida public community college, both overall and among those who earned a certification: Summer 2014.....	33
Table 4a.	Research questions about educational outcomes for certification earners, by research area.....	35
Table 4b.	Marginal effects of obtaining certifications on grade 12 outcomes among students in cohort 2, by certification type and area 2010–11.....	38
Table 4c.	Marginal effects of obtaining certifications on high school graduation rates among students in cohort 2, by certification type and area: 2010–11.....	40
Table 4d.	Marginal effects of obtaining certifications on enrolling in community college or university among students in cohort 2, by certification type and area: 2013–14.....	42
Table 4e.	Marginal effects of obtaining any certification on immediate enrollment in a community college or university among students in cohort 2, by certification type and area: 2013–14.....	45
Table 4f.	Marginal effects of obtaining a certification on persisting in a community college or university for more than one year among students in cohort 2, by certification type and area: 2013–14.....	47
Table 4g.	Marginal effects of obtaining a certification on obtaining an associate degree among students in cohort 2, by certification type and area: Summer 2014.....	48
Table A1.	Number of districts represented in interviews, by locale, number of public schools, number of public school students, and percentage of students attempting and earning a certification by spring 2011: 2012.....	A-1
Table B1.	Collapsing strategy for Common Core of Data (CCD) locale categories.....	B-4
Table B2.	Number of certifications earned/attempted by students in cohort 2, by certification area, certification title, and whether the certification was included on the 2010–11 CAPE Industry Certification Funding List: 2009–10 and 2010–11.....	B-19
Table B3.	Number and percentage of industry certifications earned by students in cohort 2 by whether the certification was a CAPE or a non-CAPE certification: 2009–10 and 2010–11.....	B-24

Table B4. Number of industry certifications earned and/or attempted, and percentage of certifications passed by students in cohort 2, by certification area and whether the certification was a CAPE or a non-CAPE certification: 2009–10 and 2010–11	B-25
Table B5. High school school completion status as of 2010–11, and the percentage enrolling in Florida public postsecondary institutions as of 2013–14, by whether the student had a CAPE certification, a non-CAPE certification, or no certification	B-26
Table B6. Model covariates included in logistic regression to calculate propensity scores for cohort 2	B-30
Table B7. Derivation of analytic sample sizes for cohort 2.....	B-31
Table B8a. Results of logistic regression predicting the likelihood of obtaining any certification, sample for cohort 2 high school outcomes.....	B-37
Table B8b. Results of logistic regression predicting the likelihood of obtaining a gold-standard certification, sample for the cohort 2 analyses of high school outcomes.....	B-38
Table B8c. Results of logistic regression predicting the likelihood of obtaining a certification in Architecture and Construction, sample for the cohort 2 analyses of high school outcomes.....	B-39
Table B8d. Results of logistic regression predicting the likelihood of obtaining a certification in Arts, AV Technology, and Communication, sample for the cohort 2 analyses of high school outcomes	B-40
Table B8e. Results of logistic regression predicting the likelihood of obtaining a certification in Health Science, sample for the cohort 2 analyses of high school outcomes.....	B-41
Table B8f. Results of logistic regression predicting the likelihood of obtaining a certification in Hospitality and Tourism, sample for the cohort 2 analyses of high school outcomes	B-42
Table B8g. Results of logistic regression predicting the likelihood of obtaining a certification in Human Services, sample for the cohort 2 analyses of high school outcomes.....	B-43
Table B8h. Results of logistic regression predicting the likelihood of obtaining a certification in Information Technology, sample for the cohort 2 analyses of high school outcomes	B-44

Table B8i.	Results of logistic regression predicting the likelihood of obtaining any certification, sample for the cohort 2 analysis of postsecondary outcomes ...	B-45
Table B8j.	Results of logistic regression predicting the likelihood of obtaining a gold-standard certification, sample for the cohort 2 analyses of postsecondary outcomes.....	B-46
Table B8k.	Results of logistic regression predicting the likelihood of obtaining a certification in Architecture and Construction, sample for the cohort 2 analyses of postsecondary outcomes.....	B-47
Table B8l.	Results of logistic regression predicting the likelihood of obtaining a certification in Arts, AV Technology, and Communication, sample for the cohort 2 analyses of postsecondary outcomes.....	B-48
Table B8m.	Results of logistic regression predicting the likelihood of obtaining a certification in Health Science, sample for the cohort 2 analyses of postsecondary outcomes	B-49
Table B8n.	Results of logistic regression predicting the likelihood of obtaining a certification in Hospitality and Tourism, sample for the cohort 2 analyses of postsecondary outcomes	B-50
Table B8o.	Results of logistic regression predicting the likelihood of obtaining a certification in Human Services, sample for cohort 2 analyses of postsecondary outcomes	B-51
Table B8p.	Results of logistic regression predicting the likelihood of obtaining a certification in Information Technology, sample for the cohort 2 analyses of postsecondary outcomes	B-52
Table B8q.	Results of logistic regression predicting the likelihood of obtaining any certification, sample for cohort 2 analyses of associate degree attainment.....	B-53
Table B8r.	Results of logistic regression predicting the likelihood of obtaining a gold-standard certification, sample for cohort 2 analyses of associate degree attainment	B-54
Table B8s.	Results of logistic regression predicting the likelihood of obtaining a certification in Architecture and Construction, sample for the cohort 2 analyses of associate degree attainment	B-55
Table B8t.	Results of logistic regression predicting the likelihood of obtaining a certification in Arts, AV Technology, and Communications, sample for the cohort 2 analyses of associate degree attainment.....	B-56

Table B8u. Results of logistic regression predicting the likelihood of obtaining a certification in Health Science, sample for the cohort 2 analyses of associate degree attainment	B-57
Table B8v. Results of logistic regression predicting the likelihood of obtaining a certification in Hospitality and Tourism, sample for the cohort 2 analyses of associate degree attainment.....	B-58
Table B8w. Results of logistic regression predicting the likelihood of obtaining a certification in Human Services, sample for the cohort 2 analyses of associate degree attainment.....	B-59
Table B8x. Results of logistic regression predicting the likelihood of obtaining a certification in Information Technology, sample for the cohort 2 analyses of associate degree attainment.....	B-60
Table B9a. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained any certification and students who did not obtain a certification, sample for the cohort 2 analyses of high school outcomes	B-61
Table B9b. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a regular certification and students who obtained a gold-standard certification, sample for the cohort 2 analyses of high school outcomes.....	B-62
Table B9c. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a certification in Architecture and Construction and students who obtained any other type of certification, sample for the cohort 2 analyses of high school outcomes	B-63
Table B9d. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a certification in Arts, AV Technology, and Communications and students who obtained any other type certification, sample for the cohort 2 analyses of high school outcomes	B-64
Table B9e. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a certification in Health Science and students who obtained any other type of certification, sample for the cohort 2 analyses of high school outcomes	B-65

Table B9f. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a certification in Hospitality and Tourism and students who obtained any other type of certification, sample for the cohort 2 analyses of high school outcomes.....	B-66
Table B9g. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a certification in Human Services and students who obtained any other type of certification, sample for the cohort 2 analyses of high school outcomes ..	B-67
Table B9h. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a certification in Information Technology and students who obtained any other type of certification, sample for the cohort 2 analyses of high school outcomes.....	B-68
Table B9i. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a gold-standard or regular certification and students who did not obtain a certification, sample for the cohort 2 analyses of postsecondary outcomes...	B-69
Table B9j. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a regular certification and students who obtained a gold-standard certification, sample for the cohort 2 analyses of postsecondary outcomes.....	B-70
Table B9k. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a certification in Architecture and Construction and students who obtained any other type of certification, sample for the cohort 2 analyses of postsecondary outcomes	B-71
Table B9l. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a certification in Arts, AV Technology, and Communications and students who obtained any other type certification, sample for the cohort 2 analyses of postsecondary outcomes	B-72
Table B9m. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a certification in Health Science and students who obtained any other type of certification, sample for the cohort 2 analyses of postsecondary outcomes: 2013–14.....	B-73

Table B9n. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a certification in Hospitality and Tourism and students who obtained any other type of certification, sample for the cohort 2 analyses of postsecondary outcomes	B-74
Table B9o. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a certification in Human Services and students who obtained any other type of certification, sample for the cohort 2 analyses of postsecondary outcomes	B-75
Table B9p. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a certification in Information Technology and students who obtained any other type of certification, sample for the cohort 2 analyses of postsecondary outcomes	B-76
Table B9q. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained any certification and students who did not obtain a certification, sample for the cohort 2 analyses of associate degree attainment	B-77
Table B9r. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a gold-standard certification and students who obtained a regular certification, sample for the cohort 2 analyses of associate degree attainment	B-78
Table B9s. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a certification in Architecture and Construction and students who obtained any other type of certification, sample for the cohort 2 analyses of associate degree attainment	B-79
Table B9t. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a certification in Arts, AV Technology, and Communication and students who obtained any other type of certification, sample for the cohort 2 analyses of associate degree attainment	B-80

Table B9u. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a certification in Health Science and students who obtained any other type of certification, sample for the cohort 2 analyses of associate degree attainment	B-81
Table B9v. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a certification in Hospitality and Tourism and students who obtained any other type of certification, sample for the cohort 2 analyses of associate degree attainment	B-82
Table B9w. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a certification in Human Services and students who obtained any other type of certification, sample for the cohort 2 analyses of associate degree attainment	B-83
Table B9x. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a certification in Information Technology and students who obtained any other type of certification, sample for the cohort 2 analyses of associate degree attainment	B-84
Table C1a1. Number and percentage of industry certifications earned in Florida by students in cohort 1, by certification area and year: 2007–08 and 2008–09	C-1
Table C1a2. Number and percentage of industry certifications earned in Florida by students in cohort 2, by certification area and year: 2009–10 and 2010–11	C-2
Table C1b1. Percentage distribution of students in cohort 1, both overall and among those earning certifications, by sex, race/ethnicity, eligibility for free or reduced-price lunch, and year: 2007–08 and 2008–09	C-3
Table C1b2. Percentage distribution of students in cohort 2, both overall and among those earning certifications, by sex, race/ethnicity, eligibility for free or reduced-price lunch, and year: 2009–10 and 2010–11	C-3
Table C1c1. Percentage of certifications earned by students in cohort 1, by sex, race/ethnicity, eligibility for free or reduced-price lunch, and certification area: 2007–08 and 2008–09.....	C-4
Table C1c2. Percentage of certifications earned by students in cohort 2, by sex, race/ethnicity, eligibility for free or reduced-price lunch, and certification area: 2010–11 and 2011–12.....	C-6

Table C1d1. Comparison of the percentage of certifications and the percentage of Florida public schools with a grade 12, by school locale, percent underrepresented minority, percent eligible for free or reduced-price lunch, and locale poverty level: 2007–08 and 2008–09	C-8
Table C1d2. Comparison of the percentage of certifications and the percentage of Florida public schools with a grade 12, by school locale, percent underrepresented minority, percent eligible for free or reduced-price lunch, and locale poverty level: 2009–10 and 2010–11	C-9
Table C1e1. Percentage of certifications earned by students in cohort 1, by certification area, school locale, percent underrepresented minority, percent eligible for free or reduced-price lunch, and locale poverty level: 2007–08 and 2008–09	C-10
Table C1e2. Percentage of certifications earned by students in cohort 2, by area, school locale, percent underrepresented minority, percent eligible for free or reduced-price lunch, and locale poverty level: 2009–10 and 2010–11	C-12
Table C1f1. Certification pass rates and the number of certifications that were earned and/or attempted by students in cohort 1, by certification area: 2007–08 and 2008–09	C-1
Table C1f2. Certification pass rates and the number of certifications that were earned and/or attempted by students in cohort 2, by certification area: 2009–10 and 2010–11	C-1
Table C1g. Student-level pass rates and the number of students in cohort 1 who earned and/or attempted a certification, by sex, race/ethnicity, and eligibility for free or reduced-price lunch: 2007–08 and 2008–09	C-2
Table C1h. Certification pass rates and the number of certifications earned and/or attempted by students in cohort 1, by school locale, percent underrepresented minority, percent eligible for free or reduced-price lunch, and locale poverty level: 2007–08 and 2008–09	C-3
Table C1i1. High school completion status among students in cohort 1, both overall and among those earning certifications, by certification year: 2008–09	C-4
Table C1i2. High school completion status among students in cohort 2, both overall and among those earning certifications, by certification year: 2010–11	C-4
Table C1j1. Postsecondary enrollment and persistence rates among high school credential earners in cohort 1, both overall and among those who earned a certification, by certification year: 2011–12	C-5

Table C1j2. Postsecondary enrollment and persistence rates among high school credential earners in cohort 2, both overall and among those who earned a certification, by certification year: 2013–14.....	C-6
Table C1k1. The highest postsecondary degree earned among high school credential earners in cohort 1 who immediately enrolled in a Florida public community college, both overall and among those who earned a certification, by the certification year: Summer 2012	C-7
Table C1k2. The highest postsecondary degree earned among high school credential earners in cohort 2 who immediately enrolled in a Florida public community college, both overall and among those who earned a certification, by certification year: Summer 2014	C-7
Table C2. Certification pass rates and the number of certifications earned and/or attempted by students in cohort 2, by certification title and gold-standard certification status: 2009–10 and 2010–11	C-8
Table C3a. Percentage of students in cohort 2 found employed in Florida, by industry certification type and area: Fall of 2011, 2012, 2013, 2014, and 2015	C-14
Table C3b. Average 4th-quarter earnings (in dollars) among students in cohort 2 who were found employed full-time full-quarter in Florida, by industry certification type and area: Fall of 2011, 2012, 2013, 2014, and 2015	C-15
Table C3c. Percentage of students in cohort 2 who were receiving Temporary Assistance for Needy Families (TANF) and/or food stamps in Florida, by industry certification type and area: Fall of 2011, 2012, 2013, and 2014.....	C-16

ABBREVIATIONS

AAS	associate in applied science
AP	Advanced Placement
AS	associate in science
CAPE	Career and Professional Education (Florida)
<i>CAPE Act</i>	<i>Career and Professional Education Act of 2007</i>
CCD	Common Core of Data
CTE	career and technical education
EDW	Education Data Warehouse
FETPIP	Florida Education and Training Placement Information Program
FLDOE	Florida Department of Education
FT/FQ	full-time full-quarter
GPA	grade point average
IB	International Baccalaureate
IPW	inverse-probability weight
LEP	limited English proficiency
NCES	National Center for Education Statistics
NSC	National Student Clearinghouse
OCTAE	Office of Career, Technical, and Adult Education
STEM	science, technology, engineering, and mathematics
TANF	Temporary Assistance for Needy Families

EXECUTIVE SUMMARY

BACKGROUND

High school students who complete technical coursework in a given field should be able to demonstrate their skill mastery by passing a technical skill assessment that is recognized in that field. States are using a variety of approaches to assess students' skill attainment, with some adopting industry-recognized assessments linked to national standards. These exams can both document that students have achieved industry-recognized standards and confer a national certification recognized by employers.

With the *Career and Professional Education Act of 2007 (CAPE Act)*, the Florida legislature promoted coordinated statewide planning between business and education to help attract industries with high employment capacity to the state. Each year, the state identifies industry and third-party certifications that are based on national standards and associated with occupations in high demand or linked to emerging industries. The Division of Career and Adult Education within the Florida Department of Education (FLDOE) selects a subset of industry certifications that are appropriate for secondary school students to pursue and annually creates a CAPE Industry Certification Funding List.¹ Students and their parents do not have to pay examination costs nor manage logistics of scheduling the exam or getting to a testing location. The certifications on this list are one component of Florida's School Report Cards; schools get credit and financial bonuses for students who take industry-recognized certification exams and who pass those exams. Students earning some certifications have the potential to earn postsecondary credits as well.

This study assesses several aspects of the Florida experience. One relates to the rollout of the program. We were able to document the changes in the number and type of students pursuing and earning industry-recognized certifications once those certifications were integrated into the state's funding formula and used to determine bonus funding. In this report, the term "certification earners" refers to all students who earned certifications in high school, regardless of their course-taking. "Certification non-earners" are those who did not earn certifications, either because they did not take an exam or because they failed it. Next, we assess whether awarding postsecondary credits to certification earners affects their

¹ An archived year-by-year listing of CAPE Industry Certification Funding Lists can be found at <http://www.fldoe.org/academics/career-adult-edu/cape-secondary/cape-industry-cert-funding-list-archive.shtml>.

educational outcomes, including whether students with such credits were more likely to complete high school and whether they were more likely to enroll and persist in postsecondary education. Finally, we assess whether industry certification confers employment benefits.

METHODS

This research effort analyzes the influence of the *CAPE Act* on the cohort of grade 9 students entering high school in 2007–08, the year the *Act* was passed, and follows them through high school graduation in 2010–11 and their first three years of postsecondary experience (to the 2013–14 school year). These students were juniors the year that certifications were incorporated into the high school grading formula, and we focus on certifications earned in the last two years of high school.

To gain insight into this program, we first asked the Florida Department of Education to introduce us to officials in eight Florida school districts that had high numbers of students earning certifications. We interviewed these officials about their districts’ implementation of the *CAPE Act*. Interviews focused on the processes districts used to help students earn certifications and the perceived benefits of the program.

The second step examined the changing landscape of the certification process and postsecondary outcomes over time. Here, we compared certifications and postsecondary outcomes for students in two cohorts: cohort 1, who entered high school in the 2005–06 academic year and were juniors when the *CAPE Act* was passed, and cohort 2, who entered high school in 2007–08, the year it was passed. In chapter 3, this report addresses the following questions about certifications awarded:²

- 3.1: In which program areas were certifications awarded?
- 3.2: What are the characteristics of students earning certifications?
- 3.3: What are the characteristics of students earning certifications in different areas?
- 3.4: What are the characteristics of schools whose students received certifications in terms of urbanicity, poverty level, and ethnic composition?

² Research question numbers indicate the chapter in which findings for that research question appear. For example, findings for research question 3.1 appear in chapter 3.

3.5: What are the characteristics of schools whose students received certifications in different areas?

Next, analyses examine the following questions about certification pass rates:

3.6: What are the certification pass rates by certification area?

3.7: Do the student-level certification pass rates differ by the characteristics of students (sex, race/ethnicity, free or reduced-price lunch eligibility)?

3.8: Do the certification-level pass rates differ by characteristics of schools?

Finally, the chapter addresses questions concerning outcomes associated with earning certifications:

3.9: For each cohort, what were the dropout and graduation rates for certification earners compared to non-earners?

3.10: Comparing certification earners to non-earners, three years after high school graduation:

- What percentage had ever entered a postsecondary educational program in Florida?
- What percentage entered a postsecondary educational program in Florida immediately after completing high school?
- Of those who entered a postsecondary educational program in Florida in the fall after graduation, what percentage persisted past the first year?

3.11: Comparing certification earners to non-earners, three years after high school graduation, what percentage of those who entered a Florida community college immediately after completing high school earned an associate degree?

We also examined the educational experiences of cohort 2, the grade 9 students entering high school in 2007–08, in more detail. These students had the greatest opportunity to benefit from the *CAPE Act* because it was in place throughout their time in high school. Using propensity score matching, we identified comparison groups of students who had a similar propensity for earning certifications, given their demographic, academic, and school characteristics. (Note that this report includes a glossary defining statistical terms, Florida’s policies, and datasets used.) We compared outcomes for those who earned industry certifications to those for matched students who did not earn an industry certification. Then, we compared outcomes for those earning different types of certification: Gold Standard Career Pathways and regular certifications. Gold Standard Career Pathways give students the

potential to earn credit toward an associate degree.³ Gold Standard Career Pathways Articulation Agreements are developed through a process with the Florida College System institutions and are based on industry certifications on the Department of Education's CAPE Industry Certification Funding List. Approved by the State Board of Education, the Gold Standard Career Pathways Articulation Agreements allow students who earn certain industry certifications to earn college credit toward the associate degree program identified in the articulation agreement.⁴

In this report, we use the term gold-standard certifications to refer to Gold Standard Career Pathways certifications and the term regular certifications to refer to all other certifications. Table C2 lists all certifications earned in 2009–10 and 2010–11 by the freshman class of 2007–08 and identifies the gold-standard certifications. Each certification area has some gold-standard and some regular certifications. We compared those who earned a gold-standard industry certification to those who earned a regular industry certification across all areas. We also compared grade 12 and postsecondary outcomes for certification earners in certain areas, such as Hospitality and Tourism, to outcomes for those who earned certificates in other areas.

In chapter 4, for each research question, we compared (1) those who earned any certifications to matched students who did not; (2) those who earned gold-standard certifications to matched students who earned regular certifications; and (3) those who earned certifications in a given area, such as Health Sciences, to matched students who earned certifications in other areas. Specifically, we addressed the following questions about high school outcomes:

4.1: Did certification earners perform better than matched non-earners in the following grade 12 outcomes:

- attendance rates?
- number of credits attempted?
- number of credits earned?
- grade point average (GPA)?

4.2: Were those who earned certifications more likely to graduate from high school than matched students who did not earn certifications?

³ For the list of gold-standard industry certifications that give students the potential to earn credit toward an associate degree, see <http://www.fldoe.org/academics/career-adult-edu/career-technical-edu-agreements/industry-certification.stml>.

⁴ Florida Department of Education State Board of Education. Rule Number 6A-10.0401 Gold Standard Career Pathways Articulation Agreements.

Next, we address questions about postsecondary educational enrollment:

4.3: Were those who earned certifications more likely than matched non-earners to enroll in

- any college or university?
- a community college?
- a university?

4.4: Among those who enrolled in a postsecondary institution, were certification earners more likely than matched non-earners, in the semester following high school graduation, to enroll in

- any college or university?
- a community college?
- a university?

4.5: Among those who immediately enrolled in a postsecondary institution, were certification earners more likely than matched non-earners to persist more than one year in

- any college or university?
- a community college?
- a university?

4.6: Among those who enrolled in a community college, were certification earners more likely than matched non-earners to attain an associate degree?

Finally, we address questions about postsecondary financial and social services status:

4.7: What was the difference in employment rates between certification earners and matched non-earners? Of those employed full time, what was the difference in their earnings?

4.8: What was the difference in rates of receiving public assistance between certification earners and matched non-earners?

4.9: What was the difference in incarceration rates between certification earners and matched non-earners?

RESULTS

Analyses of the rollout of the CAPE certification program yielded the following results:

- Officials we interviewed in eight districts described many benefits of this program. Earning certifications may help students get jobs, and gold-standard certifications may allow them to earn credits toward an associate degree. The *CAPE Act* has benefited teachers and schools by giving schools credit on the Florida School Report Card for students who take and pass industry-recognized exams. It has benefited districts by allowing them to identify the most effective certification programs. Differences in exam taking and passing may reflect the way certification areas are promoted and the way teachers are trained to prepare their students. Some districts work directly with businesses in setting priorities for certifications offered in that district. Respondents did not mention any challenges in working with businesses to identify certifications.
- In interviews, district officials described the supports that students receive as they pursue certifications. Students and their parents do not pay examination costs, nor do they need to schedule the examination or arrange for transportation to an examination site.
- The number of certifications earned increased dramatically from 2008 and 2009 (for cohort 1) to 2010 and 2011 (for cohort 2) — about 12 times more certifications were earned by cohort 2 than by cohort 1 (19,075 for cohort 2, compared to 1,622 for cohort 1). In both cohorts, the most frequently earned certifications were in the areas of Arts, AV Technology, and Communication (at least 20 percent in both cohorts), and Health Science (at least 18 percent in both cohorts). The areas in which certifications were least frequently earned included Agriculture, Business Management, Engineering and Technology Education; Law, Public Safety, and Security; Manufacturing; and Transportation and Distribution (less than 2 percent in cohort 2) (table 3b).
- Analyses that examined certification rates by student characteristics of sex, race/ethnicity, and free or reduced-price lunch eligibility showed some groups of students earned certifications less frequently than one might assume given their representation in the cohort, and other groups earned certifications more frequently. In cohort 2, the percentage of males who earned certifications was 3 percentage points less than their percentage in the cohort population, so the female certification earning rate was 3 percentage points higher than their percentages in the population. The percentage of blacks who earned certifications was 5 percentage points less than their percentage in the cohort

population, but the percentage of whites who earned certifications was 4 percent higher than their percentage in the cohort. The percentage of students eligible for free or reduced-price lunch who earned certifications was 2 percentage points less than their percentage in the cohort, and the rate for those who were not eligible for free or reduced-price lunch was 2 percentage points higher than their cohort population percentage. However, in cohort 1, the difference between the percentage earning certifications and the cohort percentage was at least three times what it was in cohort 2 (table 3c).

- School context seemed to influence the rollout of the certification program. Analyses examined school context in terms of locale, student race/ethnicity, and student poverty rates. Between 2007–08 and 2010–11, the number of districts in which any students earned certifications almost tripled.⁵ However, even with this increase, in both cohorts, more certifications were awarded in suburban schools, in predominantly white schools, and in more affluent schools, or those with the lowest percentages of students eligible for free or reduced-price lunch (table 3e for cohort 2; appendix C1d1 for cohort 1). Perhaps more affluent schools are better able to attract qualified teachers and acquire needed technology so that students can prepare to take certifications. In cohort 2, 53 percent of certifications were earned in suburban schools, and 40 percent of certifications were earned in schools with the lowest percentages of underrepresented minority students. Only 19 percent of certifications were earned in schools with the highest percentage of students eligible for free or reduced-price lunch.
- Not all students who took certification examinations passed them. Cohort 1 had a 73 percent pass rate, and cohort 2 had a 64 percent pass rate. Note that in cohort 2, even though the pass rate was lower, far more certifications were earned in this group because many more people took examinations (table 3g). Differences in pass rates may have resulted, in part, from changes in state reporting requirements. When schools did not have to report all those taking exams, they may have underreported the number of exam-takers, which would have inflated the pass rates.
- Pass rates varied for various groups of students in different settings. Analyses examined pass rates by sex, race/ethnicity, and poverty level. Among students in cohort 2 who took examinations, the pass rates for males (64 percent), black students (60 percent), Hispanic students (63 percent), and students eligible for

5 <http://www.fldoe.org/core/fileparse.php/9904/urlt/IndustryCertPassRates-Cert-1415-1516.xls>

free or reduced-price lunch (63 percent) were lower than the average student-level pass rates (67 percent) (table 3h).

- Certification-level exam pass rates were highest in schools with the lowest percentage of students eligible for free or reduced-price lunch (68 percent) and schools with the lowest percentage of students who were underrepresented minorities, defined as Native American, black, and Hispanic (69 percent) (table 3i).

In analyzing the outcomes of earning a certification, we found the following results:

- In grade 12, certification earners had better outcomes than non-earners in terms of their attendance, number of credits earned, GPA, and diploma attainment. However, we found no difference between regular certification earners and gold-standard certification earners on these measures (table 4b and 4c).
- In the first semester after high school graduation, certification earners enrolled in a postsecondary educational institution more often than certification non-earners did. Enrollment in community college drove this difference. There was no statistical difference in university enrollment between certification earners and non-earners (table 4d).
- Students who obtained a gold-standard certification were less likely to enroll in any postsecondary institution than those who obtained a regular certification.
- The association between certification area and postsecondary enrollment varied. Students earning certifications in the areas of Health Science and Human Services were more likely to enroll in community colleges than their peers, and students earning certifications in Architecture and Construction and Hospitality and Tourism were less likely to do so (table 4d).⁶
- Of those who enrolled in community college, certification earners were more likely to attain an associate degree within three years than matched non-earners. Certification earners in the Information Technology area were more likely to attain an associate degree than other certification earners, but rates of earning an associate degree did not differ for other certification areas. Rates of earning an associate degree did not differ between gold-standard and regular certification earners (table 4g).

⁶ Each certification area includes both regular and gold-standard certifications.

- At the time of this report, five years of postsecondary data were available for those who graduated from high school in spring of 2011. Up to five years out of high school, certification earners' employment rate was about 2 percentage points higher than that of non-earners, but gold-standard certification earners' employment rate was about 2 percentage points lower than that of regular certification earners. Among certification earners in different areas, employment rates are within about 3 percentage points of each other. Two exceptions were Arts, AV Tech, and Communications, whose employment rates were about 4 percentage points lower than other certification earners, and Hospitality and Tourism certification earners whose employment rate was at least 6 percentage points higher than other certification earners (figure 4a).
- Up to five years out of high school, differences in quarterly earnings between certification earners and non-earners, between certification types, and among certification areas were within about \$200 of each other. Two exceptions were for Hospitality and Tourism certification earners, whose quarterly earnings were \$407 less than those of earners in other certification areas in 2015, and Information Technology certification earners, whose quarterly earnings were about \$400 more than those of other certification earners each year (figure 4b).
- Up to five years out of high school, the rate at which certification earners received public assistance was about 4 percentage points less than that of non-earners each year. In comparisons of public assistance receipt (i.e., food stamps and/or Temporary Assistance for Needy Families [TANF] funds) across certification types and areas, most differences were within 2 percentage points of each other (figure 4c).

IMPLICATIONS

Earning industry certifications in high school may help students prepare for postsecondary success. When Florida initiated the *CAPE Act* and incorporated certifications into Florida's School Report Card, many more students earned certifications while in high school. Earning a certification had a positive influence on grade 12 outcomes such as GPA, credits attempted, and credits earned. Certification earners were more likely than non-earners to graduate from high school, to enroll and persist in community college, and to attain an associate degree within three years. Furthermore, as the number of certifications increased, the demographic characteristics of certification earners shifted to resemble the overall characteristics of the cohort more closely. Opportunities to earn certifications were not

limited to a subset of students. Students with different backgrounds and in different school settings were able to take certification exams and gain these benefits.

However, some districts and schools may face challenges with promoting certifications. These challenges include finding and hiring qualified teachers for courses leading to certifications and providing technology required to master different kinds of certifications. Further study is needed to analyze the variation found in certification earnings by student subgroup characteristics and to determine if students in some schools received adequate counseling about pursuing certifications.

The goal of the *CAPE Act* was to encourage Florida's educators and industry employers to collaborate so that students have opportunities to receive an education that prepares them for available jobs. However, data is unavailable to determine whether certification earners found jobs in the industries in which they received certifications; the data indicate employment status, but provide no information about job or industry. Data from employers, which are not available, would more definitively indicate the career readiness of certification earners. Analyses do show, however, that in grade 12 certification earners obtained more credits, had higher GPAs, had better attendance, and earned diplomas in greater numbers than non-earners. Among high school completers, certification earners were more likely to enroll in community college, persist, and earn a degree. These other academic accomplishments may foster career readiness among certification earners.

CHAPTER 1. INTRODUCTION: INDUSTRY CERTIFICATIONS IN FLORIDA

BACKGROUND

Jobs that pay livable wages increasingly call for educational attainment beyond a high school diploma. By 2020, about two-thirds of *all* jobs will require some postsecondary education or training (Carnevale, Smith, and Strohl 2014). Many employers believe that new hires are not prepared for work. In a survey conducted in 2012, only 49 percent of American employers agreed that “overall, employees we hired in the past year have been adequately prepared by their pre-hire education and/or training,” and 45 percent indicated that skills shortages were a leading reason for entry-level job vacancies (Baum, May, and Payea 2013). A misalignment between education and the labor force is problematic at the individual and societal levels. High school graduates without any postsecondary training will not be able to attain middle-class status because of unemployment and lower earnings, and society loses out on the financial return of a well-educated population in the form of lower tax payments and more reliance on social support programs.

Aligning the educational training of students to the workforce needs of employers will help students succeed in obtaining and retaining jobs. Industry-recognized credentials—nationally recognized certifications, created and awarded by particular business or industry associations—provide one promising path forward. Because these credentials are based on a workplace analysis of skills needed within occupations, they can show that a person has skills necessary for different jobs. The certification exams are based on a valid, third-party testing protocol that schools and other institutions can use. While certification testing has associated costs, having third-party, validated assessments saves schools or other institutions the expenses associated with developing, maintaining, and managing the assessments (Wilcox 2006).

Policymakers and businesses view earning industry certifications as a key to providing students and workers with relevant job training that leads to rewarding career tracks (Goodman, Meyer, and Imperatore 2014). Subbaccalaureate certificates and degrees have been shown to improve wages, increase employment, and promote job satisfaction (Carnevale, Rose, and Hanson 2012; Dadgar and Trimble 2015; Rosenbaum and Rosenbaum 2013; Deming et al. 2016; Jepsen, Troske, and Coomes 2014). Furthermore, industry-

recognized credentials enable students to demonstrate proficiency with employer-determined skill standards, obtain occupational licenses, and/or earn postsecondary education credit (Castellano, Stone, and Stringfield 2005; Goodman, Meyer, and Imperatore 2014).

Nationally recognized credentials are increasingly important in affording opportunities to obtain and demonstrate skills necessary to fill and succeed in needed jobs. These credentials can have a positive impact on American industry, educators, and young people by providing more training in high-need areas that can result in higher wages and lowering the daunting college costs for some students (Carnevale, Rose, and Hanson 2012; Goldin and Katz 2008).

Because of growing interest in the benefits of certifications, policies and programs promoting certification attainment during high school have exploded in recent years. Forty-two states now offer kindergarten through grade 12 pathways leading to a certification (NCES 2016), and some states have seen huge increases in the number of high school students earning certifications (Goodman, Meyer, and Imperatore 2014). In 2014 alone, 18 states⁷ made legislative or policy changes expanding the role of industry-recognized credentials or certifications (ACTE 2014).

When states link preparation for certification exams to academic requirements, they implement policies that may help students prepare for and benefit from the exam process. As noted above, the Division of Career and Adult Education within the Florida Department of Education (FLDOE) selects industry certifications that are appropriate for high school students to pursue. On their own, students might choose certifications for which they are not academically prepared. Certification vendors do not require exam-takers to provide proof of preparation before taking the exam (Koziniec and Dixon 2001). However, if certifications are part of a formal educational program, then state, district, and school policies can help students prepare for the exams. When the certification process is linked to schools, educators can require students to complete prerequisite courses before taking the examination. In Florida, when certifications became part of the accountability system, school and district officials knew students' test results, and they could modify their training in response to student outcomes. Further, by preparing for certification exams in a formal educational setting, students can receive a stronger theoretical foundation before taking a certification exam, and should be better able to apply knowledge beyond one specific vendor's product line (Randall and Zirkle 2005).

Despite the vital and growing role of industry-recognized credentials in the United States, little is known about the value of industry certification programs in high school or the consequences of high school certifications for secondary and postsecondary outcomes.

⁷ States listed in the ACTE (2014) report include Arizona, California, Delaware, Florida, Georgia, Idaho, Indiana, Kansas, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Ohio, Rhode Island, Tennessee, Utah, and West Virginia.

Because certification examinations are developed and scored by various vendors, comprehensive data linking certifications and academic outcomes are not available. Nor is reliable national data available on the number of certifications being earned (Sykes, Szuplat, and Decker 2014). As more states implement policies to offer industry-recognized credentials to students, we need to understand which students are earning them, how they benefit, and their secondary and postsecondary trajectories. This report examines student outcomes related to earning certifications following the state's implementation of the *Career and Professional Education Act of 2007 (CAPE Act)*.

FLORIDA — THE CAREER AND PROFESSIONAL EDUCATION ACT OF 2007

In 2007, the Florida legislature passed the *CAPE Act* to provide rigorous and relevant coursework that can lead to industry certification and college credit. The *CAPE Act* promotes the coordination of statewide planning between business and education to help attract industries with high employment potential to the state. A central focus of the *CAPE Act* is on state-approved industry certifications considered critical to Florida employers.⁸ Each year, the state releases a Comprehensive Industry Certifications List that identifies industry and third-party certifications that are based on national standards and associated with occupations in high demand or linked to emerging industries.⁹ The Division of Career and Adult Education within the Florida Department of Education (FLDOE) selects a subset of these certifications for use at the secondary level. Only industry certifications that meet the state's definition of industry certification are allowed, and some third-party certifications are not recognized.¹⁰ To qualify, certifications must (1) be ones that secondary students can achieve, (2) require a minimum of 150 hours of instruction, and (3) have been offered for at least one year in a school district. In the 2010–11 academic year, 186 certifications on the comprehensive list

⁸ The state defines an industry certification as “a voluntary process through which individuals are assessed by an independent, third-party certifying entity using predetermined standards for knowledge, skills and competencies, resulting in the award of a time-limited credential that is nationally recognized and applicable to an occupation that is included in the workforce system’s targeted occupation list or determined to be an occupation that is critical, emerging or addresses a local need” (<http://www.fldoe.org/academics/career-adult-edu/industry-certification>).

⁹ Certifications included on the list are identified through a collaborative effort involving Workforce Florida (a statewide, business-led workforce policy board), the Florida Department of Education, and the Florida Department of Economic Opportunity. Information on list development is available at <http://www.workforceflorida.com/>.

¹⁰ Third-party assessments that do not meet the state definition still may be used locally to measure students’ technical skill attainment or to fulfill local end-of-course assessment requirements that must have been in place beginning in 2014–15 for all courses not covered under a state-approved assessment.

were approved for secondary use.¹¹ We assigned certifications to program areas using the 2013–14 Career and Professional Education (CAPE) Industry Certification Funding List. Students can obtain certifications that fall under the following areas: Agriculture; Architecture and Construction; Arts, AV Technology, and Communication; Business Management and Administration; Engineering and Technology Education; Health Science; Hospitality and Tourism; Human Services; Information Technology; Law, Public Safety, and Security; Manufacturing; and Transportation and Distribution. Appendix table C2 has the list of certifications by area.

Different certifications are associated with different kinds of jobs. Table 1a provides sample certifications within each area that suggest the types of jobs one might pursue with these certifications.

Table 1a. Sample certification titles in each certification area

Certification area	Sample certification titles
Agriculture	Certified agriculture technician, certified horticulture professional
Architecture and Construction	Autodesk certified associate, carpentry fundamentals, industrial maintenance mechanic
Arts, AV Technology, and Communication	Adobe certified associate, Adobe Dreamweaver developer, graphic communication, television broadcasting
Business Management and Administration	Accountant, Quickbooks specialist,
Engineering and Technology Education	Solidworks associate
Health Science	EKG technician, medical laboratory assistant, licensed practical nurse
Hospitality and Tourism	Food safety manager, rooms division specialist
Human Services	Home care aide, cosmetologist, early childhood care provider
Information Technology	Web design specialist, e-commerce specialist, desktop support technician
Law, Public Safety, and Security	Private security officer, fire fighter
Manufacturing	Textile producer, welder
Transportation and Distribution	Automobile/light truck technician, airframe mechanic, Federal Aviation Association Powerplant mechanic

SOURCE: CAPE Industry Certification Funding List [//www.fldoe.org/academics/career-adult-edu/cape-secondary/index.shtml](http://www.fldoe.org/academics/career-adult-edu/cape-secondary/index.shtml).

A subset of these industry certifications, termed Gold Standard Career Pathways, confer statewide articulated credit that may be applied toward attaining an associate degree. These agreements establish a minimum guarantee of articulated credit, with Florida College System institutions granting additional credit. In the 2010–11 academic year, 79 of the 186 certifications approved for secondary use offered such credit. This report refers to Gold

¹¹ The 186 certifications from the 2010-11 CAPE Industry Certification Funding list can be viewed here: <http://www.fldoe.org/core/fileparse.php/3/urlt/1011icfl.pdf>. Certification areas (i.e., certification “career clusters”) were first made available on the 2013-14 CAPE Industry Certification Funding List: <http://www.fldoe.org/core/fileparse.php/3/urlt/1314icfl.pdf>.

Standard Career Pathways certifications as gold-standard certifications and all other certifications as regular industry certifications.

Industry certifications took on increased importance in the 2009–10 academic year, when they were incorporated into the state’s high school grading and funding formulas. Florida grades schools using a point system, and high schools earn points based on overall and at-risk student graduation rates, participation in and performance on advanced coursework, and college readiness in reading and math. Participating in advanced coursework includes taking at least one exam in Advanced Placement (AP), International Baccalaureate (IB), or an industry certification. For industry certifications, a participant must have taken an industry certification examination on the Comprehensive Industry Certification List approved by FLDOE. Schools get points for performance on advanced coursework when students pass these examinations (Florida Department of Education 2016a).¹² This policy change was associated with enormous growth in these awards. Table 1b presents the numbers of certifications awarded by year for the first five years of the *CAPE Act*.

Table 1b. Number of certifications awarded each year, 2007–08 through 2011–12

Academic Year	Certification Awards ¹³
2007–08	954
2008–09	2,732
2009–10	16,408
2010–11	33,523
2011–12	45,447

This report first examines the experiences of Florida students when this program started, describing the characteristics of the students who earned certifications and the schools where they earned them. Next, it compares high school and postsecondary outcomes for certification earners to those for non-earners. Analyses focus on the cohort of grade 9 students who entered high school in 2007–08, the year the *CAPE Act* was passed, and follow them through high school graduation in 2010–11 and four years of their postsecondary experience (to 2014–15). Chapter 2 focuses on the analytical approach to the study, chapter 3 contains a descriptive analysis of the students who earned certifications and the rollout of the program, and chapter 4 presents an in-depth analysis of the high school and postsecondary outcomes associated with earning certifications.

¹² Each secondary student who earns a recognized certification and graduates with a high school diploma qualifies his or her district for up to a 0.3 full-time equivalent student membership for the subsequent school year, depending upon the rigor of the certification and its employment value.

¹³ <http://www.fldoe.org/core/fileparse.php/9904/urlt/IndustryCertPassRates-Cert-1415-1516.xls>.

CHAPTER 2. DATA AND METHODS

This chapter describes the data and methods used in the analysis of the influence of the *CAPE Act* on two cohorts of students in Florida: students who entered grade 9 in 2005–06 and students who entered grade 9 in 2007–08. Section 2.1 describes the interviews that we conducted with officials in eight districts. Appendix A shows the interview protocol and characteristics of districts represented in the interviews. Section 2.2 describes the data we used from Florida’s state longitudinal data system. Section 2.3 presents the methods used in the calculations for the descriptive analyses in chapter 3, and section 2.4 addresses the methods used in the calculations for the in-depth analysis in chapter 4. Appendix B includes more detail about (1) the variables used in analysis; (2) CAPE and non-CAPE certifications; (3) propensity score matching; and (4) checking that treatment and comparison groups are balanced.

2.1 INTERVIEW DATA

To get contextual information about the rollout of this policy and the perceived benefits and challenges to implementation, RTI International interviewed career and technical education (CTE) officials in eight districts that have had high levels of participation in the CAPE program. Table A1 shows the characteristics of these districts. This was a purposive sample designed to elicit responses from districts that had been successful in implementing the program. Tara Goodman, Bureau Chief of Budget, Accountability, and Assessment in Florida’s Division of Career and Adult Education, nominated interview candidates. Interviews focused on the processes that districts used to assist students in gaining certifications, their perceptions of program benefits, and the challenges to implementing it. Appendix A includes the interview questions, and table A1 shows the characteristics of districts represented in the interviews.

2.2 ADMINISTRATIVE DATA USED IN ANALYSES

Most data employed in this study came from FLDOE, which maintains longitudinal data on all public school students. Because FLDOE consistently collects and codes data using a set of standardized business rules, these data are comprehensive. The state’s Education Data

Warehouse (EDW) includes information about student demographics and educational experiences. For high school students, it includes information about students' status each year (such as grade level, graduation, and dropout status), as well as information about attendance, grades, and industry certification attempts and passes. With FLDOE's student identifier, researchers can link high school information to data collected after students left high school. The Florida Education and Training Placement Information Program (FETPIP) includes records linked from school districts, colleges, universities, select private vocational programs, the Florida Department of Corrections, and the Florida Department of Economic Opportunity's Welfare Transition Program. We were able to obtain student-level FETPIP data about postsecondary education; however, due to privacy concerns, FLDOE would not release student-level data about employment, incarceration, or public assistance receipt, given the extensive data we had about students' educational experiences.¹⁴ FLDOE created aggregate reports for students in our subsamples (described below) each year from 2010–11 through 2014–15.

We also matched records for 2007–08 ninth-graders who earned any type of high school credential as of the 2010–11 academic year to National Student Clearinghouse (NSC) data. The NSC provided postsecondary enrollment data from the spring of 2011 through the summer of 2014.

2.3 THE ROLLOUT OF THE CAPE PROGRAM FOR TWO COHORTS

We requested EDW data for two cohorts of students: grade 9 public school students in 2005–06 and grade 9 public school students in 2007–08. Files included demographic, enrollment, transcript, high school completion, and industry certification data. The demographic file we received for cohort 1 (ninth-graders in 2005–06) had 271,666 records, and the file for cohort 2 (ninth-graders in 2007–08) had 255,650 records. Appendix B, the technical appendix, describes the variables we received and processes used to combine datasets.

For both cohorts, analyses focus on certifications earned in the last two years of high school. Even among students who were in grade 9 when the policy was enacted (2007–08), very few earned a certification within the first two years of high school. Our analysis of the data identified fewer than 400 students (0.2 percent) who did. Of the students who were in

¹⁴ Florida Department of Education. External Research Data Requests.
<http://www.fldoe.org/accountability/accountability-reporting/external-research-requests/>.

grade 9 before the policy was enacted (2005–06), none received certifications in the first two years of high school.

To incorporate school contextual information into the analyses, we linked the Florida EDW data to the National Center for Education Statistics Common Core of Data (CCD) Public Elementary/Secondary School Universe Survey Data, referred to in this report as CCD. The Public Elementary/Secondary School Universe Survey Data include school-level data about locale, racial/ethnic composition, and percentage of students who were eligible for free or reduced-price lunch for all public schools. FLDOE provided certification records for all students who received any educational services, even if they received those services outside of a public school. FLDOE data include adult education centers, such as Collier Adult & Community Education Center, adolescent substance abuse programs, such as Pompano Substance Abuse Treatment Center, and juvenile justice programs, such as Monroe Juvenile Detention Center. The CCD does not include those types of institutions. Of certifications earned by each cohort, about 4 percent were in institutions that could not be linked to the CCD. Because these students did earn certifications, they are included in the analyses (table 3e).

We requested college enrollment data for students in both cohorts who had completed high school, seeking all enrollment records for each student for three years after their expected high school graduation (2009 and 2011). In both cohorts, about two-thirds of students who completed high school were located in Florida’s college enrollment records.

2.4 IN-DEPTH ANALYSIS OF EDUCATIONAL OUTCOMES OF CERTIFICATION EARNERS

We conducted a detailed analysis of the grade 9 students in 2007 that had the most extensive exposure to the *CAPE Act*. We compared outcomes for eight sets of students. First, we compared outcomes for certification earners with those of similar students who did not earn a certification. Then, we compared outcomes for students who earned gold-standard certifications, which give students the potential to earn credit for an associate degree, with outcomes for similar earners of certifications that were not in the gold-standard group. In both cases, the members of the comparison group had a similar propensity to earn either a regular certification or gold-standard certification based on school and student characteristics — but they did not earn these certifications. Finally, we compared outcomes for earners in each certification area with outcomes for earners in all other areas. Analyses focus on areas in which at least 2 percent of certifications were earned. As noted above, due to privacy concerns, FLDOE could not release student-level data about employment, public assistance

receipt, or incarceration. Instead, FLDOE provided aggregate reports about these postsecondary outcomes for these eight comparisons:

- certification earners versus propensity-matched non-earners
- gold-standard certification earners versus propensity-matched regular certification earners
- Architecture and Construction versus propensity-matched other certification earners
- Arts, AV Technology, and Communication versus propensity-matched other certification earners
- Health Science versus propensity-matched other certification earners
- Hospitality and Tourism versus propensity-matched other certification earners
- Human Services versus propensity-matched other certification earners
- Information Technology versus propensity-matched other certification earners

These annual reports include outcomes for these high school certification earners in the fall of each year, 2011 through 2015. Students who did not have valid Social Security numbers could not be linked to FETPIP. For each propensity-matched subsample, between 90 and 95 percent of students were included in the FETPIP reports each year. FETPIP data only include outcomes occurring in Florida. FETPIP records include those in the employment, public assistance, and incarceration data. Students who left the state after high school would not be included if they were in other states but would be included if they returned to Florida, because FETPIP data are collected annually.¹⁵

As noted above, to expand the analysis of postsecondary educational enrollment, we matched a subset of students to the NSC data. These were students who had earned a high school credential by the end of 2011 but did not match to Florida's postsecondary FETPIP data.

We used a quasi-experimental method, propensity score analysis, to set up the samples for analysis. Propensity score analyses use observed characteristics to estimate the probability of participating in a given treatment. This probability is referred to as a propensity score. In this

¹⁵ In the fall 2011 match, 95 percent of certification earners could be linked to the FETPIP data with their Social Security numbers, and 88 percent of matched students had a record in the outcome data. Of matched non-earners, 94 percent could be linked to FETPIP using a Social Security number, and 85 percent of matched students had a record in the outcome data.

study, each student's propensity score is an estimate of his or her probability of earning a certification (see appendix B for additional details on the methods used in the propensity score analyses).

Because analyses include several comparisons, we conducted a separate propensity score analysis for each comparison. We conducted a total of 24 propensity score analyses to create comparison groups to examine the effects of obtaining certifications.

- The first set of eight propensity score models created comparison groups for analyses of the effect of certification attainment on high school outcomes. The sample is students in Florida public high schools in grade 9 in 2007–08.
- The second set of eight propensity score models created comparison groups for analyses of the effect of certification attainment on postsecondary outcomes of college enrollment, employment, public assistance receipt, and incarceration. Here, students who did not complete high school on time (in 2011) were not included so we could determine the effect of earning a certification on postsecondary outcomes among high school completers.
- The third set of eight propensity score models created comparison groups for the analysis of earning an associate degree. Here, students who did not enroll in a community college on time (by the end of 2011) were omitted so that we could determine the effect of certifications on associate degree attainment.
- At the time of this report, our data only included postsecondary outcomes through 2013–2014. Because most university students who enrolled in the fall of 2011 would not have had time to complete a bachelor's degree, we could not include them.

Each set of analyses compared students who obtained

1. any type of certification with those who did not obtain a certification;
 2. a gold-standard certification with those who obtained a regular certification; and
 3. a certification in one of the six most common areas with those who obtained a certification in the remaining areas.
-

CHAPTER 3. ROLLOUT OF THE *CAPE ACT*

Because the *CAPE Act* was passed in the 2007–08 academic year, Florida students enrolled in grade 11 at that time (which would have been the vast majority of students in cohort 1) had two years to benefit from this policy. Students in grade 9 from 2007–08 (cohort 2) had the policy in place throughout their high school experience. This chapter describes the rollout of the policy and includes areas in which certifications were awarded, characteristics of those who attained certifications, pass rates, and the distribution of certifications across schools. When appropriate, we include results from our interviews with district officials. We then present information on high school completion and enrollment in postsecondary educational institutions for certification earners, compared with those who did not earn certifications. Table 3a presents the specific research questions pertaining to the rollout.

Table 3a. Research questions pertaining to the rollout of the *CAPE Act*, by research area

Research area	Questions
Certifications awarded	3.1. In which program areas were certifications awarded?
	3.2. What are the characteristics of students earning certifications?
	3.3. What are the characteristics of students earning certifications in different areas?
	3.4. What are the characteristics of schools whose students received certifications in terms of urbanicity, poverty level, and ethnic composition?
	3.5. What are the characteristics of schools whose students received certifications in different areas?
Certification pass rates	3.6. What are the certification pass rates by certification area?
	3.7. Do the student-level certification pass rates differ by characteristics of students (sex, race/ethnicity, free or reduced-price lunch eligibility)?
	3.8. Do the certification-level pass rates differ by characteristics of schools?
Outcomes for certification earners	3.9. For each cohort, what were the dropout and graduation rates for certification earners compared to non-earners?
	3.10. Comparing certification earners to non-earners, three years after high school graduation: <ul style="list-style-type: none">• What percentage had ever entered a postsecondary educational program in Florida?• What percentage entered a postsecondary educational program in Florida immediately after completing high school?• Of those who entered a postsecondary educational program in Florida in the fall after graduation, what percentage persisted past the first year?
	3.11. Comparing certification earners to non-earners, three years after high school graduation, what percentage of those who entered a Florida community college immediately after completing high school earned an associate degree?

Results focus on certifications earned within two years of enrolling in high school. For most students, these were their junior and senior years. For cohort 1 students (who were in grade 9 in 2005–06), the policy had not been enacted in their first two years of high school, and we

present results for certifications earned in 2007–08 and 2008–09. To ensure the comparability of results between cohorts, for students in grade 9 in 2007–08 (cohort 2), we present results for certifications earned in 2009–10 and 2010–11. In this chapter, we compare the rollout of this program for cohort 1 with that for cohort 2. However, most of this discussion focuses on cohort 2 students, who earned about 12 times as many certifications as students in cohort 1 did. Detailed results for both cohorts and information about certifications earned each year are included in appendix C.

3.1 CERTIFICATIONS AWARDED

The first set of research questions pertains to the distribution of certifications and certification earners by area, by student characteristics, and by school characteristics.

Question 3.1: In which program areas were certifications awarded?

Table 3b presents the areas in which each cohort earned certifications. As the *CAPE Act* became established, many more students earned certifications. In their last two years of high school, cohort 1 students earned 1,622 certifications, while cohort 2 students earned 19,075 certifications. Even though the second cohort came only two years after the first, about 12 times more certifications were earned in cohort 2 than in cohort 1. Over time, schools may have become better prepared to promote certifications, and students may have become more aware of their benefits.

District officials we interviewed described many benefits of this program to students, teachers, schools, and districts. All believed that certifications would help students get jobs, and half of them mentioned the potential to earn college credits. Officials in three of the eight districts cited benefits to students (including acquiring real-world knowledge and taking more rigorous courses). In addition to the benefits to students, district officials mentioned benefits to the teachers. One claimed that teachers got excited when their students earned certifications. Another mentioned benefits to the school, because success in this program helped schools improve their grades in the Florida School Report Card. Finally, one district official who cited benefits to the district said that “... it gives districts a good indicator of what programs are teaching students well and what programs may not be using best practices, so the district can help program teachers improve their instruction.”

The EDW data show that, within each cohort, students in higher grade levels earned more certifications. (Results by student and grade level are available in appendix C.) In cohort 1, students in grade 12 earned about six times more certifications than did students in grade 11 (1,377 in grade 12, compared with 245 in grade 11). In cohort 2, students in grade 12 earned

about three times more certifications than did students in grade 11 (14,122 in grade 12, compared with 4,953 in grade 11) (tables C1a1 and C1a2). Earning more certifications in grade 12 may reflect the need for time to complete course requirements. The following discussion focuses on whether students earned certificates in grade 11 or 12 (not on whether they earned certificates at all).

Students are not responsible for scheduling these exams; rather, district officials schedule them. . In describing how they schedule the certification exams, all but one of the district officials we interviewed said that the school set the exam schedule for students. In these schools, teachers decided when students were prepared to take the exams. One respondent referred to a state policy under which teachers could not proctor their own students; district staff proctored the exams. This requirement made scheduling more complicated. In most of these districts, students took exams at school, but in some cases, the school provided transportation to an exam center. Officials reported that scheduling and transportation challenges did not prevent a student from taking a certification exam.

Although the program can be financially self-sustaining, districts wanted to implement it in the most cost-effective way. Some reported successfully negotiating discounts with vendors (such as Adobe), which meant that the cost of examinations could vary across the state. One respondent said she believed that, when vendors learned about the money that schools received from the state's CAPE funds, they raised prices, but we could not verify this claim. Another respondent said that having the state negotiate pricing with vendors might help districts contain costs.

Students may earn different kinds of certifications and, across both cohorts, they took a total of 154 different kinds of certification exams. These exams are organized into career clusters or certification areas. We assigned certifications to program areas using the 2013–14 Florida Career and Professional Education (CAPE) Industry Certification Funding List. For example, the Architecture and Construction area includes certifications such as Autodesk Certified Associate, Carpentry, or Welder. The Health Science area includes EKG Technician, Medical Laboratory Assistant, Licensed Practical Nurse, and First Responder certifications. Appendix C lists the certifications in each area.

For both cohorts, students most frequently earned certifications in Arts, AV Technology, and Communication, and in Health Science, and least frequently earned certifications in Agriculture; Business Management and Administration; Engineering and Technology Education; Law, Public Safety, and Security; Manufacturing; and Transportation and Distribution. In these latter areas, fewer than 5 percent of certifications were awarded in either cohort. The biggest differences between cohorts in program area certification rates

were Arts, AV Technology, and Communication (an increase of 25 percentage points) and in Health Science (a decrease of 17 percentage points) (table 3b).

Data do not permit an understanding of why students earned more certifications in some areas than in others. The differences may reflect student interest, perceptions of links between certifications and future employment, and school and district priorities in what is offered and promoted. In interviews, district officials told us that some districts worked with local business advisors to determine which certifications would lead to employment opportunities in that area. Two districts had business and technical advisory groups that provided regular feedback on the certification programs. In these two districts, business leaders had a direct role in fostering the certification program. One district official suggested that some districts might promote easily attainable certifications (such as those offered by Microsoft) to increase pass rates, but she said that her district did not have such a policy in place. Changes in rates of certification by area between cohorts 1 to cohort 2 could reflect changes over time in the way that schools promoted different kinds of certifications.

Table 3b. Number and percentage of industry certifications earned in Florida, by cohort and certification area: 2007–08 to 2010–11

Certification area	Cohort 1 (freshman class of 2005–06): Certifications earned in 2007–08 or 2008–09		Cohort 2 (freshman class of 2007–08): Certifications earned in 2009–10 or 2010–11		Difference ^a
	Number	Percent	Number	Percent	
Agriculture	2	0.1	99	0.5	0.4
Architecture and Construction	173	10.7	1,210	6.3	-4.3
Arts, AV Technology, and Communication	346	21.3	8,801	46.1	24.8
Business Management and Administration	35	2.2	112	0.6	-1.6
Engineering and Technology Education	12	0.7	102	0.5	-0.2
Health Science	572	35.3	3,516	18.4	-16.8
Hospitality and Tourism	66	4.1	1,440	7.5	3.5
Human Services	144	8.9	2,169	11.4	2.5
Information Technology	167	10.3	1,128	5.9	-4.4
Law, Public Safety, and Security	42	2.6	113	0.6	-2.0
Manufacturing	53	3.3	134	0.7	-2.6
Transportation and Distribution	10	0.6	251	1.3	0.7
Total	1,622	100.0	19,075	100.0	—

^a Between cohort 1 percentage and cohort 2 percentage.

NOTE: See appendix tables C1a1 and C1a2 for further detail (i.e., distributions by cohort and academic year). Percentages may not sum to 100 because of rounding.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse.

Question 3.2: What are the characteristics of students earning certifications?

This question examines the sex, race/ethnicity, and free or reduced-price lunch eligibility of students who earned certifications relative to all students in their cohort.

Table 3c presents the overall distribution of students in these demographic categories as well as the distribution of certification earners by cohort. As the number of students who earned certifications increased from cohort 1 to cohort 2, the demographic characteristics of certification earners began to more closely reflect the demographic characteristics of the overall cohort.

In cohort 1 (which has fewer students with certifications), males, blacks, and students eligible for free or reduced-price lunch earned certifications at a lower rate than their distribution in the cohort would suggest. Among certification earners, the proportions that were male or black were 12 percentage points lower than the corresponding proportion in the overall cohort, and the proportion who were eligible for free or reduced-price lunch was 8 percentage points lower than the corresponding proportion in the overall cohort. In cohort 2, the subgroup distributions among certification earners were more similar to their corresponding distributions in the cohort. In cohort 2, in all demographic categories, the characteristics of certification earners were within 6 percentage points of the demographic characteristics of the cohort: the difference was 3 percentage points lower for males, 5 percentage points lower for blacks, and 2 percentage points lower for those eligible for free or reduced-price lunch. The proportions of males, blacks, and students eligible for free lunch or reduced-price lunch were still lower than one would expect given their representation in the cohort, but these differences were about half of what they were in cohort 1. It seems that, as the program became established, certification earners became more representative of the cohort.

Table 3c. Percentage distribution of students, both overall and among those earning certifications, by cohort, sex, race/ethnicity, and eligibility for free or reduced-price lunch: 2007–08 to 2010–11

	Cohort 1 (freshman class of 2005–06)			Cohort 2 (freshman class of 2007–08)		
	Among those who earned a certification in 2007–08 or 2008–09 (n = 1,538)			Among those who earned a certification in 2009–10 or 2010–11 (n = 16,123)		
	Overall (n = 271,666)	Percentage	Difference ^a	Overall (n = 255,650)	Percentage	Difference ^a
Sex						
Male	52.8	40.6	-12.2	52.7	49.3	-3.4
Female	47.2	59.4	12.2	47.3	50.7	3.4
Race/ethnicity						
White	46.3	57.6	11.3	44.2	48.0	3.8
Black	24.9	13.4	-11.5	24.6	19.4	-5.2
Hispanic	24.5	24.7	0.2	26.2	26.2	0.0
Other	4.3	4.3	0.0	4.9	6.4	1.4
Eligible for free or reduced-price lunch						
Yes	50.2	41.7	-8.4	55.7	53.4	-2.3
No	49.8	58.3	8.4	44.3	46.6	2.3

^a Relative to corresponding “Overall” distribution.

NOTE: CTE = career and technical education. See appendix tables C-b1 and C1b2 for further detail (i.e., distributions by cohort and academic year). Percentages may not sum to 100 because of rounding.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse.

Question 3.3: What are the characteristics of students earning certifications in different fields?

Next, we examined the relationship between student characteristics and certification areas by comparing distributions of students with various demographic characteristics among certifications earned, both overall and within specific certification areas. Table 3d presents this information by demographic characteristics of students in both cohorts. Because this chapter focuses on the most popular certification areas, table 3d includes only the areas in which at least 2 percent of certifications were earned in cohort 2. (Full results are in appendix C.) This table is sorted by the numbers of certifications earned in cohort 2, the freshman class of 2007–08.

As noted above, in cohort 1, Health Science had the highest number of certifications (572) (table 3b). However, males, whites, and students not eligible for free or reduced-price lunch were underrepresented among certifications earned in this area. They earned fewer certifications than one would expect given their corresponding percentages of certifications earned in all areas. Females, blacks, and students eligible for free or reduced-price lunch were overrepresented in this certification area. Human Services had a similar pattern, in which males, whites, and students not eligible for free or reduced-price lunch were underrepresented; and females, Hispanics, and students eligible for free or reduced-price lunch were overrepresented. In contrast, among certifications earned in Arts, AV Technology, and Communication, and in Architecture and Construction, males and those not eligible for free or reduced-price lunch are overrepresented. White students were overrepresented in Architecture and Construction, while Hispanics were underrepresented.

In cohort 2, in which more students earned certifications, groups of students still pursued certifications in different areas, but some cross-group differences were smaller than they were in cohort 1. In cohort 2, in the Health Science and Human Services certification areas, males and whites were underrepresented. Their relative underrepresentation was about the same as in cohort 1. For example, the difference between the proportion of Health Science certifications that males earned and the proportion of all certifications that males earned was 29 percentage points in cohort 1 (14 percent vs. 43 percent) and 31 percentage points in cohort 2 (20 percent vs. 51 percent). Among certifications earned in Architecture and Construction, and in Information Technology, males and whites were still overrepresented, but here their representation was a bit more balanced. For example, for males, the difference between the percentage of Information Technology certifications earned and all certifications earned was 42 percentage points in cohort 1 but 10 percentage points in cohort 2. In the most popular certification area, Arts, AV Technology, and Communication, differences by sex persisted: Males were overrepresented and females were underrepresented, but the gender gap was smaller in cohort 2. For males, the difference



between earning a certification in this area and earning any certification was 18 percentage points in cohort 1 but 10 percentage points in cohort 2. For all other demographic groups in cohort 2, the difference between the percentage earning a certification in Arts, AV Technology, and Communication and the percentage earning any certification was within 2 percentage points.

Table 3d. Percentage of certifications earned by cohort, sex, race/ethnicity, and eligibility for free or reduced-price lunch: 2007–08 to 2010–11

	Cohort 1 (freshman class of 2005–06): Certifications earned in 2007–08 or 2008–09										Cohort 2 (freshman class of 2007–08): Certifications earned in 2009–10 or 2010–11									
	Number of certifications	Sex		Race/ethnicity				Eligible for free or reduced- price lunch		Number of certifications	Sex		Race/ethnicity				Eligible for free or reduced- price lunch			
		Male	Female	White	Black	Hispanic	Other	Yes	No		Male	Female	White	Black	Hispanic	Other	Yes	No		
All certification areas	1,622	42.9	57.1	57.7	13.2	24.5	4.6	41.5	58.5	19,075	50.9	49.1	49.3	18.8	25.3	6.6	52.8	47.2		
Architecture and Construction Number and percent distribution	173	93.6	6.4	79.8	6.9	6.9	6.4	28.3	71.7	1,210	88.0	12.0	63.8	9.8	20.2	6.2	45.5	54.5		
Difference from all certification areas	†	50.7	-50.7	22.0	-6.3	-17.6	1.8	-13.2	13.2	†	37.1	-37.1	14.5	-9.0	-5.1	-0.4	-7.3	7.3		
Arts, AV Technology, and Communication Number and percent distribution	346	61.0	39.0	57.2	6.9	30.6	5.2	32.4	67.6	8,801	60.6	39.4	50.6	17.2	25.2	7.0	51.3	48.7		
Difference from all certification areas	†	18.1	-18.1	-0.5	-6.3	6.1	0.6	-9.1	9.1	†	9.7	-9.7	1.3	-1.7	-0.1	0.4	-1.5	1.5		
Health Science Number and percent distribution	572	13.5	86.5	47.8	22.1	26.6	3.5	51.9	48.1	3,516	19.9	80.1	38.6	27.3	27.0	7.1	57.9	42.1		
Difference from all certification areas	†	-29.4	29.4	-9.9	8.9	2.1	-1.1	10.4	-10.4	†	-31.0	31.0	-10.7	8.5	1.7	0.5	5.1	-5.1		

See notes at end of table.

Table 3d. Percentage of certifications earned by cohort, sex, race/ethnicity, and eligibility for free or reduced-price lunch: 2007–08 to 2010–11—Continued

	Cohort 1 (freshman class of 2005–06): Certifications earned in 2007–08 or 2008–09										Cohort 2 (freshman class of 2007–08): Certifications earned in 2009–10 or 2010–11									
	Number of certifications	Sex		Race/ethnicity				Eligible for free or reduced- price lunch		Number of certifications	Sex		Race/ethnicity				Eligible for free or reduced- price lunch			
		Male	Female	White	Black	Hispanic	Other	Yes	No		Male	Female	White	Black	Hispanic	Other	Yes	No		
Hospitality and Tourism Number and percent distribution	66	47.0	53.0	72.7	7.6	18.2	1.5	37.9	62.1	1,440	43.5	56.5	52.8	18.1	23.5	5.6	56.9	43.1		
Difference from all certification areas	†	4.1	-4.1	15.0	-5.6	-6.3	-3.0	-3.6	3.6	†	-7.4	7.4	3.5	-0.8	-1.8	-1.0	4.1	-4.1		
Human Services Number and percent distribution	144	0.0	100.0	50.7	8.3	38.9	2.1	50.7	49.3	2,169	34.4	65.6	42.0	23.9	29.0	5.1	55.3	44.7		
Difference from all certification areas	†	-42.9	42.9	-7.0	-4.9	14.4	-2.5	9.2	-9.2	†	-16.5	16.5	-7.3	5.1	3.7	-1.5	2.5	-2.5		
Information Technology Number and percent distribution	167	84.4	15.6	56.3	9.0	26.3	8.4	39.5	60.5	1,128	60.6	39.4	54.7	14.1	23.8	7.4	48.6	51.4		
Difference from all certification areas	†	41.5	-41.5	-1.5	-4.2	1.9	3.8	-2.0	2.0	†	9.7	-9.7	5.4	-4.7	-1.5	0.8	-4.2	4.2		

† Not applicable.

NOTE: Distributions shown in this table are certification-level distributions (see table 3c for student-level distributions of those who earned certifications). Results are limited to certification areas in which at least 4 percent of all certifications were earned (results are not displayed for certification areas in which less than 4 percent of all certifications were earned, i.e., Agriculture; Business Management and Administration; Engineering and Technology Education; Law, Public Safety, and Security; Manufacturing; and Transportation and Distribution). As a result, the number of certifications earned in the individual certification areas displayed above do not sum to the total number of certifications earned as indicated in the “All certification areas” row. See appendix tables C1c1 and C1c2 for further detail (i.e., distributions for all certification areas). Percentages may not sum to 100 because of rounding.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse.

Question 3.4: What are the characteristics of schools whose students received certifications in terms of urbanicity, poverty level, and ethnicity?

We used the National Center for Education Statistics (NCES) Common Core of Data Public Elementary/Secondary School Universe Survey Data to obtain information about schools awarding certifications. Appendix B has more information about these variables.¹⁶ Although the state implemented the *CAPE Act* in all districts, some were able to implement it more quickly than others. In 2007–08, students took certification exams in 20 of 70 districts, but by 2010–11, students took certification exams in 57 districts (Florida Department of Education, 2016b). In table 3e, the first set of numbers pertains to the percentage of certifications awarded in each school type (for example, the percentage of certifications earned in city schools), and the second set pertains to the percentage of public schools in Florida with that characteristic (for example, the percentage of Florida public schools located in cities). Because patterns for both cohorts are similar, table 3e presents results for cohort 2, and results for cohort 1 are in appendix C.

In both cohorts, more certifications were awarded in suburban schools; in predominantly white schools; and in more affluent schools, as identified by having the smallest percentage of students who were eligible for free or reduced-price lunch. In cohort 2, city schools accounted for the lowest proportion of certifications, with suburban schools accounting for more than half of all awards. Forty percent of all Florida public schools were designated as suburban, but 53 percent of certifications were earned in these schools. In terms of racial composition, schools with higher percentages of minority students had the lowest rates of certifications earned, and schools with the highest poverty rates had the lowest rate of certifications earned.

Next, we looked at the cross-tabulation of locale and poverty. Within suburban and rural schools, the proportion of certifications earned in higher-poverty schools was about half of the proportion of certifications earned in more affluent schools. For example, 10 percent of all certifications were earned in suburban high-poverty schools, while 20 percent of all certifications were awarded in suburban low-poverty schools. Likewise, 5 percent of all certifications were earned in rural high-poverty schools, while 11 percent of all certifications were awarded in rural low-poverty schools.

¹⁶ Some schools in EDW did not match the Common Core of Data and are classified here as “unknown.” Without more information about these nontraditional educational programs, we cannot generalize about these results; however, some students did earn certifications outside a traditional academic setting.

Table 3e. Comparison of the percentage of certifications and the percentage of Florida public schools with a grade 12, by school locale, percent underrepresented minority, percent eligible for free or reduced-price lunch, and locale poverty level: 2009–10 and 2010–11

Characteristic	Certifications ^a		Florida schools with a grade 12 in the 2007 CCD data	
	<i>n</i>	%	<i>n</i>	%
Locale				
City	3,691	19.4	334	30.3
Fringe/suburb	10,055	52.7	440	40.0
Town/rural	4,638	24.3	325	29.5
Unknown/unable to match to CCD	691	3.6	2	0.2
Percent underrepresented minority ^b				
Lowest third	7,578	39.7	343	31.2
Middle third	5,178	27.2	343	31.2
Highest third	5,628	29.5	353	32.1
Unknown/unable to match to CCD	691	3.6	62	5.6
Percent eligible for free or reduced-price lunch				
Lowest third	7,077	37.1	343	31.2
Middle third	7,736	40.6	343	31.2
Highest third	3,571	18.7	353	32.1
Unknown/unable to match to CCD	691	3.6	62	5.6
Locale, by percent eligible for free or reduced-price lunch				
City: Lowest third	1,180	6.2	113	10.3
City: Middle third	1,622	8.5	101	9.2
City: Highest third	889	4.7	92	8.4
Fringe/suburb: Lowest third	3,839	20.1	140	12.7
Fringe/suburb: Middle third	4,399	23.1	143	13.0
Fringe/suburb: Highest third	1,817	9.5	136	12.4
Town/rural: Lowest third	2,058	10.8	90	8.2
Town/rural: Middle third	1,715	9.0	99	9.0
Town/rural: Highest third	865	4.5	125	11.4
Unknown/unable to match to CCD	691	3.6	62	5.6

^a Includes certifications earned in 2009–10 and 2010–11.

^b “Underrepresented minority” includes American Indian/Alaska Native students, black students, and Hispanic students.

NOTE: CCD = Common Core of Data. Corresponding results for cohort 1 (freshman class of 2005–06) can be found in appendix table C1d1.

Percentages may not sum to 100 because of rounding.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08.

In interviews, district officials emphasized that costs and teacher qualifications were barriers to promoting certifications in some districts. Even if the program became self-sustaining through state funds, schools and districts faced start-up costs, particularly for acquiring technology. One respondent said, “Even trade certification exams are now computerized, and there are always computer issues.” Another district official thought that smaller districts and high-poverty districts would not have the necessary technology in place or the funds to acquire it. Although the schools should be able to recoup certification costs with CAPE funds, higher poverty schools may not have resources to fully implement and promote certifications. In both cohorts, students attending higher poverty schools may have had fewer opportunities to earn certifications.

Half of the district officials interviewed said that some schools might not have teachers qualified to prepare students for the certification exams. Designed by vendors, certification exams are not necessarily linked to the high school curriculum. As part of the CAPE legislation, teachers must themselves have the certification that they are teaching students to earn. They may need support in order to get it. Small districts may not be able to provide professional development, and other districts may not have qualified teachers who can train peers. Bringing in an outside trainer adds to the program's cost. Some certifications are hard to earn, and not all teachers want their students to pursue them. One district rewrote job descriptions to include certifications as a requirement for new teachers and allowed veteran teachers one year to get a certification. This district official said the district pays for teacher certification through professional development institute funding under the *Carl D. Perkins Career and Technical Education Act of 2006*.

District officials had suggestions for promoting the certification program to districts struggling with implementation. Highlighting the many benefits of the program for students and schools was the most popular response, with about one-third of the officials mentioning it. One district official thought that having districts share successes would be an effective way to highlight benefits. Two thought that districts should partner with businesses that could advocate for the program and help districts prepare students to meet workforce needs. Two respondents said that other districts could increase the percentage of their students earning certifications by making sure teachers had adequate training and resources, and another thought that other districts should create a culture in which students are expected to pass the certification exams.

Question 3.5: What are the characteristics of schools whose students received certifications in different areas?

Table 3f shows certification areas by type of school for cohort 2. The discussion here focuses on areas with at least 2 percent of all certifications awarded in cohort 2. Results for cohort 1 and other certification areas are in appendix C.

More students in cohort 2 than in cohort 1 earned certifications, and in cohort 2, there were fewer differences in certification areas associated with school characteristics. Relative to rural schools, a smaller proportion of certifications awarded by city schools were in the area of Architecture and Construction (10 percent vs. 3 percent, respectively). Similarly, high-poverty schools and schools where ethnic minorities predominated awarded smaller proportions of certifications in this area. Forty-six percent of all certifications were in the Arts, AV Technology, and Communication area, and the proportions across school characteristics were within 5 percentage points of each other. The proportions of students earning certifications in Information Technology were within 1 percentage point of each

other in schools classified by ethnic composition and in schools classified by poverty level. It seems that certifications in these areas probably were being promoted in similar ways across school types.

Eighteen percent of all certifications were in Health Science; and in schools where ethnic minorities predominated and in the highest poverty schools, more than 24 percent of certifications were in this area. Schools with fewer resources may have done more to promote Health Science certifications.

Table 3f. Percentage of certifications earned by students in cohort 2, by certification area, school locale, percent underrepresented minority, percent eligible for free or reduced-price lunch, and locale poverty level: 2009–10 and 2010–11

Characteristic	Architecture and construction	Arts, AV technology, communication	Health science	Hospitality and tourism	Human services	Information technology
Overall	6.3	46.1	18.4	7.5	11.4	5.9
Locale						
City	3.1	49.6	16.2	8.1	12.9	5.9
Fringe/suburb	5.7	46.6	19.1	6.8	13.8	4.9
Town/rural	10.3	44.5	17.5	7.9	5.9	8.6
Percent underrepresented minority^a						
Lowest third	8.8	47.1	16.7	6.1	9.7	6.4
Middle third	5.6	49.0	13.6	9.8	11.8	6.1
Highest third	3.6	43.9	24.3	6.7	14.0	5.5
Percent eligible for free or reduced-price lunch						
Lowest third	9.0	49.8	14.8	5.0	10.4	6.2
Middle third	5.8	45.3	18.1	9.7	12.3	5.4
Highest third	2.2	43.3	24.9	6.7	12.7	7.1
Locale, by percent eligible for free or reduced-price lunch						
City: Lowest third	4.0	49.6	13.9	9.3	7.8	6.4
City: Middle third	4.0	45.8	19.3	9.2	15.2	4.2
City: Highest third	0.1	56.5	13.7	4.4	15.6	8.2
Fringe/suburb: Lowest third	8.9	49.9	15.2	3.3	12.9	5.2
Fringe/suburb: Middle third	4.8	46.1	17.6	9.3	14.2	5.3
Fringe/suburb: Highest third	1.2	40.8	31.3	7.9	14.7	3.5
Town/rural: Lowest third	12.1	49.9	14.6	5.9	7.1	8.2
Town/rural: Middle third	10.0	42.9	18.1	11.0	4.7	6.5
Town/rural: Highest third	6.4	35.0	23.1	6.5	5.3	13.8
Unknown/unable to match to CCD	7.1	32.1	26.2	13.9	4.9	2.5

^a Underrepresented minority includes American Indian/Alaska Native students, black students, and Hispanic students.

NOTE: CCD = Common Core of Data. Includes certifications earned in 2009–10 and 2010–11. Results are limited to certification areas in which at least 2 percent of all certifications were earned in cohort 2 (results are not displayed for certification areas in which less than 2 percent of all certifications were earned, i.e., Agriculture; Business Management and Administration; Engineering and Technology Education; Law, Public Safety, and Security; Manufacturing; and Transportation and Distribution). As a result, row percentages sum to less than 100. See appendix table C1e2 for further detail (i.e., distributions for all certification areas). Corresponding results for cohort 1 (freshman class of 2005–06) can be found in appendix table C1e1.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08.

3.2 CERTIFICATION PASS RATES

Some students who took certification exams did not pass. In cohort 1, students took 2,217 certification exams and passed 1,622 of them (73 percent pass rate). In cohort 2, students took 29,852 certification exams and passed 19,075 of them (a 64 percent pass rate) (table 3g). As mentioned in chapter 1, schools can get Florida School Report Card points for certification participation as well as for certification passes. Florida's certification data only include the last attempt within a year for each student and exam, so a student who failed an exam and later passed is only counted as having passed it, and a student who failed an exam multiple times (and never passed) is only counted as having failed it once. Because these data do not include all failures, results overstate the pass rates to some extent. In this section, we examine pass rates by certification area, pass rates by student characteristics, pass rates by student characteristics within an area, and pass rates by school characteristics.

Question 3.6: What are the certification-level pass rates by certification area?

Table 3g presents certification-level pass rates by cohort and certification area, for cohorts 1 and 2, respectively. Here, results focus on the most popular certifications and omit certification areas in which less than 2 percent of certifications were earned in cohort 2. Results from all certification areas are included in appendix C. In both cohorts, Human Services had the highest pass rate (89 percent in cohort 1 and 83 percent in cohort 2). In Arts, AV Technology, and Communication, and in Health Science, the pass rates were similar in both cohorts: about two-thirds of Arts, AV Technology, and Communication attempts were successful, and about three-quarters of Health Science attempts were successful.

However, in other popular certification areas, the pass rates for cohort 2 were lower than they were for cohort 1. For example, in the Architecture and Construction area, cohort 1 had a 73 percent pass rate compared to 49 percent in cohort 2. More students took exams and earned certifications in cohort 2, but pass rates were lower. As noted earlier, policy changes made it more advantageous for schools to report all exam-takers, not just exam-passers, and these differences may result from changes in reporting. Differences in pass rates by certification area could also reflect the difficulty of a given examination or the preparation of the students who chose to take exams in a given area. Appendix C shows the number of attempts, the number of passes, and the pass rate for each certification examination in 2009–10 and 2010–11.

Table 3g. Number of certifications earned and/or attempted, and certification pass rate by cohort and certification area: 2007–08 to 2010–11

Certification area	Cohort 1 (freshman class of 2005–06): Certifications earned/attempted in 2007–08 or 2008–09			Cohort 2 (freshman class of 2007–08): Certifications earned/attempted in 2009–10 or 2010–11		
	Number of certifications attempted	Number of certifications earned	Certification pass rate ^a	Number of certifications attempted	Number of certifications earned	Certification pass rate ^b
All certification areas	2,217	1,622	73.2	29,852	19,075	63.9
Architecture and Construction	236	173	73.3	2,458	1,210	49.2
Arts, AV Technology, and Communication	540	346	64.1	13,145	8,801	67.0
Health Science	723	572	79.1	4,627	3,516	76.0
Hospitality and Tourism	76	66	86.8	2,489	1,440	57.9
Human Services	161	144	89.4	2,600	2,169	83.4
Information Technology	189	167	88.4	2,511	1,128	44.9

^a The numerator for this certification-level pass rate is the number of certifications earned/passed in the 2007–08 and 2008–09 academic years, and the denominator is the number of certifications attempted in the 2007–08 and 2008–09 academic years. Certification exams that were failed, retaken, and passed in the same academic year are counted as one certification earned and one certification attempted (as opposed to one certification earned and two certifications attempted).

^b The numerator for this certification-level pass rate is the number of certifications earned/passed in the 2009–10 and 2010–11 academic years, and the denominator is the number of certifications attempted in the 2009–10 and 2010–11 academic years. Certification exams that were failed, retaken, and passed in the same academic year are counted as one certification earned and one certification attempted (as opposed to one certification earned and two certifications attempted).

NOTE: Results are limited to certification areas in which at least 2 percent of all certifications were earned in cohort 2 (results are not displayed for certification areas in which less than 2 percent of all certifications were earned: Agriculture; Business Management and Administration; Engineering and Technology Education; Law, Public Safety, and Security; Manufacturing; and Transportation and Distribution). As a result, the number of certifications earned/attempted in the individual certification areas displayed above do not sum to the total number of certifications earned/attempted as indicated in the “All certification areas” row. See appendix tables C1f1 and C1f2 for certification-level pass rates for all certification areas.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse.

As noted above, students who do not pass have the opportunity to retake assessments. At the time of our interviews, the state of Florida had a policy requiring students to wait 30 days before a retest. Districts may have additional requirements. In our interviews, three district officials said that, before sitting for a retest, students had to pass a pretest. One said that a retest decision depended on the student’s grade in that class, and that teachers had to recommend a retest. Some respondents said that accommodating the state’s waiting period raised challenges. Rescheduling could be difficult, and given the academic schedule, some students might run out of time to take a retest during that year. In districts that negotiated with vendors about exam costs, the district’s contract might expire during this retake period, which would prevent a retake. However, district officials noted that students who failed an exam did need time to master the material and would not be helped by retaking the test immediately.

Question 3.7: Do the student-level certification pass rates differ by characteristics of students (sex, race/ethnicity, free or reduced-price lunch eligibility)?

These analyses break out certification attempts and pass rates by sex, race/ethnicity, and free or reduced-price lunch eligibility. Cohort 2 had an overall student-level pass rate of 67 percent, but pass rates for some groups of students were lower than that average (table 3h). Among students who took exams, the pass rates for males, blacks, Hispanics, and students eligible for free or reduced-price lunch were lower than the average pass rate. These differences may have resulted from group differences in selecting certification exams. For example, males' lower pass rates may reflect the fact that they were overrepresented in Architecture and Construction (see table 3d). Males earned 94 percent of the certifications in this area. However, only about half of the students passed certification exams in this area (see table 3g).

Table 3h. Number of students in cohort 2 who earned and/or attempted a certification and who passed, by sex, race/ethnicity, and eligibility for free or reduced-price lunch: 2009–10 and 2010–11

	Overall cohort numbers ^a	Number of students attempting a certification in 2009–10 or 2010–11	Number of students earning a certification in 2009–10 or 2010–11	Student-level pass rate ^b	Difference ^c
Overall	255,650	24,254	16,123	66.5	†
Sex					
Male	134,688	12,426	7,949	64.0	-2.5
Female	120,962	11,828	8,174	69.1	2.6
Race/ethnicity					
White	113,056	10,847	7,738	71.3	4.9
Black	62,939	5,247	3,134	59.7	-6.7
Hispanic	66,972	6,745	4,222	62.6	-3.9
Other	12,640	1,415	1,029	72.7	6.2
Eligible for free or reduced-price lunch					
Yes	142,419	13,588	8,603	63.3	-3.2
No	113,231	10,666	7,520	70.5	4.0

† Not applicable.

^a Some subgroups do not sum to overall total due to missing information.

^b The numerator for this student-level certification pass rate is the number of students who earned certifications in the 2009–10 and 2010–11 academic years, and the denominator is the number of students who attempted certifications in the 2009–10 and 2010–11 academic years. Some students earned/attempted multiple certifications; as a result, the student-level certification pass rate is slightly different from the certification-level pass rate (see table 3g for certification-level pass rates).

^c Relative to the "Overall" student-level pass rate.

NOTE: Corresponding results for cohort 1 (freshman class of 2005–06) can be found in appendix table C1g.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse.

Question 3.8: Do the certification-level pass rates differ by characteristics of schools?

These analyses break out pass rates by the school characteristics of locale, racial composition, and poverty level. In both cohorts, schools located in cities had certification-



level pass rates at least 6 percentage points below average, and town/rural schools had pass rates at least 7 percentage points above average. The pass rates in suburban schools were about the same as the average — only about 1 percentage point difference. (See table 3i for cohort 2; cohort 1 results are included in appendix C, table C1h.)

In cohort 2, the pass rates were lower both for schools with the highest percentage of underrepresented minority students and schools with the highest percentage of students eligible for free or reduced-price lunch. In suburbs, this pattern persisted: Schools with the highest percentage of students eligible for free or reduced-price lunch had lower pass rates than schools with more affluent students. However, in towns, the pass rates were higher than the overall average for all poverty-level-based groups of students. In towns, it seemed that more exam-takers were prepared, regardless of the school's poverty level.

Table 3i. Number of certifications attempted and passed by students in cohort 2, by school locale, percent underrepresented minority, percent eligible for free or reduced-price lunch, and locale poverty level: 2009–10 and 2010–11

	Number attempted ^a	Number earned ^a	Certification-level pass rate ^b	Difference ^c
Overall	29,852	19,075	63.9	†
Locale				
City	6,358	3,691	58.1	-5.8
Fringe/suburb	15,880	10,055	63.3	-0.6
Town/rural	6,557	4,638	70.7	6.8
Percent underrepresented minority^d				
Lowest third	10,981	7,578	69.0	5.1
Middle third	7,681	5,178	67.4	3.5
Highest third	10,133	5,628	55.5	-8.4
Eligibility for free or reduced-price lunch				
Lowest third	10,343	7,077	68.4	4.5
Middle third	12,646	7,736	61.2	-2.7
Highest third	5,806	3,571	61.5	-2.4
Locale, by percent eligible for free or reduced-price lunch				
City: lowest third	1,814	1,180	65.0	1.2
City: middle third	3,068	1,622	52.9	-11.0
City: highest third	1,476	889	60.2	-3.7
Fringe/suburb: lowest third	5,681	3,839	67.6	3.7
Fringe/suburb: middle third	7,078	4,399	62.2	-1.7
Fringe/suburb: highest third	3,121	1,817	58.2	-5.7
Town/rural: lowest third	2,848	2,058	72.3	8.4
Town/rural: middle third	2,500	1,715	68.6	4.7
Town/rural: highest third	1,209	865	71.5	7.6
Unknown/unable to match to CCD	1,057	691	65.4	1.5

† Not applicable.

^a Includes certifications earned/attempted in 2009–10 and 2010–11.

^b The numerator for this certification-level pass rate is the number of certifications earned/passed in the 2009–10 and 2010–11 academic years, and the denominator is the number of certifications attempted in the 2009–10 and 2010–11 academic years. Certification exams that were failed, retaken, and passed in the same academic year are counted as one certification earned and one certification attempted (as opposed to one certification earned and two certifications attempted).

^c Relative to the “Overall” certification-level pass rate.

^d Underrepresented minority includes American Indian/Alaska Native students, black students, and Hispanic students.

NOTE: CCD = Common Core of Data. Corresponding results for cohort 1 (freshman class of 2005–06) can be found in appendix table C1h.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08.

3.3 OUTCOMES FOR CERTIFICATION EARNERS

Next, we examined the rates at which certification earners graduated from high school and enrolled in postsecondary educational institutions.

Question 3.9: For each cohort, what were the dropout and graduation rates for certification earners compared to non-earners?

For cohort 2, we calculated students' high school completion status. High school completers were defined as students who had earned a regular high school diploma by the end of 2010–11, which should have been the students' senior year. High school graduation rates are calculated as the number of students who earned a regular high school diploma with a denominator as the sum of the following five groups: (1) the number of students who earned a regular high school diploma, (2) the number of students who earned a GED® test credential,¹⁷ (3) the number of students who earned some other high school credential (e.g., a certificate of completion), (4) the number of students who dropped out, and (5) the number of other nongraduates (e.g., those who entered an adult education program prior to completion of graduation requirements). Graduation rate calculations do not include those who transferred out of state after beginning grade 9 in Florida's public school system.¹⁸

In both cohorts, certification earners obtained diplomas at a higher rate and dropped out at a lower rate than the overall cohort. (Table 3j presents information for cohort 2; cohort 1 results are in appendix C.) In cohort 2, 63 percent of grade 9 students in 2007–08 earned a regular high school diploma by the end of 2010–11, but almost all of the certification earners (95 percent) did. Six percent earned GED® test credentials, but less than 1 percent of certification earners did. Seven percent of all students dropped out, and less than 1 percent of certification earners did. Students may have dropped out before becoming eligible to take certification exams. Fewer certification earners dropped out or got a GED® test credential, but it does not appear that students who earned a certification left school because they thought that they no longer needed a diploma. Receiving an industry certification did not seem to give them an incentive to leave school early in order to find immediate employment.

¹⁷ The GED® test credential is a high school equivalency credential earned by passing the GED® test, which is administered by GED Testing Service. See <https://www.gedtesting.com/educators/home> for more information on the GED® test and credential.

¹⁸ Despite using methodologies similar to those of FLDOE, there are slight differences (i.e., less than one-half of one percentage point) between the high school graduation rates we calculated for this study and the FLDOE's high school graduation rates. These small rate differences are produced in large part by differences in who is included and excluded in the rate calculation (e.g., FLDOE graduation rates include students who transferred into the Florida public school system sometime after grade 9, while the graduation rates calculated for this study do not include such students).

Table 3j. High school completion status among students in cohort 2, both overall and among those who earned a certification: 2010–11

	Overall ^a	Among those who earned a certification in 2009–10 or 2010–11	
		Percentage	Difference ^a
High school completion status ^b			
Regular high school diploma	63.0	95.2	32.2
GED® test credential ^c	5.6	0.2	-5.4
Other high school credential	4.9	1.8	-3.1
Dropped out	7.2	0.4	-6.8
Other nongraduate ^d	19.3	2.4	-16.9

^a Relative to corresponding number in the “Overall” column.

^b As of 2010–11.

^c The GED® test credential is a high school equivalency credential earned by passing the GED® test, which is administered by GED Testing Service.

^d Includes, for example, retained students as well as students who withdrew so as to enter the adult education program prior to completion of graduation requirements. See appendix B for further details on high school completion status, including the “other nongraduate” category. NOTE: See also appendix table C1i2 table for further detail; corresponding results for cohort 1 (freshman class of 2005–06) can be found in appendix table C1i1.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse.

Question 3.10: Comparing certification earners to non-earners, three years after graduation

- **What percentage had ever entered a postsecondary educational program in Florida?**
- **What percentage entered a postsecondary educational program in Florida immediately after completing high school?**
- **Of those who entered a postsecondary educational program in Florida in the fall after graduation, what percent persisted past the first year?**

These questions focused on enrollment in Florida public postsecondary educational programs. First, we identified those who enrolled in either a Florida public community college or university. Then, of those who enrolled, we identified how many enrolled immediately, that is, in the fall after high school completion (2011 for cohort 2). Finally, among those who enrolled immediately after high school, we examined whether their enrollment persisted for more than one year. Each set of analyses included the rate at which students enrolled in any college or university, a university, or a community college. Table 3k presents this information for cohort 2; results for cohort 1 are in appendix C.

In both cohorts, certification earners had higher rates of entering both Florida universities and Florida community colleges, and they had higher rates of enrollment for more than one school year in community colleges. Differences between certification earners and the overall rate were greatest in community colleges.



Overall, in cohort 2, 65 percent of high school completers entered a Florida public postsecondary educational institution within three years of high school completion. Of the certification earners, 74 percent had ever enrolled in a Florida public postsecondary educational institution, a difference of 9 percentage points from the overall rate. Of all students who enrolled in Florida public postsecondary institutions, 64 percent did so immediately, and 84 percent of those immediate enrollees persisted for more than one year. Of all certification earners who enrolled in Florida public postsecondary institutions, 68 percent did so immediately, a 4 percentage point difference; and 87 percent of those immediate enrollees persisted for more than one year, which was higher than the overall persistence rate.

For certification earners, the rate of university enrollment was 6 percentage points higher than for the overall cohort. Of those who enrolled, the rates of immediate enrollment and persistence were about 1 percentage point higher for certification earners than non-earners.. In terms of Florida public community colleges, the rate of entry for certification earners was 8 percentage points higher than the overall rate; the difference in immediate enrollment was 2 percentage points higher; and the difference in persistence was about 5 percentage points higher. Although, in both Florida public community colleges and universities, certification earners have higher rates of entry and persistence, the differences between certification earners and non-earners were greater in the community colleges.

Table 3k. Postsecondary enrollment and persistence rates among high school credential earners in cohort 2, both overall and among those who earned a certification: 2013–14

	All high school credential earners (n = 162,141)	Among those who earned a certification in 2009–10 or 2010–11 (n = 15,561)	
		Percentage	Difference ^a
Ever enrolled in a FL public university OR a FL public community college	65.2	74.3	9.1
Immediately enrolled in a FL public university or FL public community college ^{b,c}	64.2	67.7	3.5
Persisted at a FL public university or FL public community college for more than 1 school year ^d	84.4	86.9	2.5
Ever enrolled in a FL public university	22.5	28.7	6.2
Immediately enrolled in a FL public university ^{b,e}	71.1	69.9	-1.3
Persisted at a FL public university enrollment for more than 1 school year ^f	91.4	90.4	-1.1
Ever enrolled in a FL public community college	56.8	64.3	7.5
Immediately enrolled in a FL public community college ^{b,g}	45.8	47.4	1.5
Persisted at a FL public community college for more than 1 school year ^h	79.7	84.2	4.5

^a Relative to corresponding distribution from the “All high school credential earners” column.

^b Students who enrolled by the fall semester after their high school credential year were categorized as having immediate enrollment.

^c Among those who ever enrolled in either a Florida public university or a Florida public community college.

^d Among those with immediate enrollment in either a Florida public university or a Florida public community college.

^e Among those who ever enrolled in a Florida public university.

^f Among those with immediate enrollment in a Florida public university.

^g Among those who ever enrolled in a Florida public community college.

^h Among those with immediate enrollment in a Florida public community college.

NOTE: FL = Florida. Results were limited to those who earned a high school credential as of 2010–11. See appendix table C1j2 for further detail; corresponding results for cohort 1 (freshman class of 2005–06) can be found in appendix table C1j1.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse.

Question 3.11: Comparing certification earners to non-earners three years after graduation, what percentage of those who entered a Florida community college immediately after completing high school earned an associate degree?

Of those who enrolled in a Florida community college immediately after high school, 21 percent had earned an associate degree or a sub-associate postsecondary credential, such as an advanced technical certificate. Twenty-six percent of certification earners had done so (table 3l).¹⁹ A higher percentage of certification earners than non-certification earners enrolled and persisted in community college and earned degrees, as well.

¹⁹ At the time that this report was prepared, we had received postsecondary enrollment data from FLDOE through 2014, or three years after high school completion. Because three years is not sufficient time for most students to earn bachelor’s degrees, we focus on associate degrees.

Table 31. Highest postsecondary credential earned among high school credential earners in cohort 2 who immediately enrolled in a Florida public community college, both overall and among those who earned a certification: Summer 2014

	All high school credential earners with immediate postsecondary enrollment	Among those who earned a certification in 2009–10 or 2010–11	
		Percentage	Difference ^a
Among those with immediate enrollment at a Florida public community college	<i>n</i> = 42,245	<i>n</i> = 4,743	
No postsecondary credential	78.6	73.8	-4.8
Associate degree or sub-associate postsecondary credential	21.4	26.2	4.9
Bachelor's degree or higher	0.1	0.0	-0.1

^a Relative to corresponding percentage from the "All high school credential earners with immediate postsecondary enrollment" column.

NOTE: Results are limited to students who (1) earned a high school credential as of 2010–11 and (2) immediately enrolled at a Florida public community college. Students who enrolled in a Florida public community college by the fall semester after their high school credential year were categorized as having "immediate" enrollment. Results were also limited to credentials awarded by the Florida public community colleges and universities system. See appendix table C1k2 for further detail. Percentages may not sum to 100 because of rounding.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse.

The next chapter presents an in-depth analysis of the outcomes for students in cohort 2, for whom this policy was in place throughout high school. Using probabilistic techniques, we create comparison groups by matching certification earners to non-earners, gold-standard certification earners to regular certification earners, and certification earners in different areas to certification earners in other areas. Research questions address high school and postsecondary outcomes for students.

CHAPTER 4. EDUCATIONAL OUTCOMES FOR CERTIFICATION EARNERS

The previous chapter described the rollout of this policy and addressed questions about the characteristics of students earning certifications in high school, certification pass rates, and outcomes of certifications. This chapter presents an in-depth analysis of the high school and postsecondary outcomes for the certification earners who were in grade 9 in 2007–08 (cohort 2). For this cohort, the *CAPE Act* was in effect for all of their high school years. This chapter presents comparisons of

1. certification earners with matched non-earners;
2. gold-standard certification earners with matched regular certification earners; and
3. certifications in each area compared with all other certifications. (Areas included in comparisons are those in which at least 2 percent of certifications were earned).

High school outcomes include grade 12 attendance rates, number of credits attempted, number of credits earned, GPA, and graduation. Postsecondary outcomes include enrollment and persistence in colleges and universities and whether those in community colleges earned associate degrees. Table 4a presents the specific research questions.

Table 4a. Research questions about educational outcomes for certification earners, by research area

Research area	Question
High school outcomes	4.1. Did certification earners perform better than matched non-earners in the following grade 12 outcomes: <ul style="list-style-type: none"> • Attendance rates? • Number of credits attempted? • Number of credits earned? • Grade point average (GPA)?
	4.2. Were those who earned certifications more likely to graduate from high school than matched students who did not earn certifications?
Postsecondary educational enrollment	4.3. Were those who earned certifications more likely than matched non-earners to enroll in <ul style="list-style-type: none"> • Any college or university? • A community college? • A university?
	4.4. Among those who enrolled in a postsecondary institution, were certification earners more likely than matched non-earners, in the semester following high school graduation, to enroll in <ul style="list-style-type: none"> • Any college or university? • A community college? • A university?
	4.5. Among those who immediately enrolled in a postsecondary institution, were certification earners more likely than matched non-earners to persist more than one year in <ul style="list-style-type: none"> • Any college or university? • A community college? • A university?
	4.6. Among those who enrolled in a community college, were certification earners more likely than matched non-earners to attain an associate degree?
Postsecondary financial and social services status	4.7. What was the difference in employment rates between certification earners and matched non-earners? Of those employed full time, what was the difference in their earnings?
	4.8. What was the difference in rates of receiving public assistance between certification earners and matched non-earners?
	4.9. What was the difference in incarceration rates between certification earners and matched non-earners?

Using student factors such as demographic characteristics, prior academic performance, and school factors, such as locale and poverty level, we employed propensity score matching to create matched comparison groups: certification earners compared with matched non-earners, and gold-standard certification earners compared with regular certification earners. Finally, within the set of certification earners, we used the same propensity score matching process to identify certification earners in each certification area who were very similar to those who earned certifications in other areas. For example, we identified all certification earners in Information Technology and created a comparison group of similar certification earners who did not earn a certification in that area. We focused on the six areas that had at least 2 percent of all certifications: Architecture and Construction; Arts, AV Technology, and Communication; Health Science; Hospitality and Tourism; Human Services; and Information Technology. This matching process yielded 12 sub-samples for analysis — one for each area and its matched comparison group.

To assess the post-program outcomes of high school completers, we identified students who enrolled in public postsecondary institutions located within the state. Identifiers for students who were not found in Florida's postsecondary education system were then sent to the National Student Clearinghouse (NSC), which includes information on all public and private postsecondary institutions in the United States, including public and private postsecondary colleges and universities outside of Florida and private schools in Florida. Tables 3k and 3l in chapter 3 reflect postsecondary enrollment rates at public universities and community colleges in the state of Florida, while the results presented in this chapter reflect postsecondary enrollment rates at universities and community colleges across the United States.

Analyses estimated the effect of obtaining a certification on high school and college enrollment outcomes. Results are described in terms of marginal effects,²⁰ which is the difference between an outcome observed for students who earned a certification and those who did not earn a certification. The models control for relevant student and school factors included in Florida's Education Data Warehouse files. Other factors not included in the file, such as student motivation or family support, may influence a student's decision to earn a certification. These analyses cannot account for unobserved characteristics that could influence earning certifications; however, they do account for measured student and school characteristics and control for district differences.

For analyses of postsecondary employment outcomes, we reported aggregate data for each sample. FLDOE's agreement with the Florida Department of Economic Opportunity does not allow FLDOE to release wage records tied to the individual's race, gender, or date of birth.²¹ For this study, FLDOE created aggregate FETPIP employment, incarceration, and public assistance reports based on the student IDs in each sample.

²⁰ Outcomes for the propensity score analyses considered student clustering by district, which may reduce standard errors.

²¹ Florida Department of Education research request policy
<http://www.fldoe.org/accountability/accountability-reporting/external-research-requests>.

4.1 HIGH SCHOOL OUTCOMES

Question 4.1: Did certification earners perform better than matched non-earners in the following grade 12 outcomes: attendance rates, number of credits attempted, number of credits earned, GPA?

These analyses focus on high school outcomes including grade 12 attendance rates, number of credits attempted, number of credits earned, GPA for all courses, and high school graduation.²² Table 4b presents results for these outcomes.

²² Students who left high school before graduating were included in the analyses if they were still enrolled in high school during grade 11, grade 12, or both.

Table 4b. Marginal effects of obtaining certifications on grade 12 outcomes among students in cohort 2, by certification type and area 2010–11

	<i>n</i>	Mean		Marginal effect size ^a	Robust standard error	<i>t</i>	Significance
		Certification earners	Matched comparison				
Any certification vs. no certification							
Attendance rates	166,691	94.0	92.2	2.0	0.2	9.1	***
Number of credits attempted	166,691	7.2	6.2	1.0	0.0	26.5	***
Number of credits earned	166,691	7.0	6.0	1.0	0.0	28.9	***
Grade point average	159,816	3.1	3.0	0.2	0.0	19.6	***
Gold-standard vs. regular certification							
Attendance	15,505	94.1	93.8	0.2	0.1	1.8	
Number of credits attempted	15,663	7.2	7.2	0.0	0.1	0.2	
Number of credits earned	15,663	7.0	7.0	0.0	0.0	0.1	
Grade point average	15,473	3.1	3.1	0.0	0.0	-1.1	
Architecture and Construction							
Attendance rate	12,603	95.2	95.1	0.1	0.2	0.3	
Credits attempted	12,732	7.1	7.1	0.0	0.1	-0.2	
Credits earned	12,732	6.8	6.8	0.0	0.1	-0.5	
Grade point average in 2010	12,579	3.1	3.0	0.0	0.0	1.0	
Arts, AV Technology, and Communication							
Attendance rate	15,292	93.7	93.8	-0.1	0.1	-0.8	
Credits attempted	15,445	7.1	7.1	0.0	0.1	-0.6	
Credits earned	15,445	6.9	7.0	-0.1	0.1	-1.2	
Grade point average in 2010	15,260	3.1	3.1	0.0	0.0	-0.8	
Health Science							
Attendance rate	14,940	94.9	94.1	0.8	0.2	3.1	***
Credits attempted	15,082	7.2	7.1	0.1	0.1	2.8	**
Credits earned	15,082	7.1	7.0	0.2	0.1	3.2	***
Grade point average in 2010	14,908	3.2	3.2	0.0	0.0	-2.5	**
Hospitality and Tourism							
Attendance rate	14,691	92.7	93.6	-0.9	0.3	-3.4	**
Credits attempted	14,834	7.1	7.2	-0.1	0.1	-1.1	
Credits earned	14,834	6.9	7.0	-0.1	0.1	-1.1	
Grade point average in 2010	14,662	3.1	3.1	0.0	0.0	-1.3	
Human Services							
Attendance rate	13,590	93.2	93.7	-0.6	0.2	-3.1	**
Credits attempted	13,713	7.3	7.3	0.0	0.1	0.2	
Credits earned	13,713	7.2	7.1	0.1	0.1	0.8	
Grade point average in 2010	13,562	3.1	3.1	0.1	0.0	2.4	*
Information Technology							
Attendance rate	14,758	95.5	94.9	0.5	0.1	3.8	***
Credits attempted	14,902	7.2	7.0	0.2	0.1	3.1	**
Credits earned	14,902	7.0	6.8	0.2	0.1	3.6	**
Grade point average in 2010	14,730	3.2	3.1	0.1	0.0	4.4	***

* $p < .05$, ** $p < .01$, *** $p < .001$.

^a Marginal effects for the difference between the treatment and comparison group were calculated using ordinary least squares regression of grade 12 outcomes (attendance, credits attempted and earned, and grade point average) on an indicator of certification status. Marginal effects represent differences between treatment and comparison group students, holding covariates at their mean values.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; Florida Education and Training Placement Information Program.

Comparisons of high school outcomes in several areas of those with any certification and matched non-earners show that certification earners performed better in grade 12. The attendance rate for students who obtained any certification during 2010–11 was approximately 94 percent, while the attendance rate for students who did not obtain a certification was approximately 92 percent. The marginal effect of obtaining any type of certification was an increase of approximately 2 percentage points in the attendance rate. Students who earned certifications attempted and earned higher numbers of credits in their senior year (2010–11). Those who obtained any certification attempted and earned an average of approximately seven credits, while students who did not obtain any certification attempted and earned approximately six credits. The marginal effect on GPA of obtaining any type of certification was an increase of approximately .2 grade points. All differences in these outcomes were statistically significant.

Next, we compared high school outcomes among certification earners, distinguishing gold-standard certification earners from other certification earners. Given that gold-standard certifications confer statewide articulated credit that may be applied toward an AAS or AS program offered in any community college in the state, students pursuing these types of certifications may be better prepared for college than other certification earners. However, none of the differences between regular and gold-standard certification earners were statistically significant. There was no difference in attendance rates, credits attempted and earned, or GPA between gold-standard and regular certification earners.

Although certification earners in each certification area had better high school outcomes than non-earners, we found some differences by certification area. Table 4c shows these results. Information Technology and Health Science had strong positive associations with the high school outcomes of attendance and credits attempted and earned. Information Technology also had a strong positive association with GPA, but Health Science had a negative association with GPA. Hospitality and Tourism and Human Services had negative associations with attendance, but Human Services had a positive association with GPA. We found no differences in any of these outcomes for Architecture and Construction or for Arts, AV Technology, and Communication, compared with other certification earners.

Question 4.2: Were those who earned certifications more likely to graduate from high school than matched students who did not earn certifications?

Students who earned certifications were more likely to graduate from high school than those who did not. Approximately 95 percent of students who obtained either a regular or a gold-standard certification during the final two years of high school also received a high school diploma, compared to 82 percent of students who did not receive a certification (table 4c). The marginal effect of receiving any certification on graduation was 9 percent, which

indicates that the probability of certification earners graduating from high school was 9 percentage points higher than that for students who did not receive a certification. Given the use of regression models, this marginal effect is controlling for factors such as student prior academic performance and school poverty level.

Although certification earners in each type and certification area had higher graduation rates than non-earners, we found few differences among certification earners. For example, there was no significant difference in the graduation rates between students who obtained a gold-standard certification (94 percent) compared to students who received a regular certification (95 percent). Across certification areas, graduation rates ranged from 92 percent (for Architecture and Construction) to 98 percent (for Health Science). Certification earners in both Health Science and Human Services had higher graduation rates than matched certification earners in other areas. Certification earners in Architecture and Construction and in Arts, AV Technology, and Communication had lower graduation rates than matched certification earners in other areas. Even though their graduation rates (92 percent and 95 percent, respectively) were lower than those of other certification earners, these rates were at least 10 percentage points higher than those for students who did not earn any certification (82 percent).

Table 4c. Marginal effects of obtaining certifications on high school graduation rates among students in cohort 2, by certification type and area: 2010–11

	n	Mean graduation rate		Marginal effect size ^a	Robust standard error	z	Significance
		Certification earners	Matched comparison				
Any certification vs. no certification	178,973	95.3	82.1	9.0	0.0	34.6 ***	
Gold-standard certification vs. regular certification	15,560	94.4	95.2	-0.5	0.0	-1.5	
Architecture and Construction vs. other certifications	12,653	91.8	94.2	-1.3	0.6	-2.2 *	
Arts, AV Technology, and Communication vs. other certifications	15,343	94.6	95.4	-0.6	0.3	-2.0 *	
Health Science vs. other certifications	14,989	97.9	96.1	1.1	0.5	2.2 *	
Hospitality and Tourism vs. other certifications	14,738	94.7	94.6	0.1	0.4	0.2	
Human Services vs. other certifications	13,624	97.4	95.7	0.9	0.1	6.5 ***	
Information Technology vs. other certifications	14,802	93.9	95.1	-0.7	0.8	-0.8	

* $p < .05$, ** $p < .01$, *** $p < .001$.

^a Marginal effects for the difference between the treatment and comparisons group were calculated using logistic regression of high school graduation on an indicator of certification status. Marginal effects represent differences between the treatment and comparison group students holding covariates at their mean values.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; Florida Education and Training Placement Information Program.

4.2 POSTSECONDARY EDUCATIONAL ENROLLMENT

Analyses of postsecondary enrollment included students who completed high school. Those who did not complete high school are omitted from analyses of postsecondary educational enrollment. Analyses of success in postsecondary enrollment include enrolling on time, persisting, and earning a degree. These analyses include all students who enrolled and omit those who never enrolled in a postsecondary educational institution.

Question 4.3: Were those who earned certifications more likely than matched non-earners to enroll in any college or university? A community college? A university?

Students who obtained a certification enrolled in a postsecondary educational institution more often than matched students who did not obtain a certification, and enrollment in community college accounted for this difference. Table 4d presents results for enrollment in postsecondary educational institutions. Overall, approximately 78 percent of all high school completers who obtained any type of certification enrolled in a postsecondary educational institution, compared to 73 percent of students in the matched comparison group. When other explanatory measures are included in the model, the marginal effect suggests that these certification earners were almost 5 percentage points more likely to enroll in a postsecondary educational institution during the first semester after high school graduation than students who did not receive a certification.

However, comparisons of gold-standard certification earners with regular certification earners show that gold-standard certification earners were less likely to enroll in a postsecondary educational institution than regular certification earners. Seventy-five percent of students who received a gold-standard certification enrolled, compared with 78 percent of students who obtained a regular certification. Given that these certifications give students the potential for credit toward an associate degree, it is surprising that gold-standard certification earners were less likely than other certification earners to enroll in a postsecondary educational institution. Students may not have understood this additional benefit. The marginal effect of obtaining a gold-standard certification was -3 percent, which suggests that these students were more than 3 percent *less* likely to enroll in postsecondary education during the first semester after high school graduation than students who received a regular certification. Among certification areas that include both regular and gold-standard certifications, Health Science was the only one positively associated with enrolling in any postsecondary institution. Eighty-eight percent of students who obtained a certification in Health Science enrolled in postsecondary education, compared with 82 percent of other matched certification earners. Students earning Architecture and Construction or Hospitality and Tourism certifications were less likely than their peers to enroll in any postsecondary institution (66 percent for Architecture and Construction and 73 percent for Hospitality and Tourism).

Table 4d. Marginal effects of obtaining certifications on enrolling in community college or university among students in cohort 2, by certification type and area: 2013–14

	n	Mean enrollment rate		Marginal effect size ^a	Robust standard error	z	Significance
		Certification earners	Matched comparison				
Enrolled in any postsecondary education ^b							
Any certification vs. no certification	121,188	78.4	73.0	4.9	0.5	9.4	***
Gold-standard certification vs. regular certification	11,751	75.1	78.1	-3.2	0.9	-3.6	***
Architecture and Construction vs. other certifications	9,489	65.8	72.4	-7.0	1.6	-4.4	***
Arts, AV Technology, and Communication vs. other certifications	11,605	77.5	75.7	0.7	1.0	0.8	
Health Science vs. other certifications	11,287	88.1	82.2	5.1	0.8	6.6	***
Hospitality and Tourism vs. other certifications	11,118	72.7	76.5	-5.4	1.6	-3.3	**
Human Services vs. other certifications	10,389	84.2	81.4	2.4	1.3	1.9	
Information Technology vs. other certifications	10,851	76.2	77.0	-1.0	1.8	-0.5	
Enrolled at a community college							
Any certification vs. no certification	121,188	59.9	53.7	6.6	0.7	9.8	***
Gold-standard certification vs. regular certification	11,751	56.6	61.3	-3.9	0.9	-5.4	***
Architecture and Construction vs. other certifications	9,489	52.5	57.4	-5.4	2.0	-2.8	
Arts, AV Technology, and Communication vs. other certifications	11,605	59.1	56.6	2.3	1.3	1.8	
Health Science vs. other certifications	11,287	67.4	61.5	5.9	1.5	3.9	***
Hospitality and Tourism vs. other certifications	11,118	55.3	60.8	-7.1	2.0	-3.6	***
Human Services vs. other certifications	10,389	65.2	62.6	2.8	1.2	2.3	*
Information Technology vs. other certifications	10,851	53.1	57.6	-4.7	1.7	-2.8	
Enrolled at a university ^b							
Any certification vs. no certification	121,188	30.0	29.1	1.1	0.6	1.8	**
Gold-standard certification vs. regular certification	11,751	29.2	27.8	1.1	0.7	1.5	
Architecture and Construction vs. other certifications	9,489	24.1	25.1	-1.4	1.9	-0.7	
Arts, AV Technology, and Communication vs. other certifications	11,605	29.6	30.2	-0.8	1.1	-0.7	
Health Science vs. other certifications	11,287	35.4	33.0	2.3	1.7	1.3	
Hospitality and Tourism vs. other certifications	11,118	25.8	25.4	0.5	1.1	0.4	
Human Services vs. other certifications	10,389	32.7	30.9	2.1	2.0	1.1	
Information Technology vs. other certifications	10,851	33.6	31.4	3.1	1.8	1.7	

* $p < .05$, ** $p < .01$, *** $p < .001$.

^a Marginal effects for the difference between the treatment and comparison group were calculated using logistic regression of enrollment at a postsecondary institution (community college or university) on an indicator of certification status. Marginal effects represent differences between treatment and comparison group students holding covariates at their mean values.

^b Enrolled within the first three years after high school graduation.

NOTE: Sample is limited to all high school completers.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; National Student Clearinghouse, StudentTracker Data.

Looking just at those who enrolled in community colleges, we found that students who obtained a certification were more likely to enroll than those who did not. About 60 percent

of students with any certification enrolled at a community college after high school, compared to 54 percent of students without a certification (see table 4c).

However, students who obtained a gold-standard certification were *less* likely to enroll at a community college than students who obtained a regular certification (57 percent vs. 61 percent, respectively). In fact, the probability of a student with a gold-standard certification attending community college was approximately 5 percentage points *less* than that for a student with a regular certification.

Among the certification areas, students earning Health Science and Human Services certifications were more likely than their peers to enroll in community college. The biggest difference was in Health Science, where 67 percent enrolled, compared with 62 percent of their peers. Those who earned Architecture and Construction certifications were less likely than their peers to enroll in a community college: 53 percent of them did, compared with 57 percent of their peers. None of the other certification areas had any statistically significant association with enrolling in community colleges.

Unlike community college enrollment, rates of university enrollment did not differ for students who obtained any type of certification from classmates without certifications. There was no statistical difference between regular and gold-standard certification earners in enrolling in a university. Similarly, comparisons of certification areas showed no statistical difference in university enrollment between any certification area and the other certification areas.

Certifications were associated with enrollment in community colleges but not in universities. Those with strong aspirations to attend a four-year university may not pursue a certification and focus instead on taking advanced academic courses, such as AP courses. Those preparing to go to community college may perceive a more direct link between certification and community college. However, even though gold-standard certifications give students the potential to earn postsecondary educational credits, gold-standard certification earners were less likely than other certification earners to enroll in any type of postsecondary institution. Differences in certification areas may reflect students' understanding of job requirements in those areas. In some certification areas (such as Health Science), students may believe they will be better able to get jobs if they combine the certification with an associate degree, but in other areas (such as Architecture and Construction), students may believe that a certification combined with a high school diploma will suffice.

Focusing on students who did enroll in any postsecondary educational institution, the next set of questions examines whether they enrolled right away, whether they persisted, and whether they earned a degree.

Question 4.4: Among those who enrolled in a postsecondary institution, were certification earners more likely than matched non-earners, in the semester following high school graduation, to enroll in any college or university? A community college? A university?

Delayed enrollment in postsecondary education is associated with parents' education and students' educational expectations in grade 12. A study of postsecondary enrollment trends over three decades consistently found that those with lower educational expectations in grade 12 had higher rates of delayed college entry (Ingels et al. 2012). Delaying college entry may suggest that students are less academically prepared or focused on their educational plans than those who enroll the semester after high school graduation. Delaying entry may also indicate that they lack sufficient funds to attend college immediately after high school.

Table 4e presents results on immediate enrollment. Among all students who enrolled in postsecondary education, certification earners were more likely than non-earners to enroll immediately after high school graduation, which suggests that they were more prepared to continue in school. Seventy-seven percent of students who obtained any certification enrolled in postsecondary education during the first semester after high school graduation, compared to 74 percent of non-earners.

Among all students who enrolled at a community college, 65 percent of certification earners enrolled immediately after graduating from high school, compared to approximately 60 percent of those who did not earn certifications. At a four-year university, there was no enrollment difference between certification earners and non-earners.

Gold-standard certification earners did not differ statistically from regular certification earners in their rates of immediate enrollment in any postsecondary educational institution. Rates of immediate enrollment by certification area did not differ statistically, either overall or in community colleges. Of certification earners who enrolled in four-year universities, Health Science students were more likely to enroll immediately following graduation than their peers (76 percent compared with 73 percent), but Arts, AV Technology, and Communication students were less likely to do so than their peers (71 percent compared with 76 percent).

Table 4e. Marginal effects of obtaining any certification on immediate enrollment in a community college or university among students in cohort 2, by certification type and area: 2013–14.

	Mean immediate enrollment rate					
	<i>n</i>	Certification earners	Matched comparison	Marginal effect size ^a	Robust standard error	<i>z</i> Significance
Any postsecondary education						
Any certification vs. no certification	86,575	77.2	73.7	3.7	0.5	7.7 ***
Gold-standard certification vs. regular certification	9,217	76.3	76.7	-0.9	0.9	-1.0
Architecture and Construction vs. other certifications	7,415	76.1	74.7	0.0	1.8	0.0
Arts, AV Technology, and Communication vs. other certifications	9,129	76.4	77.3	-0.6	1.3	-0.5
Health Science vs. other certifications	8,919	80.9	77.8	2.8	1.6	1.8
Hospitality and Tourism vs. other certifications	8,718	73.4	75.7	-2.8	1.8	-1.6
Human Services vs. other certifications	8,220	79.3	78.1	1.4	1.2	1.1
Information Technology vs. other certifications	8,560	75.1	77.5	-1.3	2.1	-0.6
Community college						
Any certification vs. no certification	65,996	65.0	60.3	4.9	0.5	11.2 ***
Gold-standard certification vs. regular certification	7,044	64.4	65.2	-0.9	1.4	-0.6
Architecture and Construction vs. other certifications	5,653	65.8	64.5	0.4	2.6	0.1
Arts, AV Technology, and Communication vs. other certifications	6,960	65.2	63.8	1.7	1.6	1.1
Health Science vs. other certifications	6,798	66.4	65.6	0.6	1.8	0.4
Hospitality and Tourism vs. other certifications	6,644	63.4	65.8	-2.7	3.2	-0.8
Human Services vs. other certifications	6,247	64.6	65.9	-1.0	1.7	-0.6
Information Technology vs. other certifications	6,480	61.3	64.0	-1.7	3.0	-0.6
University						
Any certification vs. no certification	31,526	73.3	74.8	0.2	0.9	-0.2
Gold-standard certification vs. regular certification	3,526	72.8	72.8	-0.5	1.4	-0.7
Architecture and Construction vs. other certifications	2,860	68.0	68.9	-6.1	3.7	-1.7
Arts, AV Technology, and Communication vs. other certifications	3,515	70.9	75.8	-4.5	1.3	-3.5 ***
Health Science vs. other certifications	3,425	76.5	72.7	3.8	1.4	2.8 ***
Hospitality and Tourism vs. other certifications	3,331	72.2	71.6	0.3	3.5	0.1
Human Services vs. other certifications	3,179	76.2	73.4	2.5	1.3	2.0
Information Technology vs. other certifications	3,349	73.9	74.3	0.4	2.5	0.2

* $p < .05$, ** $p < .01$, *** $p < .001$.

^a Marginal effects for the difference between the treatment and comparison group were calculated using logistic regression of immediate enrollment at a postsecondary educational institution (community college or university) on certification status. Marginal effects represent differences between the treatment and comparison group students, holding covariates at their mean values.

NOTE: Sample is limited to all students enrolling in postsecondary education.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; National Student Clearinghouse, StudentTracker Data.

Question 4.5: Among those who immediately enrolled in a postsecondary institution, were certification earners more likely than matched non-earners to persist more than one year in any college or university? A community college? A university?

In the United States, many students who enroll in postsecondary educational institutions leave before earning a degree. Seventy-two percent of American high school students who graduated in the class of 2009 and entered a four-year university completed a degree within six years, and 38 percent of those entering a community college did so within six years (Shapiro et al. 2015). Here, we examine whether students who enrolled in postsecondary educational institutions persisted for at least one year. Table 4f presents results about persistence in college.

Students who obtained any type of certification and enrolled in a postsecondary institution were more likely to persist for at least one year than their peers who did not earn a certification. Certification earners were almost 2 percent more likely to persist in postsecondary education than those who did not obtain a certification, net of other student characteristics, such as past academic performance. Of those who enrolled in community colleges, certification earners were more likely to persist than non-earners, but there was no statistical difference in the two groups' persistence rates in four-year universities.

For gold-standard certification earners, there was no statistical difference in their persistence in community colleges or universities. We did find some difference in persistence when comparing certification areas to each other. Information Technology and Health Science certification earners who enrolled in any postsecondary educational institution were more likely to persist than their peers who earned certifications in other areas. Certification earners in the Information Technology and Health Science areas were more likely to persist in community college than their peers, but we found no difference in persistence for those who attended four-year universities. In universities, certification earners in Hospitality and Tourism were less likely to persist than others (85 percent of students with Hospitality and Tourism certifications versus 87 percent of students with certifications in other areas). The certification type or area seems to be less important to postsecondary persistence than earning a certification at all.

Table 4f. Marginal effects of obtaining a certification on persisting in a community college or university for more than one year among students in cohort 2, by certification type and area: 2013–14

		Mean rates of persistence in postsecondary education				
	<i>n</i>	Certification earners	Matched comparison	Marginal effect size ^a	Robust standard error	<i>z</i> Significance
Any postsecondary education						
Any certification vs. no certification	62,505	88.4	86.9	1.7	0.4	4.6 ***
Gold-standard certification vs. regular certification	7,117	87.3	87.5	-0.7	0.7	-1.0
Architecture and Construction vs. other certifications	5,755	83.4	86.2	-2.3	2.0	-1.2
Arts, AV Technology, and Communication vs. other certifications	7,050	87.6	88.0	-0.4	0.7	-0.6
Health Science vs. other certifications	6,893	91.9	90.2	1.7	0.5	3.3 ***
Hospitality and Tourism vs. other certifications	6,727	86.4	86.6	-1.0	1.4	-0.7
Human Services vs. other certifications	6,362	90.8	88.7	2.0	1.3	1.5
Information Technology vs. other certifications	6,636	91.1	87.0	4.0	1.1	3.7 ***
Community college						
Any certification vs. no certification	39,811	84.0	80.1	3.6	0.6	5.9 ***
Gold-standard certification vs. regular certification	4,576	82.8	83.1	-0.7	1.2	-0.6
Architecture and Construction vs. other certifications	3,682	78.5	82.4	-4.6	2.6	-1.8
Arts, AV Technology, and Communication vs. other certifications	4,518	83.3	82.6	0.3	1.2	0.2
Health Science vs. other certifications	4,417	88.2	86.0	2.5	0.9	2.8 ***
Hospitality and Tourism vs. other certifications	4,316	83.7	83.1	-0.1	1.9	-0.1
Human Services vs. other certifications	4,052	86.1	84.1	2.3	2.2	1.1
Information Technology vs. other certifications	4,204	87.7	81.1	6.6	2.4	2.8 ***
University						
Any certification vs. no certification	22,962	89.2	90.6	-0.5	0.5	-1.0
Gold-standard certification vs. regular certification	2,586	87.8	88.8	-1.1	1.1	-4.0
Architecture and Construction vs. other certifications	2,103	85.1	86.3	-1.5	2.3	-0.6
Arts, AV Technology, and Communication vs. other certifications	2,577	87.8	89.0	-1.1	1.2	-0.9
Health Science vs. other certifications	2,519	90.8	91.6	-0.6	0.9	-0.7
Hospitality and Tourism vs. other certifications	2,453	85.3	86.8	-4.0	1.9	-2.1 *
Human Services vs. other certifications	2,351	92.3	90.3	1.4	1.2	1.1
Information Technology vs. other certifications	2,474	91.9	87.7	0.4	2.0	1.9

* $p < .05$, ** $p < .01$, *** $p < .001$.

^a Marginal effects for the difference between the treatment and comparison group were calculated using logistic regression of persistence in a postsecondary educational institution (community college or university) on certification status. Marginal effects represent differences, between treatment and comparison group students, holding covariates at their mean values.

NOTE: Sample is limited to all students enrolling in postsecondary education.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; National Student Clearinghouse, StudentTracker Data.

Question 4.6: Among those who enrolled in a community college, were certification earners more likely than matched non-earners to attain an associate degree?

Within three years of enrollment in a community college, 22 percent of certification earners attained an associate degree, compared to 19 percent of non-earners, and this difference is statistically significant. There was no difference in degree attainment for gold-standard certification earners compared to regular certification earners, or for any certification area except Information Technology. Twenty-six percent of Information Technology certification earners attained an associate degree, compared with 20 percent of earners in all other areas combined. Table 4g presents these results.

Table 4g. Marginal effects of obtaining a certification on obtaining an associate degree among students in cohort 2, by certification type and area: Summer 2014

	n	Mean rate of earning associate degree		Marginal effect size ^a	Robust standard error	z	Significance
		Certification earners	Matched comparison				
Any certification vs. no certification	39,673	22.2	18.6	3.6	0.5	7.7	***
Gold-standard certification vs. regular certification	4,747	22.3	22.1	0.1	0.7	0.1	
Architecture and Construction vs. other certifications	3,974	22.0	23.6	-0.5	2.3	-0.2	
Arts, AV Technology, and Communication vs. other certifications	4,734	21.6	22.0	0.3	1.1	0.3	
Health Science vs. other certifications	4,720	26.5	27.7	-1.3	2.2	-0.6	
Hospitality and Tourism vs. other certifications	4,450	22.8	21.8	1.2	1.4	0.8	
Human Services vs. other certifications	4,315	22.0	22.3	0.0	1.7	0.0	
Information Technology vs. other certifications	4,036	26.3	19.5	6.9	2.3	3.0	***

* $p < .05$, ** $p < .01$, *** $p < .001$.

^a Marginal effects for difference between the treatment and comparison group were calculated using logistic regression of obtaining an associate degree from a community college on certification status. Marginal effects represent differences between treatment and comparison group students, holding covariates at their mean values.

NOTE: Sample is limited to all students enrolling at a community college immediately after high school graduation.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; National Student Clearinghouse, StudentTracker Data.

4.3 POSTSECONDARY FINANCIAL AND SOCIAL SERVICES STATUS

FLDOE provided aggregate information about employment, receipt of aid, and incarceration in Florida for our 16 subsamples: certification earners, matched non-earners,

gold-standard certification earners, matched regular certification earners, and each of six certification areas with an associated comparison group. For each group, members were in grade 9 in 2006–07 and completed high school with a standard diploma, certificate of completion, GED® test credential, special certificate of completion, or a special diploma. Results are included for fall 2011, when this cohort of students completed high school, and each subsequent fall through 2015. Figures in this section present the differences between the certification earners and non-earners on the given outcome measure. For example, the employment figure shows the difference in Florida employment rates for gold-standard certification earners minus regular certification earners each year. These figures illustrate differences in outcomes for certification earners compared with non-earners and for earners of certifications in different types and areas compared with each other. Actual rates are included in appendix C3. Because FETPIP data are limited to Florida outcomes, we do not have information about employment, public assistance, or incarceration in other states and cannot draw inferences about those outcomes outside of Florida. As described in chapter 2, with aggregate data, we cannot test statistical significance of differences or include other explanatory factors in these analyses; however, we did use propensity score matching to ensure that comparison groups were as similar as possible to the certification earners.

Question 4.7: What was the difference in employment rates between certification earners and matched non-earners? Of those employed full time, what was the difference in their earnings?

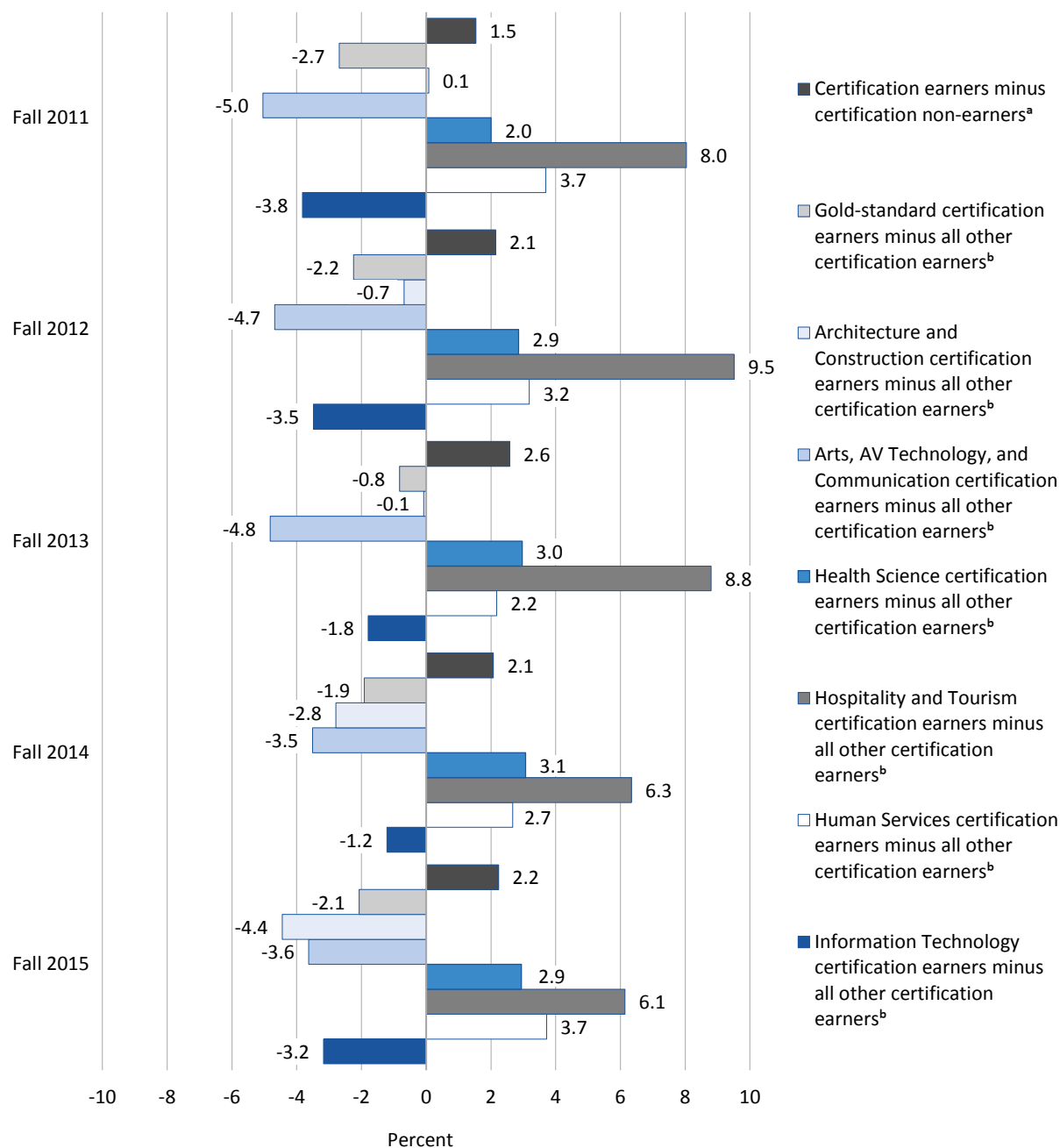
Figure 4a shows the difference in Florida employment rates for each certification type and area, in comparison to each other. Employment includes both part-time and full-time work because, as noted in responses to questions 3 through 6, many respondents were enrolled in some kind of postsecondary institution during this time and would have had difficulty working full time. Even those who did not attend postsecondary education may have been unable to work full time for other reasons.

In figure 4a, the first bar in each year shows the difference between certification earners and matched non-earners. Each year, the Florida employment rate for certification earners was about 2 percentage points higher than that for non-earners. Compared with matched non-earners, a higher percentage of certificate earners were employed in the state of Florida each year after high school. However, as indicated by the second bar in each year, gold-standard certification earners had a lower Florida employment rate than regular certification earners. Their employment rates were about 2 percentage points lower than regular certification earners. Because these are aggregate data, we cannot link employment status to enrollment in postsecondary education and cannot tell whether gold-standard certification earners attended school without having a job. However, in the most recent years (2013, 2014, and 2015), when many of those who enrolled in postsecondary educational institutions would have completed degrees, the difference in employment rates did not change.



Among certification areas, comparisons show that most differences in Florida employment rates were within 3 percentage points. The employment rate for Health Science certification earners was about 3 percentage points higher than that for earners in other areas. Arts, AV Technology, and Communication has the biggest difference, with the employment rate for this certification area 4 to 5 percent lower than for other certification earners each year. However, the employment rates for Hospitality and Tourism certification earners were at least 6 percentage points higher than those for other certification earners each year. The difference in employment rates for Hospitality and Tourism is a bit higher in the earlier years than the more recent years. The difference ranges from 8 to 10 percent in 2011, 2012, and 2013, but about 6 percent after in 2014 and 2015. Because we only have aggregate data, we cannot determine whether these differences are statistically significant.

Figure 4a. Percentage point differences in the percentage of students in cohort 2 found employed in Florida, by industry certification type and area: Fall of 2011, 2012, 2013, 2014, and 2015



^a Among all propensity-matched 2007–08 Florida ninth-graders who earned a high school credential by 2010–11. High school credential earners were those who earned either a standard diploma, a certificate of completion, a GED® test credential, a special certificate of completion, or a special diploma.

^b Among propensity-matched 2007–08 Florida ninth-graders who (1) earned a high school credential by 2010–11, and (2) earned an industry certification in 2009–10 and/or 2010–11.

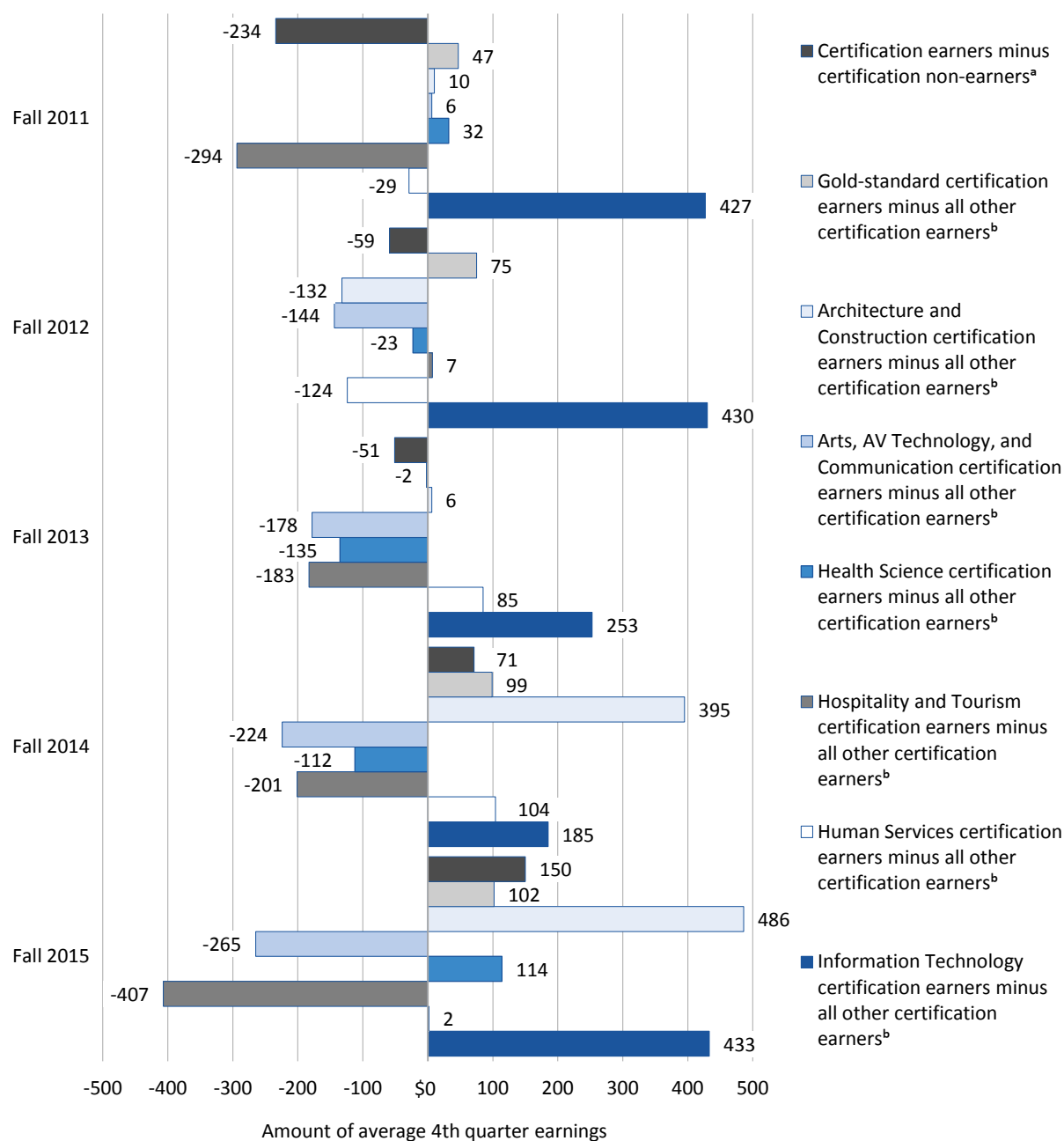
NOTE: For further detail (e.g., actual percentages of various comparison groups who were found employed in Florida), see appendix C, table C3a. SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; Florida Education and Training Placement Information Program.

Next, we examine differences in average fourth-quarter earnings for those employed full time in Florida in the fall of each year, 2011 through 2015. In figure 4b, the first bar in each year indicates the difference between certification earners and non-earners. In 2011, those with certifications earned, on average, \$234 less than those without certifications. However, by 2015, those with certifications earned, on average, \$150 more than those without certifications. Those with gold-standard certifications earned more than regular certification earners, but the difference was about \$100 or less each year.

We examined the differences in Florida earnings for those who earned certifications in each area compared to other areas. In almost every certification area, differences in earnings between certification earners in that particular area and other certification earners were about \$200 or less. The biggest differences were for Hospitality and Tourism, Information Technology, and Architecture and Construction. The wages of Hospitality and Tourism certification earners were less than those of other earners; in 2011, they earned \$294 less, and in 2015, they earned \$407 less. The wages of Information Technology certification earners were greater than those of other earners; and in 2011, 2012, and 2015, they were more than \$400 greater than others. Earnings for Architecture and Construction certification earners were at least \$400 greater than those for other certification earners in 2014 and 2015. Industries have different pay scales, and some certification areas may give people qualifications for higher paying jobs early in their careers. Hospitality and Tourism may have lower paying initial jobs than Information Technology.

Given that these wages were earned five years after high school completion, these young adults were probably in entry-level jobs in any industry in which they began working. Over time, having a certification, and the certification area, may have had a greater influence on earnings. Further, students can choose from a range of certifications within each area. For example, Architecture and Construction has more than 25 certifications. (See appendix C.2 for a list of certifications by area.) FETPIP data do not identify the jobs in which certification earners worked, and within an industry, jobs have different pay scales.

Figure 4b. Differences (in dollars) in average 4th-quarter earnings among students in cohort 2 found employed full-time full-quarter in Florida, by industry certification type and area: Fall of 2011, 2012, 2013, 2014, and 2015



^a Among all propensity-matched 2007–08 Florida ninth-graders who earned a high school credential by 2010–11. High school credential earners are those who earned either a standard diploma, a certificate of completion, a GED® test credential, a special certificate of completion, or a special diploma.

^b Among propensity-matched 2007–08 Florida ninth-graders who (1) earned a high school credential by 2010–11 and (2) earned an industry certification in 2009–10 and/or 2010–11.

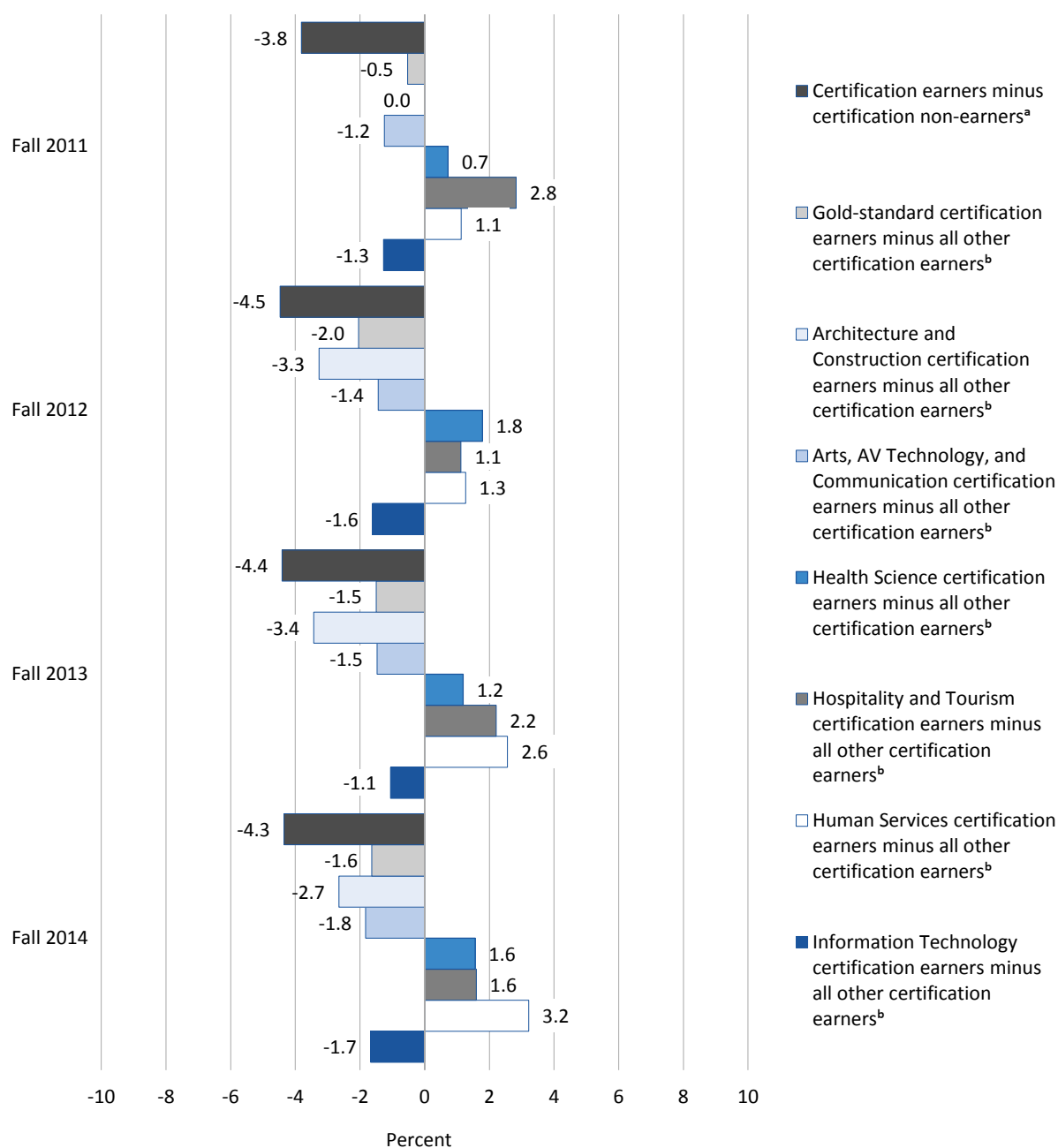
NOTE: For further detail (e.g., actual fourth-quarter earnings for those employed in Florida among various comparison groups), see appendix C, table C3b.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; Florida Education and Training Placement Information Program.

Question 4.8: What was the difference in rates of receiving public assistance between certification earners and matched non-earners?

Figure 4c presents the difference in the percentages of students in each group who were receiving food stamps and/or TANF funds in the state of Florida. According to staff at FLDOE, because of a policy change, these data cannot be linked as of 2015, so results here are for 2011 through 2014. In the figure, the first bar in each year represents the difference in the percentage of certification earners and non-earners who received public assistance in the state of Florida. Each year, the rate of certification earners receiving public assistance was about 4 percentage points less than that of non-earners. In comparisons of certification types and areas, no differences were greater than 4 percentage points; most of the differences are within 2 percentage points. In these initial years out of high school, it seems that having a certification made it less likely that a person would receive public assistance, but the differences among certification earners were smaller.

Figure 4c. Percentage point differences in the percentage of students in cohort 2 receiving Temporary Assistance for Needy Families and/or food stamps in Florida, by industry certification type and area: Fall of 2011, 2012, 2013, and 2014



^a Among all propensity-matched 2007–08 Florida ninth-graders who earned a high school credential by 2010–11. High school credential earners are those who earned either a standard diploma, a certificate of completion, a GED ® test credential, a special certificate of completion, or a special diploma.

^b Among propensity-matched 2007–08 Florida ninth-graders who (1) earned a high school credential by 2010–11 and (2) earned an industry certification in 2009–10 and/or 2010–11.

NOTE: TANF = Temporary Assistance for Needy Families. According to staff at the Florida Department of Education, Florida’s TANF data could not be linked to the other student files in 2015. For further detail (e.g., actual percentages of various comparison groups who were receiving TANF and/or food stamps), see appendix C, table C3c.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; Florida Education and Training Placement Information Program.



Question 4.9: What was the difference in incarceration rates between certification earners and matched non-earners?

Few members of these samples were incarcerated in Florida within five years after high school graduation. No certification earners were incarcerated in either 2011 or 2012, and 13 or fewer were incarcerated in each subsequent year. For those who did not earn certifications, the maximum number incarcerated in any year was 412 (0.3 percent). (The results are not shown). Incarceration data are collected by the Florida Department of Corrections, which provided FETPIP with individual identifiers and programmatic data.

CONCLUSION

This report examines the rollout and the results of Florida's *Career and Professional Education Act of 2007* (*CAPE Act*), in which Florida planned to provide rigorous and relevant coursework that would help secondary school students earn industry certifications and college credit. After this policy change was enacted, the number of students earning certifications dramatically increased. The number of certifications earned in 2011–12 (45,437) was more than 16 times the number earned in 2008–09 (954).

An examination of the *CAPE Act*'s rollout, which included interviews with district officials, yielded the following findings:

- The program provided many benefits, primarily to students, but also to teachers, schools, and districts.
- In Florida, schools and districts supported students in their efforts to earn certifications. Students and their parents did not pay examination costs, nor did they manage the logistics of scheduling the exam or getting to an exam site. Without this support, it is unlikely that as many students would have taken certification exams.
- More students earned certifications in some areas, such as Arts, AV Technology, and Communication, than in others, such as Agriculture (table 3b). The differences in rates of certifications by area may reflect student interest, as well as school and district priorities in offering and promoting certification opportunities.
- Analyses of the rollout compared two cohorts of Florida students: those entering grade 9 in 2005–06 (cohort 1) and those entering grade 9 in 2007–08 (cohort 2). Within the first four years of CAPE administration, those earning certifications became more representative of the overall cohort. In both cohorts, a smaller proportion of males, blacks, and students eligible for free or reduced-price lunch earned certifications relative to their proportion in the cohort. However, in cohort 2, the difference in demographic characteristics between the percentage who earned certifications and the overall cohort was about half of what it had been in cohort 1.

- School context seemed to influence the rollout of the certification program. More certifications were awarded in suburban schools, in predominantly white schools, and in schools with lower percentages of students who are eligible for free or reduced-price lunch (table 3e).
- Some schools faced challenges hiring qualified staff for the certification program and obtaining necessary technology for some kinds of certifications.

In examining program pass rates, we found that pass rates varied for different groups of students in different settings.

- Pass rates for males, blacks, Hispanics, and students eligible for free or reduced-price lunch were lower than the average pass rates; and pass rates for females, whites, and students who were not eligible for free or reduced-price lunch were higher than average pass rates (table 3h).
- Schools with the lowest percentage of students eligible for free or reduced-price lunch and those with the lowest percentage of students who are underrepresented minorities had higher pass rates (table 3i).

Our in-depth analysis of high school and postsecondary outcomes for cohort 2 compared certification earners to non-earners, and then compared outcomes for different certification types. We compared results for gold-standard certification earners, whose certifications had the potential to earn them postsecondary education credit, to results for regular certification earners, whose certifications did not give them this potential credit. Potential to earn postsecondary education credit comes through Gold Standard Career Pathways Articulation Agreements. The Florida College System institutions develop these agreements from the certifications on the Department of Education's CAPE Industry Certification Funding List. Approved by the State Board of Education, the Gold Standard Career Pathways Articulation Agreements allow students who earn certain industry certifications to earn college credit toward the associate degree program identified in the articulation agreement.²³ Finally, we compared results for certification earners in a given area (such as Health Science) to those for certification earners in other areas.

²³ Florida Department of Education State Board of Education. Rule Number 6A-10.0401, Gold Standard Career Pathways Articulation Agreements.

By examining the outcomes of certification, we learned the following:

- Certification earners had better grade 12 outcomes than non-earners did in their attendance, number of credits earned, grade point average (GPA), and diploma status (tables 4b and 4c)
- However, we found no difference between regular certification earners and gold-standard certification earners on the measures of attendance, number of credits earned, GPA, and diploma status. Results by certification area were mixed. For example, compared with other certification areas, Health Science had a positive association with attendance and credits earned, but a negative association with GPA. Note that, although some of these differences by certification area were statistically significant, the actual difference in averages is within one percentage point (tables 4b and 4c).
- Certification earners enrolled in a postsecondary institution more often than matched students who did not earn a certification. Enrollment in community college drove this difference. Certification earners in some areas (Health Science, Human Services) were more likely to enroll in community college than other certification earners, and students earning certifications in other areas (Architecture and Construction, Hospitality and Tourism) were less likely to do so (table 4d). These differences may indicate students' perceptions of job requirements in different areas. In some fields, a diploma and certification would suffice, but in others, a postsecondary degree could enhance one's job prospects.
- Compared with non-earners, gold-standard certification earners had better postsecondary outcomes; however, relative to regular certifications, gold-standard certifications did not convey the benefits expected. They provided a way for students to earn potential credits toward an associate degree, but students who obtained gold-standard certification were less likely to enroll in any postsecondary institution than those who obtained a regular certification (table 4d). Perhaps students earning certifications do not understand the potential benefit of gold-standard certifications. They may pursue it out of their own interest or because it is available through school without planning to use it for possible college credit. Florida postsecondary educational institutions do not report the extent to which students earned college credit for their gold-standard certifications, so we cannot determine whether gold-standard certification earners who enrolled in community college received this benefit. Additionally, gold-standard certification earners had a lower employment rate than regular

certification earners (figure 4a). Their employment rate was about 2 percentage points lower than regular certification earners.

- Of those who enrolled in community college, certification earners were more likely to attain an associate degree within three years than matched non-earners. We found no difference between gold-standard and regular certification earners or for any area except Information Technology. Twenty-six percent of Information Technology certification earners attained an associate degree, compared to 20 percent of certification earners in other areas (table 4g). More students who earned certifications succeeded in community college, compared to matched non-earners. This benefit was consistent across certification types and areas.
- To check postsecondary financial and social services outcomes, we used aggregate data on employment, income, and receipt of public assistance for these students up to five years after high school. Here we found few differences between certification earners and non-earners or by certification type and area (figure 4a, figure 4b, and figure 4c). With aggregate results for our propensity-matched subsamples, we could not examine the data more closely for any potential causes of differences.

IMPLICATIONS FOR POLICY AND PRACTICE

Earning a certification was associated with positive grade 12 and postsecondary educational outcomes. Certification earners had higher high school graduation rates than non-earners. The association of certifications with postsecondary enrollment was particularly strong for community colleges. Those preparing to go to community college may have perceived a more direct link between their certification and community college, while those who always planned to go to a four-year university may have believed that certifications would not benefit them in the way that taking Advanced Placement exams would. Passing certification exams does not give students college credit outright, but it gives them the potential to earn college credit upon enrollment. Postsecondary data do not indicate whether these institutions awarded credits to students who earned certifications in high school, and we cannot tell the extent to which certification earners directly benefited from this option. Future research should examine the frequency with which certification earners earn college credit.

Gold-standard certifications had a negligible influence on high school and postsecondary educational outcomes compared to regular certifications. We found

few differences in outcomes by certification area. Students who earned certifications had more success in high school and postsecondary education, regardless of the type of certification (regular or gold) or certification area (such as Health Sciences or Information Technology).

Small differences existed between different certification earners and non-earners in employment rates, wages, and public assistance status. Additionally, aggregate data reported by certification type and area showed small differences. These data were collected when these young adults were getting established; greater differences may emerge later in the life course. Additionally, data only reveal the employment status of certification earners and non-earners, not the industry or job in which they were enrolled. Future research should examine the link between specific certifications and outcomes more directly.

REFERENCES

- Association for Career and Technical Education (ACTE). 2014. *State Policies Impacting CTE: 2014 Year in Review*. Accessed Aug. 22, 2017. https://www.acteonline.org/uploadedFiles/Resources/Publications/2014_State_Policy_Review_FINAL.pdf.
- Baum, Sandy, Jennifer Ma, and Kathleen Payea. 2013. *Education Pays 2013: The Benefits of Higher Education for Individuals and Society*. College Board. Accessed August 22, 2017. <http://www.rilin.state.ri.us/Special/ses15/commdocs/Education%20Pays,%20The%20College%20Board.pdf>.
- Carnevale, Anthony, Nicole Smith, and Jeff Strohl. 2013. *Recovery: Job Growth and Education Requirements through 2020*. Washington, DC: Georgetown University Center on Education and the Workforce. Accessed August 22, 2016. https://cew.georgetown.edu/wp-content/uploads/2014/11/Recovery2020.FR_Web_.pdf.
- Carnevale, Anthony, Stephen J. Rose, and Andrew R. Hanson. 2012. *Certificates: Gateway to Gainful Employment and College Degrees*. Washington, DC: Georgetown University Center on Education and the Workforce. Accessed August. 22, 2017. <https://cew.georgetown.edu/certificate>.
- Castellano, Marisa, James R. Stone, III, and Sam Stringfield. 2005. "Earning Industry-Recognized Credentials in High School: Exploring Research and Policy Issues." *Journal of Career and Technical Education* 21(2): 7–34. doi:10.21061/jcte.v21i2.653.
- Dadgar, Mina, and Madeline J. Trimble. 2015. "Labor Market Returns to Sub-Baccalaureate Credentials: How Much Does a Community College Degree or Certificate Pay?" *Educational Evaluation and Policy Analysis* 37(4): 399–418. doi:10.3102/0162373714553814.
- Deming, David J., Noam Yuchtman, Amira Abulafi, Claudia Goldin, and Lawrence F. Katz. 2016. "The Value of Postsecondary Credentials in the Labor Market: An Experimental Study." *The American Economic Review* 106(3): 778–806.
- Florida Department of Education (FLDOE). 2016a. *2015–16 Guide to Calculating School and District Grades*. Accessed August. 22, 2017. <http://schoolgrades.fldoe.org/pdf/1516/SchoolGradesCalcGuide16.pdf>.
-

- Florida Department of Education (FLDOE). 2016b. CAPE Industry Certifications, CAPE Acceleration Industry Certifications, CAPE Digital Tool Certificates and 2012-13 Middle School STEM Industry Certification List Pass Rates by District, 2007–08 through 2014–15. Accessed August 22, 2017, from <http://www.fldoe.org/academics/career-adult-edu/research-evaluation/cape-industry-certification.stml>.
- Goldin, Claudia, and Lawrence F. Katz. 2008. *The Race Between Education and Technology*. Cambridge, MA: Harvard University Press.
- Goodman, Tara G., Matthew Meyer, and Catherine Imperatore. 2014. “Incorporating Industry-Recognized Certification.” *Techniques* 89(6): 14–19.
- Ingels, Steven J., Elizabeth Glennie, Erich Lauff, and John G. Wirt. 2012. *Trends Among Young Adults Over Three Decades, 1974–2006* (NCES 2012-345). Washington, DC: U.S. Department of Education, National Center for Education Statistics. Accessed August 22, 2017. <https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2012345>.
- Institute of Education Sciences (IES). 2014. *What Works Clearinghouse™ Procedures and Standards Handbook Version 3.0*. Washington, DC: U.S. Department of Education. Accessed August 22, 2017. https://ies.ed.gov/ncee/wwc/Docs/referenceresources/wwc_procedures_v3_0_standards_handbook.pdf.
- Jacobson, Loius, and Christine Mokher. 2014. *Florida Study of Career and Technical Education: Final Report*. Washington, DC: CNA.
- Jepsen, Christopher, Kenneth Troske, and Paul Coomes. 2014. “The Labor-Market Returns to Community College Degrees, Diplomas, and Certificates.” *Journal of Labor Economics* 32(1): 95–121. doi:10.1086/671809.
- Koziniec, Terry, and Michael W. Dixon. 2001. “ICT Industry Certification: Integration Issues for Post-secondary Educational Institutions in Australia.” 4th Western Australian Workshop on Information Systems Research (WAWISR), Perth, Australia, November 26, 2001.
- National Center for Education Statistics (NCES). 2016. *State Education Reforms*, Table 5.12. Washington, DC: Institute of Education Sciences, U.S. Department of Education. Accessed August 22, 2017. http://nces.ed.gov/programs/statereform/tab5_12.asp.
-

- Randall, Michael H., and Christopher J. Zirkle. 2005. "Information Technology Student-Based Certification in Formal Education Settings: Who Benefits and What is Needed." *Journal of Information Technology Education* 4: 287–306.
- Rosenbaum, James E., and Janet Rosenbaum. 2013. "Beyond BA Blinders: Lessons from Occupational Colleges and Certificate Programs for Nontraditional Students." *Journal of Economic Perspectives* 27(2): 153–72. doi:10.1257/jep.27.2.153.
- Shapiro, Doug, Afet Dundar, Phoebe K. Wakhungu, Xin Yuan, Angel Nathan, and Youngsik Hwang. 2015. *Completing College: A National View of Student Attainment Rates – Fall 2009 Cohort* (Signature Report No. 10). Herndon, VA: National Student Clearinghouse Research Center.
- Sykes, Andrea R., Mary A. Szuplat, and Cynthia G. Decker. 2014. *Availability of Data on Noncredit Education and Postsecondary Certifications: An Analysis of Selected State-Level Data Systems*. Washington, DC: National Center for Innovation in Career and Technical Education, Office of Career, Technical, and Adult Education, U.S. Department of Education.
- Wilcox, Dave. 2006. "The Role of Industry-Based Certifications in Career and Technical Education." *Techniques: Connecting Education and Careers* 81(1): 21–23.
-

APPENDIX A. INTERVIEWS

This appendix shows the characteristics of districts represented in the interviews and presents the interview protocol.

A1 DISTRICTS REPRESENTED IN INTERVIEWS

Table A1. Number of districts represented in interviews, by locale, number of public schools, number of public school students, and percentage of students attempting and earning a certification by spring 2011: 2012

Characteristic	Number
Locale	
City	2
Suburb	4
Rural	2
Number of public schools	
50 to 74	4
75 to 99	0
More than 100	4
Number of public school students	
Fewer than 50,000	4
50,000 to 99,999	3
100,000 or more	1
Percentage of the district's 2007 grade 9 students who attempted a certification by spring 2011 ^a	
Less than 5%	1
5 to 9.99%	2
10 to 14.99%	3
More than 15%	2
Percentage of the district's 2007 grade 9 students who earned a certification by spring 2011 ^a	
Less than 5%	2
5 to 9.99%	4
10 to 14.99%	2

^a According to the Florida Department of Education's PK–20 Education Data Warehouse.

SOURCE: National Center for Education Statistics, Common Core of Data, Local Education Agency Universe, 2012; and Florida Department of Education, PK–20 Education Data Warehouse.

A2 INTERVIEW PROTOCOL

INTERVIEW OPENING STATEMENT

Hello. My name is _____ from RTI International.

Thank you again for agreeing to speak with me today. I appreciate your interest and willingness to participate in discussions about student certifications.

Before we begin, I have some information describing your rights as a study participant.

RTI is conducting a study for Office of Career, Technical, and Adult Education (OCTAE) at the U.S. Department of Education to examine the high school and postsecondary benefits of the Florida *Career and Professional Education Act*. Being able to attain certifications in high school can help students stay engaged with school and prepare for their future careers.

RTI International is working with the Florida Department of Education (FLDoE) to conduct this study. The Florida Department of Education has identified your district as one that has made substantial investments in student certifications. The purpose of today's interview is to learn about your approach for fostering students' attainment of certifications.

This is not an evaluation of your district's policies. RTI will keep any information you provide confidential. We will share overall results across all interviews with FLDoE and OCTAE, but we will not share your individual responses. Your participation in this interview is voluntary, and you have the right to refuse to answer any question.

Today's interview will last approximately 15 minutes, but we may contact you later for clarification of responses if needed. We value the information you share with us and want to make sure we capture all of it as accurately as possible. Thus, I will be taking notes and audiotaping this interview. If at any time you would like to tell me something in private, I will be happy to turn off the recorder.

Before we start, do you have any questions?

FLORIDA CERTIFICATION DISTRICT DISCUSSION GUIDE

Date/Time:

District:

Respondent ID:

Interviewer Initials:

A. Background

First, let's talk a little bit about your role within your district.

1. What is your position or title?
2. How long have you worked at [DISTRICT NAME]
3. How many high schools are in your district?
4. Which—if any—specialized types of high schools, such as STEM, CTE, or Early Colleges, does your district have?

B. Promoting certifications

Florida's *Career and Professional Education Act* promotes the use of industry-recognized certifications in high school. Florida has incorporated testing results in its state education resource distribution formula, so students who pass an industry-recognized exam generate additional resources for the district they attend. Furthermore, Florida also awards postsecondary credits to certification earners across the state.

Your district has been identified by FLDoE as having made substantial investments in this program.

1. What do you think are the benefits of this certification program?
2. How does your district encourage students to try to get these certifications?
{Probe: counselors, teachers, notifications to students and parents}
3. Does your district promote some types of certifications more than others?
 - a. If so, which ones? Why? {Probe: job market, business partnerships, past student demand}

4. Coordinating certification exams can be challenging. What are your district's policies for scheduling these exams? {Probe: at each school, at central location, number of days allocated for exams}
 - a. If exams are administered outside of school, how do you ensure that all interested students will be able to get to the test site?
5. Certification assessments cost money. How do you manage costs so that all interested students will have the opportunity to take the exam?
 - a. Have you been able to negotiate group discounts with testing organizations?
6. Not everyone passes examinations on the first try. If a student fails an exam, what are your policies for allowing them to retake the exams?
7. Do any of these policies for scheduling, costs, and re-tests differ based on the industry in which the certification will be attained?
 - a. If so, how do they differ?
8. What barriers do you think other districts might face in promoting these certifications?
9. How would you encourage other districts to increase the rate at which students attain certifications?

Thank you for taking the time to talk with me today. If later you have any questions about this study, please do not hesitate to contact me.

APPENDIX B. TECHNICAL APPENDIX

This appendix provides information about the data used in the analysis and the statistical strategies for identifying comparison groups. Descriptions of the data include (1) the descriptions of variables used in analysis and (2) comparisons of CAPE and non-CAPE certifications. The statistical strategies for comparison group selection include (3) propensity score matching and (4) methods for confirming that the treatment and comparison groups are balanced.

B.1 VARIABLES USED IN ANALYSIS

Analyses employ variables from different sources. This appendix describes the values of the variables used and any modifications RTI made to the data. Variables are described in the following sections: industry certification measures, additional measures used in descriptive analyses of two cohorts (student and school), and additional measures used in in-depth analysis (high school, postsecondary education, other postsecondary). Additional variables used in propensity score matching are also discussed.

Industry certification measures

Industry certification measures identify students who attempted to earn certifications, whether they passed the exam, the area of the certification attempt, and the year of the certification attempt.

Whether the student attempted/earned an industry certification. The EDW industry certification file stores information regarding all industry certification exams taken by Florida high school students. Information is stored in this database at the student-exam level, and the EDW variable INDUSTRY_CERT_OUT indicates whether individual students passed or failed the particular industry certification exam. FLDOE tracks the final attempt at earning a certification each year. If, in one year, a student attempted to earn a certification, failed the exam, retaken the exam, and subsequently passed it, FLDOE would keep only the final result. If a student attempted to earn certifications in two different areas, both results would be kept.

Industry certification area. For each student-exam record in the EDW industry certification file, the variable INDUSTRY_CERT_ID stores the FLDOE code for the

particular industry certification that was attempted/earned. For the purposes of this report, FLDOE codes were collapsed into the following categories, mirroring the career clusters indicated by the 2013–14 Florida Career and Professional Education (CAPE) Industry Certification Funding List:²⁴

- Agriculture
- Architecture and Construction
- Arts, AV Technology, Communication
- Business Management and Administration
- Engineering and Technology Education
- Health Science
- Hospitality and Tourism
- Human Services
- Information Technology
- Law, Public Safety, and Security
- Manufacturing
- Transportation and Distribution

The 2013–14 Florida CAPE Industry Certification Funding List includes areas for almost all of the certifications in the industry certification file. For certifications that were not on this list, we identified areas based on the NOCTI website (www.nocti.org).

Whether the student attempted/earned a gold-standard certification. The Florida State Board of Education has approved statewide Gold Standard Career Pathways Articulation Agreements of Industry Certification to AAS/AS Degree. These agreements establish a minimum guarantee of articulated credit, with Florida College System institutions granting additional credit based on local agreements.²⁵ In these analyses, these gold-standard certifications are identified through the use of the EDW variable INDUSTRY_CERT_ID in conjunction with the Florida State Board of Education listing of gold-standard industry

²⁴ See <http://www.fl DOE.org/academics/career-adult-edu/cape-secondary/index.shtml> for further information regarding CAPE, the CAPE Industry Certification Funding Lists, DOE codes, and career clusters.

²⁵ The statewide articulation agreements for industry certification can be found here: <http://www.fl DOE.org/core/fileparse.php/7525/urlt/goldstandard-articulationagreements-industrycertaas.pdf>.

certifications available for download at <http://www.fldoe.org/academics/career-adult-edu/career-technical-edu-agreements/industry-certification.stml>.

Date the student attempted/earned an industry certification. For each student-exam record in the EDW industry certification file, the variable YEAR stores the academic year associated with the industry certification that was attempted/earned.

Descriptive analyses of two cohorts (chapter 3)

This information addresses the policy rollout for these two cohorts of students, those who entered grade 9 in 2005–06 (cohort 1) and those who entered grade 9 in 2007–08 (cohort 2). Certifications are presented by student and school characteristics.

Student characteristics

Sex. Students' sex is taken directly from the variable GENDER_CD included in the Florida K–20 EDW demographic file.

Race/ethnicity. Students' race/ethnicity is taken directly from the variable RACIAL_ETHNIC_CD included in the EDW demographic file. The original EDW race/ethnicity variable includes values of American Indian or Alaskan Native; Asian or Pacific Islander; non-Hispanic black; Hispanic; multiracial; Native Hawaiian or other Pacific Islander; and non-Hispanic white. Analyses in this report use an other category that combines American Indian or Alaskan Native, Asian or Pacific Islander, multiracial, and Native Hawaiian or other Pacific Islander.

Free or reduced-price lunch eligibility status. Students' free or reduced-price lunch eligibility status is derived from the variable LUNCH_STATUS included in the EDW pre-kindergarten through grade 12 enrollment file. FLDOE collects LUNCH_STATUS each academic year in which a student was enrolled; as such, a student may have multiple LUNCH_STATUS values. For the purposes of this report, students were categorized as eligible for free or reduced-price lunch if they were ever associated with one or more LUNCH_STATUS values indicating eligibility for either free lunch or reduced-price lunch.

High school characteristics

School locale. Efforts were made to match high schools associated with 2005 and/or 2007 freshman cohort members with high schools included in the National Center for Education Statistics (NCES) CCD. After completing the matching process, the CCD variables LOCALE05 (for schools associated with 2005 freshman cohort members) and ULOCAL07 (for schools associated with 2007 freshman cohort members) were used to categorize the school locale of high schools students attended when the student received/attempted

industry certifications. Table B1 illustrates how the CCD locale categories were combined/collapsed for the purposes of this report (note that the CCD locale code frame underwent changes between the 2005 LOCALE05 variable and the 2007 ULOCAL07 variable):

Table B1. Collapsing strategy for Common Core of Data (CCD) locale categories

Locale category as used in this report	LOCALE05 category	ULOCAL07 category
City	1 = Large city	11 = City, Large
	2 = Midsize city	12 = City, Midsize
		13 = City, Small
Fringe/suburb	3 = Urban fringe of a large city	21 = Suburb, Large
	4 = Urban fringe of a midsize city	22 = Suburb, Midsize
		23 = Suburb, Small
Town/rural	5 = Large town	31 = Town, Fringe
	6 = Small town	32 = Town, Distant
	7 = Rural, outside CBSA	33 = Town, Remote
	8 = Rural, inside CBSA	41 = Rural, Fringe
		42 = Rural, Distant
		43 = Rural, Remote

NOTE: CBSA = Metropolitan core-based statistical area.

School-level underrepresented minority. Based on the CCD variables AM## (total number of American Indian/Alaska Native students), BLACK## (total number of black students), HISP## (total number of Hispanic students), and MEMBER## (total students, all grades), a school-level percentage of underrepresented minority students was calculated for each school. AM05, BLACK05, HISP05, and MEMBER05 were used to make this calculation for schools associated with members of the 2005 freshman cohort; and AM07, BLACK07, HISP07, and MEMBER07 were used to make this calculation for schools associated with members of the 2007 freshman cohort. The resulting distributions of these school-level percentages were divided into thirds, and schools were categorized according to whether they fell into the lowest third of the distribution, the middle third of the distribution, or the highest third of the distribution.

School-level eligibility for free or reduced-price lunch. Based on the CCD variables TOTFRL## (total students eligible for free or reduced-price lunch) and MEMBER## (total students, all grades), a school-level percentage of students who were eligible for free or reduced-price lunch was calculated for each school. TOTFRL05 and MEMBER05 were used to make this calculation for schools associated with members of the 2005 freshman cohort, and TOTFRL07 and MEMBER07 were used to make this calculation for schools associated with members of the 2007 freshman cohort. The resulting distributions of these school-level percentages were divided into thirds, and schools were categorized according to whether

they fell into the lowest third of the distribution, the middle third of the distribution, or the highest third of the distribution.

Schools not matched to CCD. EDW data included certification records for all students who received any educational services, even if they received those services outside of a traditional public school setting. Institutions such as adult education center, adolescent substance abuse program, and juvenile justice program were included in the EDW data, but the CCD does not include those types of institutions. Chapter 3 tables categorize such schools as “unknown / unable to match to CCD.” Of certifications earned in cohort 1, 4.3 percent were associated with institutions that were not linked to the CCD, and of certifications earned in cohort 2, 3.6 percent were associated with institutions that are not linked to the CCD.

High School Outcomes

High school completion status. Students’ high school completion status is defined relative to the 2008–09 academic year (for the 2005 freshman cohort) or relative to the 2010–11 academic year (for the 2007 freshman cohort). High school completion status is derived from variables AWARD_NAME (included in the EDW high school completion file) and WITHDRAWAL_REASON_CD (included in the EDW PK–12 enrollment file). Based on these variables, students were assigned — using logic that mirrors FLDOE’s high school graduation rate calculation — to one of five high school completion status categories: (1) regular high school diploma; (2) GED® test credential; (3) other high school credential; (4) dropped out; and (5) other nongraduate.

The EDW variable AWARD_NAME indicates the type of high school credential earned as follows:

- regular high school diploma,
- special high school diploma,
- regular certificate of completion,
- special certificate of completion, or
- GED® test credential.

Students with EDW high school completion records were categorized according to their non-missing AWARD_NAME value: students with AWARD_NAME values of “regular high school diploma” and “GED® test credential” were assigned the corresponding high school completion status, while students with AWARD_NAME values of “special high school diploma,” “regular certificate of completion,” and “special certificate of completion”

are combined and categorized as “Other high school credential.” For the purposes of this report, students with multiple EDW high school completion records were categorized according to their “highest” AWARD_NAME value (the bulleted list above indicates the rank order used when identifying the “highest” AWARD_NAME value).

Students who did not have an EDW high school completion record (and therefore did not have an AWARD_NAME value) were categorized as either “dropped out” or “other nongraduate” according to the WITHDRAWAL_REASON_CD value associated with their most recent enrollment year available in the EDW data. (WITHDRAWAL_REASON_CD is a year-by-year EDW variable that indicates each student’s enrollment outcome for a particular enrollment year, e.g., promoted, retained, transferred, withdrew.)

Students who did not have an AWARD_NAME value were categorized as “dropped out” if their most recent WITHDRAWAL_REASON_CD value indicated one of the following:

- Expected to attend school but did not enter (WITHDRAWAL_REASON_CD = DNE)
- Left school voluntarily with no intention of returning (WITHDRAWAL_REASON_CD = W05)
- Withdrew due to court action (WITHDRAWAL_REASON_CD = W13)
- Withdrew due to nonattendance (WITHDRAWAL_REASON_CD = W15)
- Withdrew from school due to medical reasons (WITHDRAWAL_REASON_CD = W18)
- Withdrawn due to being expelled (WITHDRAWAL_REASON_CD = W21)
- Whereabouts unknown (WITHDRAWAL_REASON_CD = W22)
- Withdrew for any other reason (WITHDRAWAL_REASON_CD = W23)

Students who do not have an AWARD_NAME value were categorized as “other nongraduate” if their most recent WITHDRAWAL_REASON_CD value indicates one of the following:

- Promoted, retained, or transferred to another attendance reporting unit in the same school (WITHDRAWAL_REASON_CD = W01)
 - Promoted, retained, or transferred to another school in the same district (WITHDRAWAL_REASON_CD = W02)
-

- Withdrew from school to enter the adult education program prior to completion of graduation requirements (WITHDRAWAL_REASON_CD = W26)
- Withdrew to attend a PK–12 public school in another district in Florida (WITHDRAWAL_REASON_CD = W3A)
- Withdrew from school subsequent to receiving a special diploma, a certificate of completion, or a special certificate of completion during the student’s year of high school completion (WITHDRAWAL_REASON_CD = WPO)²⁶

Students who had neither an AWARD_NAME value nor an applicable WITHDRAWAL_REASON_CD value (as indicated above) were not assigned a high school completion status and are therefore excluded from associated analyses.

Postsecondary Education Outcomes

Unlike the postsecondary education measures listed in section D below, which were built using both FETPIP data and NSC data, the postsecondary education measures listed in this section are built exclusively from FETPIP data and, therefore, reflect attendance at Florida public universities and community colleges. Postsecondary enrollment data have multiple records per student, permitting identification of the students who enrolled and persisted in postsecondary education in Florida even if they changed schools. When building these measures, postsecondary enrollment records were excluded if (1) the associated enrollment dates were completely before or during the academic year in which the student’s high school credential was awarded, or (2) the enrollment record was associated with a high school completion program.²⁷ Accept where noted otherwise, each of the postsecondary education measures listed below were as of the 2011–12 academic year for cohort 1 students (i.e., ninth-graders as of 2005–06) and as of the 2013–14 academic year for cohort 2 students (i.e., ninth-graders as of 2007–08).

Ever attended a Florida public university. Postsecondary enrollment information was obtained from FETPIP datasets named UNIV_ENROLLMENT_#### and CC_ENROLLMENT_####, where (#### = 2005) for the 2005 cohort and (#### =

²⁶ Also includes students who met all of the requirements to receive a standard diploma (24-credit option) except passing the state-approved graduation test and received a certificate of completion and was eligible to take the Postsecondary Education Readiness Test and be admitted to remedial or credit courses at a state community college as appropriate.

²⁷ Because the Florida data did not include the high school graduation date, it was not possible to positively identify all students who were dual enrolled. Therefore, students were removed from the postsecondary analyses if it was unclear, but likely, that they were dual enrolled before graduating from high school.

2007) for the 2007 cohort. Students included in the UNIV_ENROLLMENT_#### dataset were considered to have ever attended a Florida public university.

Ever attended a Florida public community college. Postsecondary enrollment information was obtained from FETPIP datasets named UNIV_ENROLLMENT_#### and CC_ENROLLMENT_####, where (#### = 2005) for the 2005 cohort and (#### = 2007) for the 2007 cohort. Students included in the CC_ENROLLMENT_#### dataset were considered to have ever attended a Florida public community college.

Ever attended a Florida public university or community college. Students categorized in either of the above measures as “ever attending a Florida public university” and/or “ever attending a Florida public community college” were considered to have ever attended a Florida public university or community college.

Immediate attendance at a Florida public university. This measure was only calculated for those who had ever attended a Florida public university (i.e., it was set to missing/not applicable for those who did not attend a Florida public university). For this analysis, “immediate attendance at a Florida public university” is operationalized as “attending a Florida public university by the fall term following the academic year in which the student’s high school credential was awarded.” For example, if a cohort 1 student was awarded a high school credential in the 2008–09 academic year, attendance at a Florida public university as of December 31, 2009, was considered immediate. Likewise, if a cohort 2 student was awarded a high school credential in the 2010–11 academic year, attendance at a Florida public university as of December 31, 2011, was considered immediate. The academic year in which the student’s high school credential was awarded was taken from the EDW variable STUDENT_AWR_GRANTED_YEAR; postsecondary enrollment dates were taken from the FETPIP variables ENROLLMENT_YEAR and ENROLLMENT_TERM.

Immediate attendance at a Florida public community college. This measure was only calculated for those who had ever attended a Florida public community college (i.e., it was set to missing/not applicable for those who did not attend a Florida public community college). For this analysis, “immediate attendance at a Florida public community college” was operationalized as “attending a Florida public community college by the fall term following the academic year in which the student’s high school credential was awarded.” For example, if a cohort 1 student was awarded a high school credential in the 2008–09 academic year, attendance at a Florida public community college as of December 31, 2009, was considered immediate. Likewise, if a cohort 2 student was awarded a high school credential in the 2010–11 academic year, attendance at a Florida public community college as of December 31, 2011, was considered immediate. The academic year in which the student’s high school credential was awarded was taken from the EDW variable

STUDENT_AWR_GRANTED_YEAR; postsecondary enrollment dates were taken from the FETPIP variables ENROLLMENT_YEAR and ENROLLMENT_TERM.

Immediate attendance at a Florida public university or community college. Students categorized in either of the above measures as “immediately attending a Florida public university” and/or “immediately attending a Florida public community college” were considered to have immediately attended a Florida public university or a community college.

Persisted at a Florida public university. This measure was only calculated for those who immediately attended a Florida public university (i.e., it was set to missing/not applicable for those who did not immediately attend a Florida public university). For this analysis, those who persisted at a Florida public university met both of the following conditions: (1) they immediately attended a Florida public university, and (2) they attended a Florida public university in more than one academic year. Postsecondary enrollment dates were taken from the FETPIP variables ENROLLMENT_YEAR and ENROLLMENT_TERM.

Persisted at a Florida public university or a community college. This measure was only calculated for those who immediately attended either a Florida public university or community college (i.e., it was set to missing/not applicable for those immediately attended neither a Florida public university nor a community college). For this analysis, those who persisted at either a Florida public university or community college met both of the following conditions: (1) they immediately attended either a Florida public university or community college, and (2) they attended a Florida public university or community college in more than one academic year. Postsecondary enrollment dates were taken from the FETPIP variables ENROLLMENT_YEAR and ENROLLMENT_TERM.

Highest postsecondary credential earned as of the summer of 2014. This measure was only calculated for those with immediate attendance at a Florida public university or community college (i.e., it was set to missing/not applicable for those who did not attend a Florida public university or community college, as well as for those with delayed attendance at a Florida public university or community college). Students’ highest postsecondary credential earned (if any) was identified using the FETPIP variables EDUC_AWR_ID, STUDENT_AWR_GRANTED_YEAR, and STUDENT_AWR_GRANTED_TERM. Note that this measure reflects the highest degree earned as of summer 2014 for both cohort 1 and cohort 2 students.

Variables used in propensity score matching

Further detail on the propensity score matching procedures used in this analysis can be found in appendix B3. The specific variables used in the propensity matching process are below.

Student characteristics

Sex. Students' sex was taken directly from the variable GENDER_CD included in the Florida K–20 EDW demographic file. For the purposes of propensity score matching, the EDW variable GENDER_CD was used to generate a single dummy variable indicating whether or not the student was female.

Race/ethnicity. Students' race/ethnicity was taken directly from the variable RACIAL_ETHNIC_CD included in the EDW demographic file. For the purposes of propensity score matching, the EDW variable RACIAL_ETHNIC_CD was used to generate four dummy variables: one for white, one for black, one for Hispanic, and another for other race.

Migrant status. Students' migrant status was taken directly from the variable MIGRANT_STATUS_IND included in the EDW PK–12 enrollment file. For the purposes of propensity score matching, the EDW variable MIGRANT_STATUS_IND was used to create a single dummy variable indicating whether or not the student identified as a migrant.

Free/reduced-price lunch status. Students' free or reduced-price lunch status was taken directly from the variable LUNCH_STATUS included in the EDW PK–12 enrollment file. For the purposes of propensity score matching, the EDW variable LUNCH_STATUS was used to create a single dummy variable indicating whether or not the student was eligible for free or reduced-price lunch.

Limited English proficiency (LEP) status. Students' LEP status was taken directly from the variable LIMITED_ENGLISH_PROFICIENCY_CD included in the EDW enrollment file. For the purposes of propensity score matching, the EDW variable LIMITED_ENGLISH_PROFICIENCY_CD was used to generate a single dummy variable indicating whether or not the student was classified as LEP.

Grade point average (GPA) in academic year 2007–08. Students' 2007–08 GPA was derived from the EDW high school transcript file, a datafile composed of information at the student-course level. The specific variables used to derive this measure included the following: ACADEMIC_YEAR (a variable indicating the academic year in which a particular student took a particular course), GRADE_EARNED (a variable indicating the grade awarded to a particular student in a particular course), and CREDIT_ATTEMPTED (a variable indicating the number of credits that could be potentially awarded to a particular student for a particular course).

Gifted status. Gifted students were identified via the variables PRIMARY_EXCPT_IND and EXCPT_OTHER included in the EDW student exceptionality file. These variables

indicate the primary exceptionality and any additional exceptionalities of students who required special instruction or related services because of physical, mental, emotional, social, or learning exceptionalities. For the purposes of propensity score matching, the EDW variables PRIMARY_EXCPT_IND and EXCPT_OTHER were used to create a single dummy variable indicating whether or not the student was identified as gifted.

Nongifted exceptionality status. Students with nongifted exceptionalities (e.g., mentally handicapped, speech impaired, developmentally delayed, etc.) were also identified with the variables PRIMARY_EXCPT_IND and EXCPT_OTHER from the EDW student exceptionality file. For the purposes of propensity score matching, the EDW variables PRIMARY_EXCPT_IND and EXCPT_OTHER were used to create a single dummy variable indicating whether or not the student was identified as having an exceptionality other than gifted. Note that any given student could be categorized as both gifted and as having a nongifted exceptionality (for example, when PRIMARY_EXCEPT_IND indicates gifted, and EXCPT_OTHER indicates a physical and/or mental disability²⁸).

High school characteristics

Total student population. After matching high schools found in the EDW data with high schools found in the CCD data, the total student population of students' grade 9/2007 school was taken directly from the CCD variable MEMBER07.

Student/teacher ratio. The student/teacher ratio of students' grade 9/2007 school was taken directly from the CCD variable PUPTCH07.

Percentage of total student population who were eligible for free or reduced-price lunch. The proportion of students' grade 9/2007 school that was eligible for free or reduced-price lunch was determined by using the CCD variable TOTFRL07 (total number of students who are eligible for free or reduced-price lunch) in conjunction with the CCD variable MEMBER07 (total number of students, all grades).

Percentage of total student population who were white, non-Hispanic. For each student's grade 9/2007 school, the percentage of the school's total student population who were white, non-Hispanic was calculated by using the CCD variables WHITE07 (total number of white, non-Hispanic students) and MEMBER07 (total number of students, all grades).

Percentage of total student population who were black, non-Hispanic. For each student's grade 9/2007 school, the percentage of the school's total student population who

²⁸ For the full set of exceptionality codes, see <http://www.fldoe.org/core/fileparse.php/7729/urlt/0100181-118400.pdf>

were black, non-Hispanic was calculated by using the CCD variables BLACK07 (total number of black, non-Hispanic students) and MEMBER07 (total number of students, all grades).

Percentage of total student population who were Hispanic. For each student's grade 9/2007 school, the percentage of the school's total student population who were Hispanic was calculated by using the CCD variables HISP07 (total number of Hispanic students) and MEMBER07 (total number of students, all grades).

Percentage of total student population who were some other race/ethnicity. For each student's grade 9/2007 school, the percentage of the school's total student population who were of a race/ethnicity other than white, black, or Hispanic was calculated by using the CCD variables AM07 (total number of American Indian/Alaska Native students), ASIAN07 (total number of Asian/Pacific Islander students), and MEMBER07 (total number of students, all grades).

Magnet school status. The magnet school status of students' grade 9/2007 school was taken directly from the CCD variable MAGNET07. For the purposes of propensity score matching, the CCD variable MAGNET07 was used to create a single dummy variable indicating whether or not the student's grade 9/2007 school was a magnet school.

Charter school status. The charter school status of students' grade 9/2007 school was taken directly from the CCD variable CHARTR07. For the purposes of propensity score matching, the CCD variable CHARTR07 was used to create a single dummy variable indicating whether or not the student's grade 9/2007 school was a charter school.

Schoolwide Title I status. The schoolwide Title I status of students' grade 9/2007 school was taken directly from the CCD variable STITLI07. For the purposes of propensity score matching, the CCD variable STITLI07 was used to create a single dummy variable indicating whether or not the student's grade 9/2007 school was a Title I school.

School locale. The locale of students' grade 9/2007 school was taken directly from the CCD variable ULOCAL07. For the purposes of propensity score matching, the variable CCD variable ULOCAL07 was used to generate four dummy variables, one for urban, one for suburban, one for town, and another for rural.

District fixed effects. The district of students' grade 9/2007 school was identified with the EDW variable DISTRICT_NAME.

Outcomes examined as part of the in-depth analysis of grade 9 students in 2007–08 (chapter 4)

High School Outcomes

High school graduation status. For the 2007 freshman cohort, students' high school graduation status was defined relative to the 2010–11 academic year. For the purposes of this analysis, students who were categorized as having a high school completion status (see also the “High school completion status” entry in Appendix B) of “regular high school diploma” are considered to be high school graduates, and students who were categorized as having a high school completion status of GED®, other high school credential, dropped out, or other nongraduate are considered to be non-high school graduates.

Grade point average (GPA) in academic year 2010–2011. Students' 2010–11 GPA was derived from the EDW high school transcript file, a datafile composed of information at the student-course level. The specific variables used to derive this measure included the following: ACADEMIC_YEAR (a variable indicating the academic year in which a particular student took a particular course), GRADE_EARNED (a variable indicating the grade awarded to a particular student in a particular course), and CREDIT_ATTEMPTED (a variable indicating the number of credits that could potentially be awarded to a particular student for a particular course).

Credits earned in academic year 2010–11. The number of credits students earned during the 2010–2011 academic year was also derived from the EDW high school transcript file. The specific variables used to derive this measure included the following: ACADEMIC_YEAR (a variable indicating the academic year in which a particular student took a particular course), GRADE_EARNED (a variable indicating the grade awarded to a particular student in a particular course), and CREDIT_EARNED (a variable indicating the number of credits actually awarded to a particular student for a particular course).

Credits attempted in academic year 2010–11. The number of credits students attempted during the 2010–2011 academic year was also derived from the EDW high school transcript file. The specific variables used to derive this measure included the following: ACADEMIC_YEAR (a variable indicating the academic year in which a particular student took a particular course), GRADE_EARNED (a variable indicating the grade awarded to a particular student in a particular course), and CREDIT_ATTEMPTED (a variable indicating the number of credits that could potentially be awarded to a particular student for a particular course).

Proportion of days present in academic year 2010–11. The proportion of days present during the 2010–11 academic year was derived from the variables ENROLLMENT_YEAR,

PRESENT_DAYS_NBR, and ABSENT_DAYS_NBR, which were included in the EDW student attendance file. This proportion was calculated by first subsetting the EDW student attendance file to records where ENROLLMENT_YEAR indicated the 2010–11 academic year, and then dividing PRESENT_DAYS_NBR by the sum of PRESENT_DAYS_NBR and ABSENT_DAYS_NBR.

Postsecondary Education Outcomes

Unlike the postsecondary education measures listed above, which were built exclusively from FETPIP data, the postsecondary education measures listed in this section were built using both FETPIP and NSC data. Nationally, the NSC includes data representing approximately 98 percent of students enrolled in postsecondary institutions in the United States.²⁹ The primary data available include dates of enrollment, the institution in which a student is enrolled, as well as the type and date of any degrees received. In this study, this match was done for high school completers who were not located in Florida's FETPIP post-high school data.³⁰ This match adds information about college entry and persistence for these students. Based on our analyses of the merged dataset, this link gave us college enrollment records for 17,553 students, or 11 percent of the high school completers. Without this link, we would not have been able to count them as having enrolled in a postsecondary educational institution.

When building these measures, postsecondary enrollment records were excluded if (1) the associated enrollment dates were completely before or during the year in which the student's high school credential was awarded, or (2) the enrollment record was associated with a high school completion program.³¹ In addition, because the FETPIP data available for this analysis covered postsecondary enrollment up to and including the 2013–14 school year, NSC enrollment records were excluded when associated with postsecondary enrollment subsequent to 2013–14. Therefore, each of the postsecondary education measures listed below were as of 2013–14.

Ever attended a university/4-year institution. Postsecondary enrollment information for the 2007 cohort was obtained from FETPIP datasets named UNIV_ENROLLMENT_2007 and CC_ENROLLMENT_2007. Students included in the UNIV_ENROLLMENT_2007

²⁹ National Student Clearinghouse (<http://www.studentclearinghouse.org/about/>).

³⁰ Because students who matched Florida's postsecondary data were not matched to NSC, we do not have complete educational histories for those who transferred in or out of Florida's public postsecondary institutions. We only have data about their time in Florida public postsecondary institutions.

³¹ Because the Florida data did not include the high school graduation date, it was not possible to positively identify all students who were dual enrolled. Therefore, students were removed from the postsecondary analyses if it was unclear, but likely, that they were dual enrolled before graduating from high school.

dataset were considered to have ever attended a university/4-year institution. Students with NSC enrollment records where the NSC variable “2-year/4-year” indicated “4-year” were likewise considered to have ever attended a university/4-year institution.

Ever attended a community college/2-year institution. Postsecondary enrollment information for the 2007 cohort was obtained from FETPIP datasets named UNIV_ENROLLMENT_2007 and CC_ENROLLMENT_2007. Students included in the CC_ENROLLMENT_2007 dataset were considered to have ever attended a community college/2-year institution. Students with NSC enrollment records where the NSC variable “2-year/4-year” indicated “2-year” were likewise considered to have ever attended a community college/2-year institution.

Ever attended a university/4-year institution or a community college/2-year institution. Students categorized in either of the above measures as “ever attending a university/4-year institution” and/or “ever attending a community college/2-year institution” were considered to have ever attended a university/4-year institution or a community college/2-year institution.

Immediate attendance at a university/4-year institution. This measure was only calculated for those who had ever attended a university/4-year institution (i.e., it was set to missing/not applicable for those who did not attend a university/4-year institution). For this analysis, “immediate attendance at a university/4-year institution” was operationalized as “attending a university/4-year institution by the fall term following the school year in which the student’s high school credential was awarded.” In other words, if a student was awarded a high school credential in 2010–11, attendance at a university/4-year institution as of December 31, 2011, was considered immediate. The year in which the student’s high school credential was awarded was taken from the EDW variable STUDENT_AWR_GRANTED_YEAR; postsecondary enrollment dates were taken from the FETPIP variables ENROLLMENT_YEAR and ENROLLMENT_TERM, and from the NSC variables Enrollment Begin and Enrollment End.

Immediate attendance at a community college/2-year institution. This measure was only calculated for those who had ever attended a community college/2-year institution (i.e., it was set to missing/not applicable for those who did not attend a community college/2-year institution). For this analysis, “immediate attendance at a community college/2-year institution” was operationalized as “attending a community college/2-year institution by the fall term following the year in which the student’s high school credential was awarded.” In other words, if a student was awarded a high school credential in 2010–11, attendance at a community college/2-year institution as of December 31, 2011, was considered immediate. The year in which the student’s high school credential was awarded

was taken from the EDW variable STUDENT_AWR_GRANTED_YEAR; postsecondary enrollment dates were taken from the FETPIP variables ENROLLMENT_YEAR and “ENROLLMENT_TERM, and from the NSC variables Enrollment Begin and Enrollment End.

Immediate attendance at a university/4-year institution or a community

college/2-year institution. Students categorized in either of the above measures as “immediately attending a university/4-year institution” and/or “immediately attending a community college/2-year institution” were considered to have immediately attended a university/4-year institution or a community college/2-year institution.

Persisted at a university/4-year institution. This measure was only calculated for those who immediately attended a university/4-year institution (i.e., it was set to missing/not applicable for those who did not immediately attend a university/4-year institution). For this analysis, those who persisted at a university/4-year institution met both of the following conditions: (1) they immediately attended a university/4-year institution, and (2) they attended a university/4-year institution in more than one school year. Postsecondary enrollment dates were taken from the FETPIP variables ENROLLMENT_YEAR and ENROLLMENT_TERM, and from the NSC variables Enrollment Begin and Enrollment End.

Persisted at a community college/2-year institution. This measure was only calculated for those who immediately attended a community college/2-year institution (i.e., it was set to missing/not applicable for those who did not immediately attend a community college/2-year institution). For this analysis, those who persisted at a community college/2-year institution met both of the following conditions: (1) they immediately attended a community college/2-year institution, and (2) they attended a community college/2-year institution in more than one school year. Postsecondary enrollment dates were taken from the FETPIP variables ENROLLMENT_YEAR and ENROLLMENT_TERM, and from the NSC variables Enrollment Begin and Enrollment End.

Persisted at a university/4-year institution or a community college/2-year institution.

This measure was only calculated for those who immediately attended either a university/4-year institution or a community college/2-year institution (i.e., it was set to missing/not applicable for those who immediately attended neither a university/4-year institution nor a community college/2-year institution). For this analysis, those who persisted at either a university/4-year institution or a community college/2-year institution met both of the following conditions: (1) they immediately attended either a university/4-year institution or a community college/2-year institution, and (2) they attended a university/4-year institution or a community college/2-year institution in more than one year. Postsecondary enrollment dates were taken from the FETPIP variables

ENROLLMENT_YEAR and ENROLLMENT_TERM, and from the NSC variables Enrollment Begin and Enrollment End.

Associate degree completion. This measure was only calculated for those with immediate attendance at a community college/2-year institution (i.e., it was set to missing/not applicable for those who did not attend a community college/2-year institution and for those with delayed attendance at a community college/2-year institution). Associate degree completers were identified using the FETPIP variables EDUC_AWR_ID, STUDENT_AWR_GRANTED_YEAR, and STUDENT_AWR_GRANTED_TERM, as well as the NSC variables Degree Title and Graduation Date.

Other Postsecondary Outcomes

The following postsecondary outcomes were drawn from FETPIP Annual Outcome Reports. The specification of each of these postsecondary outcomes is likewise drawn from the contents of FETPIP's Annual Outcomes Report, found near the beginning of each year's annual report.

Found employed. The number of individuals found employed in public, private, or nonprofit establishments who were covered by the Florida Unemployment Insurance System during the October–December target period.³²

Average earnings. The average earnings reported for those found employed in Florida regardless of amount of earnings or time worked in a quarter.

Average FT/FQ earnings. The estimated average earnings for those found employed in Florida on an estimated full-time basis.

Receiving TANF and/or food stamps. The number of people who received TANF and/or food stamps in Florida during the period.

Incarcerated. The number of individuals who were in a state correctional facility in Florida during the October–December target period.

Community supervision. The number of individuals who were adjudicated to the Department of Corrections community supervision during the October–December 2013 period

³² Unemployment insurance wage data were used. Wage files reported employment and earnings for the employees of covered establishments.

B.2 COMPARISONS OF CAPE AND NON-CAPE CERTIFICATIONS

As noted in chapter 1, the number of students earning certifications dramatically increased once the *CAPE Act* went into effect. Almost all certifications earned by cohort 2 were included on the CAPE Industry Certification Funding List of 2010–11, but students could pursue certifications that were not part of the *CAPE Act*. In this report, we refer to CAPE certifications as those included on the CAPE Industry Certification Funding List and non-CAPE certifications as certifications that were not on that list.³³ It is possible that some districts wanted to add these certifications, but they had not yet been approved. In any case, schools did report participation and performance in these non-CAPE certifications to the state as they did with the CAPE certifications. Table B2 lists all of the certifications in each area and identifies which were on the CAPE Industry Certification Funding List of 2010–11. This appendix examines differences between CAPE and non-CAPE certifications and certification earners.

³³ CAPE certification funding lists for each year are at <http://www.fldoe.org/academics/career-adult-edu/cape-secondary/cape-industry-cert-funding-list-current.stml>.

Table B2. Number of certifications earned/attempted by students in cohort 2, by certification area, certification title, and whether the certification was included on the 2010–11 CAPE Industry Certification Funding List: 2009–10 and 2010–11

Certification area	Certification title	Certification code	Included on the 2010–11 CAPE Industry Certification Funding List?	Number earned	Number attempted
Agriculture, Food, Natural Resources	Certified Agriculture Technician	FLFBR001	Yes	6	9
Agriculture, Food, Natural Resources	Certified Horticulture Professional	FNGLA001	Yes	60	172
Agriculture, Food, Natural Resources	NOCTI Agricultural Mechanics	NOCTI012	No	13	16
Agriculture, Food, Natural Resources	NOCTI Production Agriculture	NOCTI011	No	20	61
Architecture and Construction	ADDA Drafter Certification	AMDDA001	Yes	70	139
Architecture and Construction	Autodesk Certified Associate - AutoCAD	ADESK016	Yes	282	902
Architecture and Construction	Autodesk Certified Associate - AutoCAD Architecture	ADESK017	Yes	17	142
Architecture and Construction	Autodesk Certified Associate - Inventor	ADESK019	Yes	85	197
Architecture and Construction	Autodesk Certified Associate - Revit Architecture	ADESK020	Yes	36	57
Architecture and Construction	Autodesk Certified Associate-3dsMax Design Certified Associate	ADESK026	Yes	3	18
Architecture and Construction	Autodesk Certified Expert - AutoCAD	ADESK012	No	1	1
Architecture and Construction	Autodesk Certified Professional - AutoCAD	ADESK021	Yes	3	5
Architecture and Construction	Autodesk Certified User - AutoCAD	ADESK002	No	9	80
Architecture and Construction	Autodesk Certified User - Autodesk Inventory	ADESK011	No	0	1
Architecture and Construction	Chief Architect User Certification	CARCH001	Yes	0	15
Architecture and Construction	HEAT	HVACE007	Yes	22	28
Architecture and Construction	NCCER Advanced Carpentry - Level 4	NCCER075	No	1	1
Architecture and Construction	NCCER Cabinetmaking	NCCER002	No	10	10
Architecture and Construction	NCCER Carpentry - Level 2	NCCER032	Yes	18	18
Architecture and Construction	NCCER Carpentry Fundamentals - Level 1	NCCER005	Yes	396	555
Architecture and Construction	NCCER Construction Technology	NCCER008	Yes	66	76
Architecture and Construction	NCCER Electrical - Level 1	NCCER010	Yes	68	69
Architecture and Construction	NCCER Electrical - Level 2	NCCER038	Yes	19	19
Architecture and Construction	NCCER Electrical - Level 3	NCCER039	Yes	14	14
Architecture and Construction	NCCER Finish Carpentry - Level 2	NCCER015	No	3	3
Architecture and Construction	NCCER Form Carpentry - Level 3	NCCER016	No	1	1
Architecture and Construction	NCCER HVAC - Level 1	NCCER018	Yes	20	22
Architecture and Construction	NCCER HVAC - Level 2	NCCER081	Yes	4	4
Architecture and Construction	NCCER HVAC - Level 3	NCCER082	Yes	2	2
Architecture and Construction	NCCER HVAC - Level 4	NCCER083	Yes	2	2
Architecture and Construction	NCCER Industrial Maintenance-Mechanic	NCCER085	No	1	1
Architecture and Construction	NCCER Masonry - Level 1	NCCER025	Yes	26	26

See notes at end of table.

Table B2. Number of certifications earned/attempted by students in cohort 2, by certification area, certification title, and whether the certification was included on the 2010–11 CAPE Industry Certification Funding List: 2009–10 and 2010–11—Continued

Certification area	Certification title	Certification code	Included on the 2010–11 CAPE Industry Certification Funding List?	Number earned	Number attempted
Architecture and Construction	NOCTI Horticulture- Landscaping	NOCTI033	No	31	50
Arts, AV Tech, Communication	Adobe Certified Associate (Dreamweaver)	ADOBE010	Yes	2613	3495
Arts, AV Tech, Communication	Adobe Certified Associate (Flash)	ADOBE011	Yes	768	1065
Arts, AV Tech, Communication	Adobe Certified Associate (Photoshop)	ADOBE012	Yes	5186	8008
Arts, AV Tech, Communication	Adobe Certified Associate (Premiere Pro)	ADOBE018	No	5	99
Arts, AV Tech, Communication	Adobe Certified Expert (Acrobat)	ADOBE013	Yes	11	12
Arts, AV Tech, Communication	Adobe Certified Expert (After Effects)	ADOBE002	Yes	0	2
Arts, AV Tech, Communication	Adobe Certified Expert (Illustrator)	ADOBE003	Yes	2	8
Arts, AV Tech, Communication	Adobe Certified Expert (InDesign)	ADOBE004	Yes	4	4
Arts, AV Tech, Communication	Adobe Certified Expert (Photoshop)	ADOBE005	Yes	58	137
Arts, AV Tech, Communication	Adobe Certified Expert (Premiere Pro)	ADOBE007	Yes	4	9
Arts, AV Tech, Communication	Adobe Certified Professional: Macromedia	ADOBE008	No	0	1
Arts, AV Tech, Communication	Adobe Dreamweaver Developer	ADOBE017	Yes	0	2
Arts, AV Tech, Communication	Apple Certified Pro (ACP) - DVD Studio Pro	APPLE008	Yes	1	1
Arts, AV Tech, Communication	Apple Certified Pro (ACP) - Final Cut Pro	APPLE009	Yes	69	180
Arts, AV Tech, Communication	Apple Certified Pro (ACP) - Logic Pro	APPLE010	Yes	0	1
Arts, AV Tech, Communication	Introduction to Graphic Communications	GAERF002	No	0	10
Arts, AV Tech, Communication	NOCTI Television Broadcasting	NOCTI013	No	80	111
Business Management and Administration	A*S*K Certification - Entrepreneurship	IASKB001	No	0	26
Business Management and Administration	A*S*K Certification - Finance	IASKB002	No	0	1
Business Management and Administration	A*S*K Certification - Marketing	IASKB003	No	9	89
Business Management and Administration	Certification for Legal Professionals	TAFLP001	Yes	6	49
Business Management and Administration	NOCTI Accounting Basic	NOCTI015	No	14	37
Business Management and Administration	ParaPro Assessment	EDTSO001	No	79	92
Business Management and Administration	Pre-Professional Assessment and Certification	AAFCS001	No	4	7
Business Management and Administration	Quickbooks Certified User	INTUT001	No	0	1
Engineering and Technology Ed	Certified Solidworks Associate (CSWA)	SOLID001	Yes	69	280
Engineering and Technology Ed	Certified Solidworks Professional (CSWP)	SOLID002	Yes	1	1

See notes at end of table.

**Table B2. Number of certifications earned/attempted by students in cohort 2, by certification area, certification title, and whether the certification was included on the 2010–11 CAPE Industry Certification Funding List: 2009–10 and 2010–11—
Continued**

Certification area	Certification title	Certification code	Included on the 2010–11 CAPE Industry Certification Funding List?	Number earned	Number attempted
Engineering and Technology Ed	Mastercam Certified Programmer Mill Level 1	CNCIS001	Yes	12	142
Engineering and Technology Ed	NOCTI Pre-Engineering/Engineering Technology	NOCTI014	No	20	38
Health Science	Certified EKG Technician (CET)	NATHA002	Yes	421	567
Health Science	Certified Health Unit Coordinator (CHUC)	NAHUC001	Yes	3	18
Health Science	Certified Medical Administrative Assistant	NATHA003	Yes	1497	1721
Health Science	Certified Nursing Assistant (CNA)	FDMQA002	Yes	1324	1784
Health Science	Certified Phlebotomy Technician	NATHA007	No	12	12
Health Science	Certified Veterinary Assistant (CVA)	ANICT001	Yes	123	148
Health Science	First Responder	NREMT003	Yes	53	271
Health Science	Licensed Practical Nurse (LPN)	FDMQA017	Yes	32	36
Health Science	NOCTI Health Assisting	NOCTI009	No	51	70
Hospitality & Tourism	Certified Food Manager (CFM)	IFSEA001	Yes	67	73
Hospitality & Tourism	Certified Food Safety Manager	NRFSP001	No	25	33
Hospitality & Tourism	Certified Professional Food Manager	NRAEF003	Yes	818	1292
Hospitality & Tourism	Certified Rooms Division Specialist (CRDS)	AHLAE001	No	0	13
Hospitality & Tourism	Foodservice Management Professional (FMP)	NRAEF001	Yes	7	7
Hospitality & Tourism	Hospitality Skills Certification for Line-Level Staff	AHLAE003	No	9	9
Hospitality & Tourism	National ProStart Certificate of Achievement	NRAEF002	Yes	514	1062
Human Services	Certified Home Care Aide	NAHCH001	Yes	53	58
Human Services	Child Development Associate	CPREC001	Yes	122	213
Human Services	Cosmetologist	FLDOP002	No	4	9
Human Services	Early Childhood Professional Certificate	FLDOE001	No	39	44
Human Services	Introductory Child Care Training Certificate	FLDCF004	No	48	67
Human Services	National Professional Certification in C	NRETF001	Yes	1698	1976
Human Services	National Professional Certification in R	NRETF002	No	114	129
Human Services	NOCTI Early Childhood Care and Education	NOCTI031	No	56	65
Human Services	Skill Connect Assessment - Nurse Assistant	SKUSA004	No	0	1
Human Services	Staff Credential	FLDCF005	No	35	38
Information Technology	Certified Internet Web (CIW) Associate Design Specialist	PROSO001	Yes	25	52
Information Technology	Certified Internet Web (CIW) E-Commerce	PROSO003	Yes	28	28
Information Technology	Certified Internet Web (CIW) Professional	PROSO002	Yes	3	4

See notes at end of table.

Table B2. Number of certifications earned/attempted by students in cohort 2, by certification area, certification title, and whether the certification was included on the 2010–11 CAPE Industry Certification Funding List: 2009–10 and 2010–11—Continued

Certification area	Certification title	Certification code	Included on the 2010–11 CAPE Industry Certification Funding List?	Number earned	Number attempted
Information Technology	Certified Internet Web (CIW) Site Designer Professional	PROSO012	Yes	4	4
Information Technology	Cisco Certified Entry Networking Technician (CCENT)	CISCO003	Yes	14	47
Information Technology	CompTIA A+	COMPT001	Yes	102	255
Information Technology	CompTIA CDIA+	COMPT002	Yes	0	1
Information Technology	CompTIA Network+	COMPT006	Yes	26	40
Information Technology	CompTIA Security+	COMPT008	Yes	1	1
Information Technology	GIS Technician (Entry Level)	DIGIT001	Yes	7	7
Information Technology	MCIT Professional: Enterprise Support Technician	MICRO033	Yes	6	7
Information Technology	Microsoft Certified Desktop Support Tech	MICRO006	Yes	17	18
Information Technology	Microsoft Certified IT Professional	MICRO007	No	2	2
Information Technology	Microsoft Certified Professional (MCP)	MICRO008	No	8	9
Information Technology	Microsoft Certified Solution Developer	MICRO009	No	0	22
Information Technology	Microsoft Certified Systems Administrator	MICRO046	Yes	3	6
Information Technology	Microsoft Certified Technology Specialist	MICRO049	Yes	1	4
Information Technology	Microsoft MCAS Bundle Certification	MICRO061	No	157	621
Information Technology	Microsoft Office Master	MICRO017	Yes	78	128
Information Technology	Microsoft Office Specialist (MOS) Bundle Certification	MICRO069	Yes	643	1219
Information Technology	NOCTI Computer Programming	NOCTI035	No	2	11
Information Technology	Oracle Certified Associate (OCA)	ORACL001	Yes	0	24
Information Technology	Sun Certified Java Associate	SUNMI002	Yes	1	1
Law, Public Safety and Security	Fire Fighter I	FLSFM005	Yes	2	2
Law, Public Safety and Security	NOCTI Criminal Justice	NOCTI010	No	97	131
Law, Public Safety and Security	Private Security Officer	FDLIC006	No	1	1
Law, Public Safety and Security	Security Officer (Class D)	FDLIC004	No	13	13
Manufacturing	Certified Welder	AWELD001	Yes	29	30
Manufacturing	MSSC Certified Production Technician	MSSCN001	Yes	5	16
Manufacturing	NCCER Welder - Level 1	NCCER061	Yes	46	48
Manufacturing	NOCTI Apparel and Textile Production and Merchandising	NOCTI003	No	54	78
Transportation, Distribution, Logistics	ASE Automobile Service Consultant (C1)	NIASE013	Yes	2	5
Transportation, Distribution, Logistics	ASE Automobile/Light Truck Technician: Brakes	NIASE007	Yes	20	209
Transportation, Distribution, Logistics	ASE Automobile/Light Truck Technician: Electrical/Electronic Systems	NIASE008	Yes	7	24
Transportation, Distribution, Logistics	ASE Automobile/Light Truck Technician: Engine Performance	NIASE009	Yes	4	14

See notes at end of table.

Table B2. Number of certifications earned/attempted by students in cohort 2, by certification area, certification title, and whether the certification was included on the 2010–11 CAPE Industry Certification Funding List: 2009–10 and 2010–11—Continued

Certification area	Certification title	Certification code	Included on the 2010–11 CAPE Industry Certification Funding List?	Number earned	Number attempted
Transportation, Distribution, Logistics	ASE Automobile/Light Truck Technician: Engine Repair	NIASE010	Yes	4	23
Transportation, Distribution, Logistics	ASE Automobile/Light Truck Technician: Heating and Air Conditioning	NIASE011	Yes	4	16
Transportation, Distribution, Logistics	ASE Automobile/Light Truck Technician: Suspension and Steering	NIASE014	Yes	21	65
Transportation, Distribution, Logistics	ASE Collision Repair and Refinishing Technician: Non-structural Analysis and Damage Repair	NIASE018	Yes	0	18
Transportation, Distribution, Logistics	ASE Collision Repair and Refinishing Technician: Painting and Refinishing	NIASE029	Yes	8	20
Transportation, Distribution, Logistics	ASE Collision Repair and Refinishing Technician: Structural Analysis and Damage Repair	NIASE032	Yes	0	1
Transportation, Distribution, Logistics	FAA Aircraft Airframe and Powerplant Certification	FEDAA002	Yes	27	27
Transportation, Distribution, Logistics	FAA Airframe Mechanic	FEDAA004	Yes	8	8
Transportation, Distribution, Logistics	FAA Ground School	FEDAA013	Yes	9	15
Transportation, Distribution, Logistics	FAA Powerplant Mechanic	FEDAA010	Yes	9	9
Transportation, Distribution, Logistics	FAA Private Pilot	FEDAA011	Yes	4	9
Transportation, Distribution, Logistics	NA3SA End of Program Test: Automatic Transmission	NIASE036	No	2	4
Transportation, Distribution, Logistics	NA3SA End of Program Test: Brakes	NIASE037	No	19	36
Transportation, Distribution, Logistics	NA3SA End of Program Test: Electrical/Electronic Systems	NIASE038	No	26	53
Transportation, Distribution, Logistics	NA3SA End of Program Test: Engine Performance	NIASE039	No	11	16
Transportation, Distribution, Logistics	NA3SA End of Program Test: Engine Repair	NIASE044	No	18	30
Transportation, Distribution, Logistics	NA3SA End of Program Test: Heating and Air Conditioning	NIASE043	No	13	14
Transportation, Distribution, Logistics	NA3SA End of Program Test: Manual Drive	NIASE042	No	0	1
Transportation, Distribution, Logistics	NA3SA End of Program Test: Painting and Refinishing	NIASE040	No	2	11
Transportation, Distribution, Logistics	NA3SA End of Program Test: Suspension and Steering	NIASE041	No	33	54

NOTE: The 2010–11 CAPE Industry Certification Funding List also includes certifications that were not earned/attempted by students in Cohort 2 (freshman class of 2007–08) during 2009–10 and 2010–11. The complete 2010–11 CAPE Industry Certification Funding List can be viewed here: <http://www.fldoe.org/academics/career-adult-edu/cape-secondary/cape-industry-cert-funding-list-archive.shtml>
Percentages may not sum to 100 because of rounding.

SOURCE: Florida Department of Education, PK-20 Education Data Warehouse; 2010–11 CAPE Industry Certification Funding List.

Table B3 presents the number of certifications in each area and the percentage of certifications in each area that were on the CAPE Industry Certification Funding List of 2010–11. Across all areas, 94 percent of certifications were on the CAPE Industry Certification Funding List. Arts, AV Technology, and Communication was the most popular certification area, and 99 percent of certifications here were CAPE certifications. In the six areas with the highest numbers of certifications earned, at least 85 percent of certifications were CAPE. In areas where few students earned certifications, such as Business Management and Administration and Law, Public Safety, and Security, most of the certifications earned were not on the CAPE Industry Certification Funding List.

Table B3. Number and percentage of industry certifications earned by students in cohort 2 by whether the certification was a CAPE or a non-CAPE certification: 2009–10 and 2010–11

Certification area	All : certifications	CAPE certifications		Non-CAPE certifications	
	Number	Number	Percent	Number	Percent
Agriculture	99	66	66.7	33	33.3
Architecture and Construction	1,210	1,153	95.3	57	4.7
Arts, AV Technology, Communication	8,801	8,716	99.0	85	1.0
Business Management and Administration	112	6	5.4	106	94.6
Engineering and Technology Education	102	82	80.4	20	19.6
Health Science	3,516	3,453	98.2	63	1.8
Hospitality and Tourism	1,440	1,406	97.6	34	2.4
Human Services	2,169	1,873	86.4	296	13.7
Information Technology	1,128	959	85.0	169	15.0
Law, Public Safety, and Security	113	2	1.8	111	98.2
Manufacturing	134	80	59.7	54	40.3
Transportation and Distribution	251	127	50.6	124	49.4
Total	19,075	17,923	93.96	1,152	6.04

NOTE: CAPE = Career and Professional Education. Analysis was based on the 2010–11 CAPE Industry Certification Funding List and includes industry certifications earned by the freshman class of 2007–08 in either the 2009–10 or the 2010–11 academic year. Percentages may not sum to 100 because of rounding.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; 2010–11 CAPE Industry Certification Funding List.

Overall, pass rates were higher for CAPE certifications than for non-CAPE certifications (65 percent compared with 49 percent, respectively). Table B4 presents pass rates for CAPE and non-CAPE certifications, both overall and by certification area. Schools may provide more support to students seeking CAPE certifications than they do to those pursuing non-CAPE certifications. In some of the most popular certification areas, CAPE pass rates were greater than non-CAPE pass rates. For example, in Information Technology and Arts, AV Technology, and Communication, the pass rate for CAPE certifications was more than 25 percentage points higher than that for non-CAPE certifications. In other areas with relatively high numbers of certifications attempted, the difference in pass rates was less than 1 percentage point. In the areas with relatively few certification attempts, such as Transportation and Distribution and Engineering and Technology Education, the pass rate for non-CAPE certifications was about 30 percentage points higher than the CAPE pass

rate. In these areas with fewer certification options, students were more successful on the non-CAPE certifications.

Table B4. Number of industry certifications earned and/or attempted, and percentage of certifications passed by students in cohort 2, by certification area and whether the certification was a CAPE or a non-CAPE certification: 2009–10 and 2010–11

Certification area	CAPE certifications			non-CAPE certifications			Difference
	Number of certifications attempted	Number of certifications earned	Certification-level pass rate ^a	Number of certifications attempted	Number of certifications earned	Certification-level pass rate ^a	CAPE minus non-CAPE pass rates
All certification areas	27,518	17,923	65.1	2,334	1,152	49.4	15.8
Agriculture	181	66	36.5	77	33	42.9	-6.4
Architecture and Construction	2,310	1,153	49.9	148	57	38.5	11.4
Arts, AV Technology, and Communication	12,924	8,716	67.4	221	85	38.5	29.0
Business Management and Administration	49	6	12.2	253	106	41.9	-29.7
Engineering and Technology Education	423	82	19.4	38	20	52.6	-33.2
Health Science	4,545	3,453	76.0	82	63	76.8	-0.9
Human Services	2,247	1,873	83.4	353	296	83.9	-0.5
Hospitality and Tourism	2,434	1,406	57.8	55	34	61.8	-4.1
Human Services	2,247	1,873	83.4	353	296	83.9	-0.5
Information Technology	1,846	959	52.0	665	169	25.4	26.5
Law, Public Safety, and Security	2	2	100.0	145	111	76.6	23.4
Manufacturing	94	80	85.1	78	54	69.2	15.9

^a The numerator for this certification-level pass rate is the number of certifications earned/passed in 2009–10 and 2010–11, and the denominator is the number of certifications attempted in 2009–10 and 2010–11. Certification exams that were failed, retaken, and passed in the same year were counted as one certification earned and one certification attempted (as opposed to one certification earned and two certifications attempted).

NOTE: CAPE = career and professional education. Analysis was based on the 2010–11 CAPE Industry Certification Funding List and includes industry certifications earned by the freshman class of 2007–08 in either 2009–10 or 2010–11.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; 2010–11 CAPE Industry Certification Funding List.

High school completion and college enrollment outcomes for non-CAPE certification earners were more similar to those of CAPE certification earners than they were to non-earners. Table B5 shows high school completion and college enrollment outcomes for CAPE certification earners, non-CAPE certification earners, and certification non-earners. Ninety-five percent of CAPE and non-CAPE certification earners attained a regular high school diploma compared with 61 percent of certification non-earners. For other high school exit outcomes (e.g., dropout, GED[®] test credential), the rates for CAPE and non-CAPE earners were within 1 percentage point of each other.

Among high school completers, 75 percent of CAPE certification earners enrolled in a public postsecondary institution in Florida. Seventy-one percent of non-CAPE certification earners did, but 64 percent of those without any certification did. In terms of community college enrollment, about 64 percent of certification earners did so, regardless of whether

they had earned a CAPE certification. Of non-earners, 56 percent did. In terms of university enrollment, 29 percent of CAPE certification earners enrolled in a public university compared with 25 percent of non-CAPE earners and 21 percent of non-earners. Because outcomes for non-CAPE certification earners were more similar to those for CAPE certification earners than to non-earners, analyses include these non-CAPE certifications.

Table B5. High school school completion status as of 2010–11, and the percentage enrolling in Florida public postsecondary institutions as of 2013–14, by whether the student had a CAPE certification, a non-CAPE certification, or no certification

	CAPE certification earners	Non-CAPE certification earners	Certification non-earners	Differences		
				CAPE vs. Non-CAPE	CAPE vs. certification non-earners	Non-CAPE vs. certification non-earners
Number of certification earners	15,184	939	239,527			
High school completion status ^a						
Regular high school diploma	95.2	95.3	60.5	-0.1	34.7	34.8
GED * test credential	0.2	0.2	6.0	0.0	-5.8	-5.8
Other high school credential	1.8	1.9	5.2	-0.2	-3.4	-3.2
Dropped out	0.4	0.2	7.7	0.2	-7.3	-7.5
Other nongraduate ^b	2.4	2.4	20.6	0.0	-18.2	-18.2
Ever enrolled in Florida public postsecondary institution ^c						
FL public university OR a FL public community college	74.5	71.4	64.3	3.1	10.2	7.1
FL public community college	64.4	63.8	56.0	0.6	8.3	7.7
FL public university	29.0	24.6	21.9	4.3	7.1	2.8

^a As of the 2010–11 academic year.

^b Includes, for example, retained students as well as students who withdrew so as to enter the adult education program prior to completion of graduation requirements.

^c Among those who earned a high school credential as of the 2010–11 academic year.

NOTE: CAPE = career and professional education; FL = Florida. Analysis includes industry certifications earned by the freshman class of 2007–08 in either the 2009–10 or the 2010–11 academic year. CAPE certification earners earned at least one certification included on the 2010–11 CAPE Industry Certification Funding List; non-CAPE certification earners earned at least one certification but did not earn a certification that was included on the 2010–11 CAPE Industry Certification Funding List; certification non-earners did not earn any industry certifications. Of the 19,075 industry certifications earned by the freshman class of 2007–08, 17,923 (94 percent) were included on the 2010–11 CAPE Industry Certification Funding List, and 1,152 (6 percent) were not. Percentages may not sum to 100 because of rounding.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; 2010–11 CAPE Industry Certification Funding List.

Students could pursue certifications that were not part of the *CAPE Act*. In this report, we refer to CAPE certifications as those included on the CAPE Industry Certification Funding List and non-CAPE certifications as certifications that were not on that list³⁴. Of certifications earned in 2009–10 or 2010–11, 6 percent were non-CAPE certifications. Most of these were in areas with few CAPE certifications, such as Law, Public Safety, and Security and Business Management and Administration. Appendix B compares the non-CAPE certifications to the CAPE certifications. High school completion and college enrollment outcomes for non-CAPE certification earners were more similar to those of CAPE certification earners than they were to non-earners. For example, of those who earned

³⁴ CAPE certification funding lists for each year are here: <http://www.fldoe.org/academics/career-adult-edu/cape-secondary/cape-industry-cert-funding-list-current.shtml>

certifications, about 95 percent earned a high school diploma — regardless of whether the certification was designated as a CAPE certification, but 61 percent of non-earners did. Because outcomes for non-CAPE certification earners were more similar to those for CAPE certification earners than to non-earners, analyses include these non-CAPE certifications (table B5).

B.3 PROPENSITY SCORE MATCHING

Randomized controlled trials are often considered an ideal approach to studying causal effects. If study participants are randomly assigned to treatment and control groups, that assignment should be the only difference between the two groups. All other characteristics should be statistically the same. When this is true, receiving the treatment will explain any differences between outcomes of the treatment and control groups.

However, conducting a randomized controlled trial is not always an appropriate method for estimating the effects of a given treatment. When studying outcomes that have already occurred, if the original selection process was not random, we cannot change which students received the treatment. In the present study, students in Florida's high schools were not randomly assigned to certifications. They decided whether or not to take an industry certification exam. When random assignment is not appropriate, quasi-experimental methods allow researchers to approximate random assignment. The present study uses a quasi-methodological approach because we are analyzing a treatment that occurred in the past and was not randomly assigned.

When individuals can decide whether or not to receive a treatment, some people may be more likely than others to do that. If characteristics of individuals influence their likelihood of self-selecting into the treatment, then the makeup of the treatment and comparison groups will be different. For example, if students with low GPAs were not encouraged to take certification exams, then the academic characteristics of students who obtain a certification may differ from students who do not. GPA may also affect high school and postsecondary outcomes beyond earning a certification. For example, students with low GPAs may be less likely to earn a certification and have less success in their high school and postsecondary experiences than those with high GPAs. If we compare outcomes for certification earners to non-earners without accounting for group differences in GPA, we could conclude that their lack of certification caused the difference when, in fact, it was the GPA differences that drove the outcome differences. Given that students choose to take certification exams, we expect the characteristics of certification earners to differ from those who do not. Consequently, we use propensity score matching, a quasi-experimental method,

to balance treatment and comparison groups, so the characteristics of the groups are as similar as possible – except for getting a certification. This method addresses selection bias and ensures that treatment and comparison groups are balanced.

Propensity score logistic regression models

Propensity score analyses use observable characteristics in a logistic regression model to assign to each sample member a rating, or propensity score, that estimates the probability that a subject would receive a treatment. Treatment status is regressed on observed characteristics, and the estimated propensity score is the predicted probability of receiving treatment derived from that regression model. The baseline characteristics included in the model should have occurred before the treatment occurred, and they are expected to predict both the treatment and the outcome.

In this study, variables included in the model include student demographic and academic characteristics and school attributes while controlling for district effects, all of which we expect could influence the likelihood of earning a certification as well as high school and postsecondary outcomes. Propensity score models employed student-level variables from FLDOE's EDW and school-level variables from the CCD. We wanted to match students in a way that would account for factors that might affect both earning a certification and high school and postsecondary outcomes. We included both student and school variables in the model. To account for district differences in the rollout of the certification program, we created dummy variables for each district in Florida to control for district-level fixed effects.³⁵ Figure 1 includes all measures in the model. Because race may be associated with both earning a certification and completing high school, it was included in the match process. Similarly, because school poverty level might influence opportunities both for earning a certification and for employment after high school, it was included in the match process.

The variables used to estimate propensity scores must be measured before the treatment, which in this case was earning a certification. We did not want to include factors that might have resulted from getting a certification, such as grade 12 GPA. Because analyses focus on certifications earned during 2009–10 or 2010–11, matching variables, such as free or reduced-price lunch eligibility, were selected for 2007–08, students' grade 9 year. By selecting

³⁵ We first used multilevel models to address the variation among students who were clustered at school and district levels, but the logistic regression models failed to converge when estimating propensity scores. We therefore specified models using student- and school-level covariates and fixed effects to absorb variation at the district level. This focused the analysis on the variation resulting from student- and school-level characteristics and removed students from those districts that had no certification-seeking students.

only variables from 2007–08, we ensured that the variables could not have been affected by earning certifications in 2009–10 or 2010–11.

Each propensity score model included student- and school-level variables as well as district-level fixed effects. Table B6 shows variables used in the logistic regression analyses. Student variables include demographic characteristics such as race/ethnicity and sex, as well as academic characteristics such as grade 9 GPA. School variables include factors describing the overall student body, such as ethnic composition and percentage eligible for free or reduced-price lunch, as well as factors indicating school status, such as being a charter or magnet school. We account for differences in districts with district-level fixed effects, which we measured by including one dichotomous variable for each district in Florida. For each variable, table B6 includes the percentage of records missing for certification earners and for non-earners. Except for GPA, none of the student-level variables had any missing data. For GPA, less than 0.2 percent of certification earners had missing data, and about 2 percent of certification non-earners had missing data. As noted in Appendix section B1, some students earned certifications in institutions that are not included in the CCD, such as an adult education center. These students had missing data on all school variables. As with the student-level data, certification earners had lower percentages of missing data than the non-earners did.

Table B6. Model covariates included in logistic regression to calculate propensity scores for cohort 2

Student-level characteristics (2007–08)		Percent missing data: certification earners (n = 16,123)	Percent missing data: certification non-earners (n = 185,075)
Definition			
Sex	Student is male or female	0	0
Race and ethnicity	Student is white, black or African American, Hispanic, or another race/ethnicity	0	0
Migrant status	Student was identified as a migrant	0	0
Free or reduced-price lunch eligibility	Student is eligible to receive free or reduced-price lunches from the National Student Lunch Program	0	0
Grade point average in 2007–08	The student's final grade point average for all courses taken during 2007–08	0	0
Gifted student flag	Student identified as academically advanced	0.18	2.13
Disability flag	Student has a primary physical or mental disability	0	0
Additional disability flag	Student has an additional physical or mental disability	0	0
School-level characteristics (2007–08)			
Definition			
Student population	The number of students in grades 9 through 12	1.62	3.67
Student-to-teacher ratio	The number of high school students per teacher	2.48	4.91
Percent of student population eligible to receive free or reduced-price lunch	The percentage of the student population eligible to receive free or reduced-price lunch from the National Student Lunch Program	1.63	3.68
Title I school	The school is receiving Title I funding	1.62	3.67
Student population race and ethnicity	The percentage of the student population that is white, black or African American, Hispanic, or another race/ethnicity	1.63	3.68
Magnet school status	The school is a magnet school	1.62	3.67
Charter school status	The school is a charter school	1.62	3.67
Locale	The school is located in an urban, suburban, town, or rural locale	1.62	3.67
District-level fixed effects		One dichotomous variable for each district in Florida	

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08.

Each logistic regression yielded a propensity score predicting the likelihood that a student would earn a certification. Then, students who did not earn certifications were matched to those who did based on those propensity scores. Adjustments were made due to propensity scores being outside the range of common support or due to missing data. For example, if no one in a district earned a certain type of certification (such as Architecture and Construction), then we omitted that district from the pool of comparison students. In each comparison for high school outcomes, some eligible students were excluded in each analysis due to missing values among the matching variables used to estimate the propensity scores; however, most of the students were retained in the analytic samples. At least 96 percent of the eligible certification earners were included in each analysis of high school outcomes by certification area. Except for the comparison group for the Architecture and Construction

certification area, the analytic sample for each certification area included at least 91 percent of the eligible sample.³⁶ Analytic samples for postsecondary outcomes and for associate degree earning had similar patterns of inclusion. Table B7 presents the numbers of students included in each analysis of high school outcomes.

Table B7. Derivation of analytic sample sizes for cohort 2

	Total	Final sample	Percent of total
High school outcomes			
Non-certification earners	185,123	172,290	93.1
Certification earners	16,123	15,700	97.4
Regular only	9,987	9,706	97.2
Gold standard	6,134	5,960	97.2
By certification area			
Architecture and Construction			
Comparison	15,043	11,917	79.2
Certification earners	1,080	1,048	97.0
Arts, AV Technology, and Communication			
Comparison	8,795	8,335	94.8
Certification earners	7,328	7,110	97.0
Health Science			
Comparison	12,973	12,488	96.3
Certification earners	3,150	3,050	96.8
Hospitality and Tourism			
Comparison	14,810	13,883	93.7
Certification earners	1,313	1,276	97.2
Human Services			
Comparison	13,973	12,687	90.8
Certification earners	2,150	2,087	97.1
Information Technology			
Comparison	15,102	14,346	95.0
Certification earners	1,021	998	97.8
Postsecondary education outcomes			
Non-certification earners	132,999	132,989	100.0
Certification earners	15,181	15,181	100.0
Regular only	9,429	9,402	99.7
Gold standard	5,752	5,736	99.7
By certification area			
Architecture and Construction			
Comparison	14,195	11,093	78.2
Certification earners	986	985	99.9

See notes at end of table.

³⁶ Our analyses showed that some districts did not award certifications in Architecture and Construction. Because we account for districts in the propensity score model, comparison students in districts without Architecture and Construction were omitted.

Table B7. Derivation of analytic sample sizes for cohort 2—Continued

	Total	Final sample	Percent of total
Arts, AV Technology, and Communication			
Comparison	8,330	8,058	96.7
Certification earners	6,851	6,849	100.0
Health Science			
Comparison	12,174	11,573	95.1
Certification earners	3,007	3,007	100.0
Hospitality and Tourism			
Comparison	13,947	13,126	94.1
Certification earners	1,234	1,215	98.5
Human Services			
Comparison	13,127	11,517	87.7
Certification earners	2,054	2,053	100.0
Information Technology			
Comparison	14,228	13,309	93.5
Certification earners	953	953	100.0
Associate degree attainment outcomes			
Non-certification earners	36,481	36,344	99.6
Certification earners	4,823	4,819	99.9
Regular only	3,063	3,034	99.1
Gold standard	1,739	1,737	99.9
By certification area			
Architecture and Construction			
Comparison	4,536	3,697	81.5
Certification earners	287	277	96.5
Arts, AV Technology, and Communication			
Comparison	2,598	2,523	97.1
Certification earners	2,225	2,225	100.0
Health Science			
Comparison	3,860	3,777	97.9
Certification earners	963	957	99.4
Hospitality and Tourism			
Comparison	4,446	4,097	92.2
Certification earners	377	373	98.9
Human Services			
Comparison	4,086	3,586	87.8
Certification earners	737	736	99.9
Information Technology			
Comparison	4,594	3,834	83.5
Certification earners	229	205	89.5

^a The area of common support describes a range of propensity scores common to students in both the treatment and control groups. The area of common support for the “any certification vs. no certification” analysis is independent from the area of common support for the “gold-standard certification vs. regular certification” analysis. Thus, the total number of students in the latter analysis does not equal the number of treatment students in the former. Cases with missing values were also removed from the regression models.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08.

Results for the propensity score models are included in appendix B8 tables. As described in chapter 2, these analyses focus on eight comparisons:

- certification earners versus propensity-matched non-earners;
- gold-standard certification earners versus propensity-matched regular certification earners;
- Architecture and Construction versus propensity-matched other certification earners;
- Arts, AV Technology, and Communication versus propensity-matched other certification earners;
- Health Science versus propensity-matched other certification earners;
- Hospitality and Tourism versus propensity-matched other certification earners;
- Human Services versus propensity-matched other certification earners; and
- Information Technology versus propensity-matched other certification earners.

Then, we had three sets of subsamples in which we included the most appropriate sample for that outcome.

- For high school outcomes, the sample pool is students in grade 9 in 2007–08 (202,198 students).
- For all postsecondary outcomes, we focus on high school completers, and the sample pool is those who completed high school in Florida in 2011 (148,180 students).
- For the analysis of associate degree attainment, the sample pool is those who enrolled in community college by December 2011 (41,304 students). Given the span for which we have data, those who enrolled after that would not have had time to earn an associate degree. Those who enrolled in universities would not have had time to earn a Bachelor’s degree, so they are not included in this analysis.

We estimated separate propensity score models for each comparison and subsample or 24 models in total. Each model included the same baseline variables. Tables B8a–B8x include the logistic regression results.

- Tables B8a through B8h show each comparison for the students in grade 9 in 2007–08.
- Tables B8i through B8p show each comparison for students who completed high school in 2011.
- Tables B8q through B8x show each comparison for students who enrolled in community college enrollers in 2011.

A review of these logistic regression models showed that different characteristics were indeed associated with different kinds of certifications; in terms of matching, one match would not fit all comparisons, and conducting separate propensity score analyses was necessary to ensure that samples for each analysis were balanced. For example, student characteristics associated with Architecture and Construction certifications (table B8c) differed from those associated with Health Science certifications (table B8e).

Matching to create comparison groups

Based on the propensity score, those who received a treatment were matched to those who did not; and this matching resulted in sets of treated and untreated individuals who shared propensity score values. If treatment and comparison groups are balanced, then the observable characteristics of a treatment group do not differ significantly from the characteristics of the comparison group (for example, the percentage of females in the treatment group was not significantly different from the percentage of females in the comparison group). Balanced treatment and comparison groups suggested that the groups were no different than they would have been if students had been selected randomly.

Propensity score analyses can employ different matching strategies. One such strategy is referred to as nearest neighbor matching, in which one student in the treatment group is matched with one or more students with a similar propensity score in the comparison group. With this approach, treatment group members who do not have a suitable match are excluded from the analysis. While nearest neighbor matching often improves the balance between the treatment and comparison groups, it necessitates removing members from the analytic sample, which may decrease the statistical precision of the results.

To keep more students in the sample, this study used propensity scores to calculate statistical weights based on the inverse probability of participating in a given treatment. The strength of inverse-probability weights (IPWs) is that most of the sampled students are retained in the analytic sample, in contrast to nearest neighbor matching, which drops students who do not have an appropriate match. Unmatched students who would have been dropped from a nearest neighbor analysis may be retained in the analysis by using IPWs.

In the current study, IPWs for students in the treatment group were set to 1, while the weight for each student in the comparison group was calculated using the following equation:

$$\omega(W, x) = \frac{p}{1-p}$$

where ω was the weight, W denoted inclusion in the treatment or comparison group, x was the covariates, and p was the propensity score.

With IPWs, a student in the comparison group with a higher probability of receiving the treatment is weighted more heavily than a student in the comparison group with a lower probability of receiving that treatment. For example, a student in the comparison group with a propensity score of .75 would have an IPW of 3.0, and another student with a propensity score of .25 would have an IPW of .33. Because all students in the treatment group were assigned a weight of 1, data for the first student in the comparison group would count three times as much as the students in the treatment group. Likewise, data for the second student would count one-third as much as students in the treatment group.

After this weighting, the treatment and comparison groups were balanced so the observable characteristics of the treatment group were statistically no different from the same characteristics in the comparison group. As noted above, balanced treatment and comparison groups resembled what we would expect to see if treatment assignment had been randomized.

Although using IPWs allows researchers to retain more cases than other matching methods, balancing the treatment and comparison groups requires omitting some students. Calculating the probability of participating in a given treatment for each student in the analytic sample yields a range of propensity scores. The area of common support refers to the range of propensity scores common to both treatment and comparison groups. Students whose propensity scores fall within the area of common support are retained in the analytic sample, while those students whose propensity scores fall outside are removed. For example, if the range of propensity scores for a hypothetical treatment group are from .35 to .95, and the range of propensity scores for the corresponding comparison group range from .20 to .80, then the area of common support is defined as propensity scores between .35 and .80. In this case, all students whose propensity scores fall within .35 and .80 were retained in the analytic sample, while students whose scores were outside that range were removed to assist in balancing the treatment and comparison groups.

Balanced treatment and control groups

Although the IPW strategy helps balance treatment and comparison groups, we wanted to demonstrate that students in treatment and comparison groups were as similar as possible before the treatment began. Examining standardized differences between the means of matching covariates for the treatment and comparison groups showed whether the groups were balanced. The standardized difference for each covariate in the regression model was calculated

$$d_x = \frac{|M_{xt} - M_{xc}|}{S_x}$$

where d_x was the standardized difference, M_{xt} was the mean of each matching covariate among treatment group students, M_{xc} was the mean of each matching covariate among comparison group students, and S_x was the pooled standard deviation. The pooled standard deviation was calculated

$$S_x = \sqrt{\frac{S_{xt}^2 + S_{xc}^2}{2}}$$

Standardized differences greater than 5 percent and less than 25 percent of the standard deviation require statistically adjusting those covariates in the outcome regression models (IES 2014). Matching covariates with standardized differences of less than 5 percent required no further adjustment. In the propensity score matching process for this study, all covariates had standardized differences of less than 5 percent.

The set of B9 tables in this appendix provides the unweighted and weighted sample characteristics for each comparison and each subsample:

- Tables B9a through B9h show each comparison for the students in grade 9 in 2007–08.
- Tables B9i through B9p show each comparison for the students who completed high school in 2011.
- Tables B9q through B9x show each comparison for the students who enrolled in community college in 2011.

Weighted sample characteristics were calculated using IPWs, and sample characteristics were baseline measures taken from 2007–08, when students were in grade 9. For example, table B96a shows that 36 percent of the students who obtained a gold-standard or a regular

certification had been eligible for free or reduced-price lunch when they were in grade 9. During the same year, about 41 percent of students who did not obtain a certification had been eligible for free or reduced-price lunch. After applying the IPWs, we found the weighted percentage of students in the comparison group matched the weighted percentage in the treatment group. Both were approximately 36 percent.

Table B8a. Results of logistic regression predicting the likelihood of obtaining any certification, sample for cohort 2 high school outcomes

	Estimate	Robust standard error	Z
Student-level characteristics			
Male (reference category)	†	†	†
Female	-0.11	0.02	-6.37 ***
Race and ethnicity			
White (reference category)	†	†	†
Black or African American	-0.14	0.03	-4.88 ***
Hispanic	-0.05	0.03	-1.90
Other	0.02	0.04	0.51
Migrant student	0.03	0.11	0.24
Eligible for free or reduced-price lunch	-0.03	0.02	-1.55
Grade point average in 2007–08	0.63	0.01	56.40 ***
Academically advanced	-0.18	0.03	-5.17 ***
Additional disability ^a	-0.96	0.07	-13.12 ***
School-level characteristics			
Student population size	0.00	0.00	3.52 ***
Student-to-teacher ratio	0.02	0.00	5.74 ***
Percentage of student population eligible for free or reduced-price lunch	1.00	0.12	7.99 ***
Title I school ^b	0.02	0.03	0.77
Student-population race and ethnicity			
Percent white	-2.26	1.00	-2.26 *
Percent black or African American	-1.86	1.00	-1.86
Percent Hispanic	-2.58	1.01	-2.57 *
Percent other	-3.88	1.38	-2.82 **
Magnet school	0.02	0.02	0.76
Charter school	-0.31	0.08	-3.95 ***
Locale			
Urban (reference category)	†	†	†
Suburban	0.29	0.02	11.97 ***
Town	0.09	0.06	1.52
Rural	0.29	0.03	8.77 ***

* $p < .05$, ** $p < .01$, *** $p < .001$.

† Not applicable.

^a A student identified as mentally or physically disabled by the Florida Department of Education. Primary disability was not included in the propensity score estimation because the standardized difference between treatment and control groups was greater than .25 standard deviations.

^b School receives Title I funding from the U.S. Department of Education.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08.

Table B8b. Results of logistic regression predicting the likelihood of obtaining a gold-standard certification, sample for the cohort 2 analyses of high school outcomes

	Estimate	Robust standard error	Z
Student-level characteristics			
Race and ethnicity			
White (reference category)	†	†	†
Black or African American	-0.27	0.06	-4.64 ***
Hispanic	-0.10	0.05	-2.03 *
Other	-0.08	0.07	-1.06
Migrant	0.30	0.24	1.24
Eligible for free or reduced-price lunch	0.04	0.04	1.08
Limited English proficient			
Grade point average in 2007–08	-0.22	0.03	-8.06 ***
Academically advanced	0.14	0.07	2.19 *
Primary disability ^a	0.18	0.07	2.45 *
Additional disability ^a	0.09	0.16	0.57
School-level characteristics			
Student population size	0.00	0.00	-5.99 ***
Student-to-teacher ratio	-0.01	0.01	-0.68
Percentage of student population eligible for free or reduced-price lunch	-0.16	0.31	-0.51
Title I school ^b	-0.10	0.07	-1.41
Student-population race and ethnicity			
Percent white	-4.70	2.43	-1.94
Percent black or African American	-4.71	2.44	-1.93
Percent Hispanic	-4.04	2.44	-1.66
Percent other	0.91	3.26	0.28
Magnet school	0.02	0.05	0.40
Charter school	0.36	0.16	2.29 *
Locale			
Urban (reference category)	†	†	†
Suburban	-0.09	0.05	-1.67
Town	-0.60	0.12	-4.89 ***
Rural	-0.06	0.07	-0.98

* $p < .05$, ** $p < .01$, *** $p < .001$.

† Not applicable.

^a A student identified with a disability by the Florida Department of Education.

^b School receives Title I funding from the U.S. Department of Education.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08.

Table B8c. Results of logistic regression predicting the likelihood of obtaining a certification in Architecture and Construction, sample for the cohort 2 analyses of high school outcomes

	Estimate	Robust standard error	Z
Student-level characteristics			
Male (reference category)	†	†	†
Female	-2.03	0.16	-12.44 ***
Race and ethnicity			
White (reference category)	†	†	†
Black or African American	-0.52	0.16	-3.20 ***
Hispanic	-0.02	0.13	-0.14
Other	-0.18	0.17	-1.10
Migrant	0.58	0.28	2.06 *
Eligible for free or reduced-price lunch	0.02	0.09	0.20
Limited English proficient	0.17	0.10	1.65
Grade point average in 2007–08	-0.14	0.07	-1.84
Academically advanced	0.12	0.23	0.52
Primary disability ^a	0.21	0.12	1.77
Additional disability ^a	0.14	0.26	0.55
School-level characteristics			
Student population size	0.00	0.00	-0.64
Student-to-teacher ratio	-0.12	0.08	-1.50
Percentage of student population eligible for free or reduced-price lunch	-0.38	1.45	-0.26
Title I school ^b	-0.23	0.32	-0.72
Student-population race and ethnicity			
Percent white	-13.64	18.64	-0.73
Percent black or African American	-12.95	18.73	-0.69
Percent Hispanic	-11.57	18.94	-0.61
Percent other	-6.15	24.85	-0.25
Magnet school	0.21	0.34	0.60
Charter school	-0.18	0.53	-0.33
Locale			
Urban (reference category)	†	†	†
Suburban	0.75	0.33	2.25 *
Town	1.55	0.42	3.66 ***
Rural	1.00	0.30	3.36 ***

* $p < .05$, ** $p < .01$, *** $p < .001$.

† Not applicable.

^a A student identified with a disability by the Florida Department of Education.

^b School receives Title I funding from the U.S. Department of Education.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08.

Table B8d. Results of logistic regression predicting the likelihood of obtaining a certification in Arts, AV Technology, and Communication, sample for the cohort 2 analyses of high school outcomes

	Estimate	Robust standard error	Z
Student-level characteristics			
Male (reference category)	†	†	†
Female	-0.71	0.10	-6.90 ***
Race and ethnicity			
White (reference category)	†	†	†
Black or African American	-0.18	0.07	-2.54 *
Hispanic	-0.03	0.06	-0.46
Other	0.00	0.08	0.02
Migrant	0.08	0.24	0.32
Eligible for free or reduced-price lunch	-0.03	0.05	-0.52
Limited English proficient	-0.03	0.04	-0.71
Grade point average in 2007–08	-0.18	0.07	-2.39 *
Academically advanced	-0.02	0.06	-0.24
Primary disability ^a	-0.10	0.06	-1.54
Additional disability ^a	0.10	0.15	0.67
School-level characteristics			
Student population size	0.00	0.00	-1.40
Student-to-teacher ratio	0.09	0.05	1.82
Percentage of student population eligible for free or reduced-price lunch	-0.23	1.14	-0.20
Title I school ^b	-0.03	0.16	-0.17
Student-population race and ethnicity			
Percent white	-3.33	7.17	-0.46
Percent black or African American	-2.80	7.21	-0.39
Percent Hispanic	-2.87	7.30	-0.39
Percent other	-4.67	9.57	-0.49
Magnet school	-0.11	0.17	-0.62
Charter school	-1.08	0.40	-2.67 *
Locale			
Urban (reference category)	†	†	†
Suburban	-0.27	0.16	-1.67
Town	-0.97	0.39	-2.51 *
Rural	-0.23	0.28	-0.83

* $p < .05$, ** $p < .01$, *** $p < .001$.

† Not applicable.

^a A student identified with a disability by the Florida Department of Education.

^b School receives Title I funding from the U.S. Department of Education.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08.

Table B8e. Results of logistic regression predicting the likelihood of obtaining a certification in Health Science, sample for the cohort 2 analyses of high school outcomes

	Estimate	Robust standard error	Z
Student-level characteristics			
Male (reference category)	†	†	†
Female	1.55	0.11	14.75 ***
Race and ethnicity			
White (reference category)	†	†	†
Black or African American	0.60	0.12	5.18 ***
Hispanic	0.22	0.08	2.56 *
Other	0.32	0.13	2.42 *
Migrant	-0.43	0.32	-1.32
Eligible for free or reduced-price lunch	0.02	0.10	0.22
Limited English proficient	0.02	0.04	0.54
Grade point average in 2007–08	0.59	0.07	8.67 ***
Academically advanced	-0.31	0.17	-1.82
Primary disability ^a	-0.28	0.12	-2.34 *
Additional disability ^a	-0.15	0.36	-0.43
School-level characteristics			
Student population size	0.00	0.00	0.82
Student-to-teacher ratio	0.02	0.07	0.27
Percentage of student population eligible for free or reduced-price lunch	-1.08	1.84	-0.59
Title I school ^b	0.05	0.23	0.22
Student-population race and ethnicity			
Percent white	16.50	15.56	1.06
Percent black or African American	17.31	16.16	1.07
Percent Hispanic	16.52	16.06	1.03
Percent other	19.60	14.38	1.36
Magnet school	-0.01	0.25	-0.03
Charter school	0.11	0.78	0.14
Locale			
Urban (reference category)	†	†	†
Suburban	0.02	0.34	0.06
Town	0.27	0.55	0.49
Rural	-0.04	0.46	-0.10

* $p < .05$, ** $p < .01$, *** $p < .001$.

† Not applicable.

^a A student identified with a disability by the Florida Department of Education.

^b School receives Title I funding from the U.S. Department of Education.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08.

Table B8f. Results of logistic regression predicting the likelihood of obtaining a certification in Hospitality and Tourism, sample for the cohort 2 analyses of high school outcomes

	Estimate	Robust standard error	Z
Student-level characteristics			
Male (reference category)	†	†	†
Female	0.20	0.07	2.64 *
Race and ethnicity			
White (reference category)	†	†	†
Black or African American	-0.23	0.11	-2.18 *
Hispanic	-0.14	0.09	-1.54
Other	-0.14	0.15	-0.94
Migrant	0.00	0.00	0.00 ***
Eligible for free or reduced-price lunch	-0.28	0.08	-3.67 ***
Limited English proficient	0.16	0.07	2.44 *
Grade point average in 2007–08	-0.33	0.08	-4.24 ***
Academically advanced	0.06	0.17	0.39
Primary disability ^a	0.42	0.10	3.97 ***
Additional disability ^a	-0.14	0.29	-0.50
School-level characteristics			
Student population size	0.00	0.00	1.44
Student-to-teacher ratio	-0.07	0.04	-1.65
Percentage of student population eligible for free or reduced-price lunch	3.82	1.74	2.19 *
Title I school ^b	-0.78	0.42	-1.86
Student-population race and ethnicity			
Percent white	9.73	9.84	0.99
Percent black or African American	9.17	9.69	0.95
Percent Hispanic	10.50	9.65	1.09
Percent other	18.87	14.69	1.28
Magnet school	-0.25	0.20	-1.24
Charter school	1.20	1.00	1.20
Locale			
Urban (reference category)	†	†	†
Suburban	0.14	0.23	0.62
Town	-1.22	0.69	-1.77
Rural	-0.01	0.32	-0.03

* $p < .05$, ** $p < .01$, *** $p < .001$.

† Not applicable.

^a A student identified with a disability by the Florida Department of Education.

^b School receives Title I funding from the U.S. Department of Education.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08.

Table B8g. Results of logistic regression predicting the likelihood of obtaining a certification in Human Services, sample for the cohort 2 analyses of high school outcomes

	Estimate	Robust standard error	Z
Student-level characteristics			
Male (reference category)	†	†	†
Female	0.75	0.13	5.84 ***
Race and ethnicity			
White (reference category)	†	†	†
Black or African American	0.11	0.10	1.06
Hispanic	-0.12	0.13	-0.90
Other	-0.23	0.20	-1.18
Migrant	-0.18	0.55	-0.33
Eligible for free or reduced-price lunch	0.18	0.09	1.92
Limited English proficient	-0.19	0.06	-3.03 ***
Grade point average in 2007–08	0.01	0.13	0.08
Academically advanced	0.02	0.21	0.08
Primary disability ^a	0.05	0.08	0.60
Additional disability ^a	-0.53	0.25	-2.12 *
School-level characteristics			
Student population size	0.00	0.00	1.77
Student-to-teacher ratio	-0.06	0.03	-1.79
Percentage of student population eligible for free or reduced-price lunch	0.18	1.09	0.17
Title I school ^b	0.49	0.19	2.57 *
Student-population race and ethnicity			
Percent white	-5.61	21.65	-0.26
Percent black or African American	-8.37	22.22	-0.38
Percent Hispanic	-8.45	22.03	-0.38
Percent other	-13.21	21.63	-0.61
Magnet school	-0.03	0.19	-0.18
Charter school	0.95	0.79	1.20
Locale			
Urban (reference category)	†	†	†
Suburban	-0.25	0.23	-1.12
Town	-0.13	0.46	-0.28
Rural	-0.33	0.29	-1.15

* $p < .05$, ** $p < .01$, *** $p < .001$.

† Not applicable.

^a A student identified with a disability by the Florida Department of Education.

^b School receives Title I funding from the U.S. Department of Education.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08.

Table B8h. Results of logistic regression predicting the likelihood of obtaining a certification in Information Technology, sample for the cohort 2 analyses of high school outcomes

	Estimate	Robust standard error	Z
Student-level characteristics			
Male (reference category)	†	†	†
Female	-0.34	0.14	-2.45 *
Race and ethnicity			
White (reference category)	†	†	†
Black or African American	-0.02	0.12	-0.19
Hispanic	0.07	0.09	0.78
Other	0.05	0.17	0.27
Migrant	1.03	0.51	2.03 *
Eligible for free or reduced-price lunch	-0.13	0.16	-0.80
Limited English proficient	0.04	0.09	0.48
Grade point average in 2007–08	0.27	0.10	2.59 *
Academically advanced	0.18	0.12	1.46
Primary disability ^a	-0.38	0.14	-2.75 *
Additional disability ^a	0.49	0.32	1.53
School-level characteristics			
Student population size	0.00	0.00	-2.87 ***
Student-to-teacher ratio	-0.08	0.08	-0.96
Percentage of student population eligible for free or reduced-price lunch	-0.95	1.72	-0.56
Title I school ^b	0.51	0.36	1.42
Student-population race and ethnicity			
Percent white	-3.67	16.74	-0.22
Percent black or African American	-4.23	16.83	-0.25
Percent Hispanic	-2.11	16.99	-0.12
Percent other	-0.11	20.04	-0.01
Magnet school	0.46	0.27	1.69
Charter school	-0.98	0.42	-2.35 *
Locale			
Urban (reference category)	†	†	†
Suburban	0.41	0.29	1.42
Town	0.08	0.35	0.22
Rural	0.83	0.34	2.47 *

* $p < .05$, ** $p < .01$, *** $p < .001$.

† Not applicable.

^a A student identified with a disability by the Florida Department of Education.

^b School receives Title I funding from the U.S. Department of Education. SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08.

Table B8i. Results of logistic regression predicting the likelihood of obtaining any certification, sample for the cohort 2 analysis of postsecondary outcomes

	Estimate	Robust standard error	Z
Student-level characteristics			
Male (reference category)	†	†	†
Female	-0.11	0.05	-2.21 *
Race and ethnicity			
White (reference category)	†	†	†
Black or African American	-0.16	0.03	-5.10 ***
Hispanic	-0.07	0.03	-2.43 *
Other	0.01	0.06	0.22
Migrant	0.01	0.18	0.05
Eligible for free or reduced-price lunch	0.00	0.03	0.06
Grade point average in 2007–08	0.41	0.04	10.85 ***
Academically advanced	-0.20	0.04	-4.44 ***
Additional disability ^a	-0.77	0.10	-7.78 ***
School-level characteristics			
Student population size	0.00	0.00	0.51
Student-to-teacher ratio	0.02	0.01	1.40
Percentage of student population eligible for free or reduced-price lunch	0.91	0.43	2.10 *
Title I school ^b	0.04	0.10	0.38
Student-population race and ethnicity			
Percent white	-2.73	5.44	-0.50
Percent black or African American	-2.18	5.61	-0.39
Percent Hispanic	-2.96	5.55	-0.53
Percent other	-5.31	5.96	-0.89
Magnet school	-0.01	0.10	-0.07
Charter school	-0.32	0.27	-1.16
Locale			
Urban (reference category)	†	†	†
Suburban	0.28	0.17	1.70
Town	0.03	0.19	0.15
Rural	0.27	0.21	1.26

* $p < .05$, ** $p < .01$, *** $p < .001$.

† Not applicable.

^a A student identified as mentally or physically disabled by the Florida Department of Education. Primary disability was not included in the propensity score estimation because the standardized difference between treatment and control groups was greater than .25 standard deviations.

^b School receives Title I funding from the U.S. Department of Education.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08, National Student Clearinghouse, StudentTracker Data.

Table B8j. Results of logistic regression predicting the likelihood of obtaining a gold-standard certification, sample for the cohort 2 analyses of postsecondary outcomes

	Estimate	Robust standard error	Z
Student-level characteristics			
Race and ethnicity			
White (reference category)	†	†	†
Black or African American	-0.27	0.07	-4.11 ***
Hispanic	-0.12	0.06	-2.08 *
Other	-0.08	0.09	-0.92
Migrant	0.42	0.26	1.64
Eligible for free or reduced-price lunch	0.05	0.04	1.32
Grade point average in 2007–08	-0.23	0.04	-6.04 ***
Academically advanced	0.12	0.12	1.01
Primary disability ^a	0.18	0.07	2.59 *
Additional disability ^a	0.13	0.18	0.71
School-level characteristics			
Student population size	0.00	0.00	-1.47
Student-to-teacher ratio	-0.01	0.03	-0.18
Percentage of student population eligible for free or reduced-price lunch	-0.28	1.18	-0.24
Title I school ^b	-0.13	0.28	-0.48
Student-population race and ethnicity			
Percent white	-5.30	6.14	-0.86
Percent black or African American	-5.23	6.13	-0.85
Percent Hispanic	-4.50	6.10	-0.74
Percent other	-0.69	8.36	-0.08
Magnet school	0.02	0.14	0.16
Charter school	0.38	0.73	0.53
Locale			
Urban (reference category)	†	†	†
Suburban	-0.09	0.11	-0.78
Town	-0.65	0.28	-2.33 *
Rural	-0.06	0.17	-0.32

* $p < .05$, ** $p < .01$, *** $p < .001$.

† Not applicable.

^a A student identified with a disability by the Florida Department of Education.

^b School receives Title I funding from the U.S. Department of Education.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; National Student Clearinghouse, StudentTracker Data.

Table B8k. Results of logistic regression predicting the likelihood of obtaining a certification in Architecture and Construction, sample for the cohort 2 analyses of postsecondary outcomes

	Estimate	Robust standard error	Z
Student-level characteristics			
Male (reference category)	†	†	†
Female	-2.05	0.17	-12.16 ***
Race and ethnicity			
White (reference category)	†	†	†
Black or African American	-0.46	0.20	-2.32 *
Hispanic	-0.02	0.14	-0.14
Other	-0.16	0.15	-1.08
Migrant	0.73	0.29	2.50 *
Eligible for free or reduced-price lunch	0.03	0.09	0.35
Limited English proficient	0.21	0.11	1.89
Grade point average in 2007–08	-0.14	0.07	-1.82
Academically advanced	0.05	0.21	0.24
Primary disability ^a	0.14	0.11	1.26
Additional disability ^a	0.19	0.27	0.70
School-level characteristics			
Student population size	0.00	0.00	-0.80
Student-to-teacher ratio	-0.11	0.09	-1.26
Percentage of student population eligible for free or reduced-price lunch	-0.86	1.61	-0.54
Title I school ^b	-0.39	0.32	-1.19
Student-population race and ethnicity			
Percent white	-10.95	18.85	-0.58
Percent black or African American	-10.01	18.92	-0.53
Percent Hispanic	-8.31	19.14	-0.43
Percent other	-4.10	24.89	-0.16
Magnet school	0.19	0.35	0.56
Charter school	-0.15	0.52	-0.29
Locale			
Urban (reference category)	†	†	†
Suburban	0.76	0.35	2.17 *
Town	1.54	0.45	3.39 **
Rural	1.00	0.31	3.20 **

* $p < .05$, ** $p < .01$, *** $p < .001$.

† Not applicable.

^a A student identified with a disability by the Florida Department of Education.

^b School receives Title I funding from the U.S. Department of Education. SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; National Student Clearinghouse, StudentTracker Data.

Table B8I. Results of logistic regression predicting the likelihood of obtaining a certification in Arts, AV Technology, and Communication, smple for the cohort 2 analyses of postsecondary outcomes

	Estimate	Robust standard error	Z
Student-level characteristics			
Male (reference category)	†	†	†
Female	-0.72	0.10	-7.28 ***
Race and ethnicity			
White (reference category)	†	†	†
Black or African American	-0.20	0.07	-2.82 **
Hispanic	-0.04	0.05	-0.69
Other	0.00	0.07	-0.06
Migrant	0.07	0.24	0.29
Eligible for free or reduced-price lunch	-0.02	0.05	-0.30
Limited English proficient	-0.03	0.04	-0.80
Grade point average in 2007–08	-0.16	0.08	-2.09 *
Academically advanced	-0.02	0.07	-0.28
Primary disability ^a	-0.11	0.05	-1.99 *
Additional disability ^a	0.16	0.15	1.09
School-level characteristics			
Student population size	0.00	0.00	-1.37
Student-to-teacher ratio	0.09	0.05	1.69
Percentage of student population eligible for free or reduced-price lunch	-0.21	1.18	-0.18
Title I school ^b	-0.02	0.16	-0.12
Student-population race and ethnicity			
Percent white	-3.82	7.27	-0.53
Percent black or African American	-3.27	7.32	-0.45
Percent Hispanic	-3.33	7.44	-0.45
Percent other	-5.66	9.73	-0.58
Magnet school	-0.09	0.17	-0.54
Charter school	-1.05	0.42	-2.53 *
Locale			
Urban (reference category)	†	†	†
Suburban	-0.27	0.16	-1.67
Town	-0.95	0.39	-2.45 *
Rural	-0.23	0.28	-0.83

* $p < .05$, ** $p < .01$, *** $p < .001$.

† Not applicable.

^a A student identified with a disability by the Florida Department of Education.

^b School receives Title I funding from the U.S. Department of Education.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; National Student Clearinghouse, StudentTracker Data.

Table B8m. Results of logistic regression predicting the likelihood of obtaining a certification in Health Science, sample for the cohort 2 analyses of postsecondary outcomes

	Estimate	Robust standard error	Z
Student-level characteristics			
Male (reference category)	†	†	†
Female	1.54	0.11	14.11 ***
Race and ethnicity			
White (reference category)	†	†	†
Black or African American	0.59	0.11	5.23 ***
Hispanic	0.23	0.08	2.77 **
Other	0.32	0.13	2.38 *
Migrant	-0.55	0.30	-1.83
Eligible for free or reduced-price lunch	0.03	0.09	0.35
Limited English proficient	0.03	0.04	0.80
Grade point average in 2007–08	0.57	0.07	8.12 ***
Academically advanced	-0.28	0.15	-1.83
Primary disability ^a	-0.22	0.11	-1.92
Additional disability ^a	-0.31	0.36	-0.86
School-level characteristics			
Student population size	0.00	0.00	0.82
Student-to-teacher ratio	0.02	0.07	0.29
Percentage of student population eligible for free or reduced-price lunch	-0.97	1.94	-0.50
Title I school ^b	0.06	0.23	0.24
Student-population race and ethnicity			
Percent white	17.25	15.48	1.11
Percent black or African American	17.99	16.05	1.12
Percent Hispanic	17.16	15.93	1.08
Percent other	21.15	14.29	1.48
Magnet school	0.00	0.25	0.00
Charter school	0.07	0.78	0.09
Locale			
Urban (reference category)	†	†	†
Suburban	0.02	0.34	0.05
Town	0.29	0.54	0.54
Rural	-0.04	0.46	-0.10

* $p < .05$, ** $p < .01$, *** $p < .001$.

† Not applicable.

^a A student identified with a disability by the Florida Department of Education.

^b School receives Title I funding from the U.S. Department of Education.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; National Student Clearinghouse, StudentTracker Data.

Table B8n. Results of logistic regression predicting the likelihood of obtaining a certification in Hospitality and Tourism, sample for the cohort 2 analyses of postsecondary outcomes

	Estimate	Robust standard error	Z
Student-level characteristics			
Male (reference category)	†	†	†
Female	0.19	0.07	2.61 **
Race and ethnicity			***
White (reference category)	†	†	†
Black or African American	-0.22	0.11	-2.01 *
Hispanic	-0.13	0.10	-1.30
Other	-0.12	0.15	-0.77
Migrant	-0.30	0.07	-4.24 ***
Eligible for free or reduced-price lunch	0.16	0.07	2.18 *
Limited English proficient	-0.35	0.08	-4.28 ***
Grade point average in 2007–08	0.12	0.18	0.67
Academically advanced	0.41	0.12	3.58 ***
Primary disability ^a	-0.19	0.35	-0.56
Additional disability ^a			***
School-level characteristics			
Student population size	0.00	0.00	1.47
Student-to-teacher ratio	-0.07	0.04	-1.55
Percentage of student population eligible for free or reduced-price lunch	4.15	1.77	2.34 *
Title I school ^b	-0.82	0.42	-1.93

Student-population race and ethnicity	11.12	9.90	1.12
Percent white	10.47	9.73	1.08
Percent black or African American	11.80	9.71	1.22
Percent Hispanic	21.20	14.75	1.44
Percent other	-0.23	0.20	-1.14
Magnet school	1.17	0.99	1.18
Charter school			***
Locale			
Urban (reference category)	†	†	†
Suburban	0.20	0.24	0.85
Town	-1.25	0.67	-1.87
Rural	0.05	0.33	0.17

* $p < .05$, ** $p < .01$, *** $p < .001$.

† Not applicable.

^a A student identified with a disability by the Florida Department of Education.

^b School receives Title I funding from the U.S. Department of Education.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; National Student Clearinghouse, Student Tracker Data.

Table B8o. Results of logistic regression predicting the likelihood of obtaining a certification in Human Services, sample for cohort 2 analyses of postsecondary outcomes

	Estimate	Robust standard error	Z
Student-level characteristics			
Male (reference category)	†	†	†
Female	0.74	0.13	5.77 ***
Race and ethnicity			
White (reference category)	†	†	†
Black or African American	0.11	0.10	1.06
Hispanic	-0.12	0.13	-0.91
Other	-0.22	0.19	-1.17
Migrant	-0.15	0.56	-0.27
Eligible for free or reduced-price lunch	0.15	0.09	1.57
Limited English proficient	-0.20	0.06	-3.14 **
Grade point average in 2007–08	-0.02	0.14	-0.12
Academically advanced	0.01	0.20	0.06
Primary disability ^a	0.09	0.10	0.92
Additional disability ^a	-0.51	0.28	-1.83
School-level characteristics			
Student population size	0.00	0.00	1.71
Student-to-teacher ratio	-0.06	0.03	-1.80
Percentage of student population eligible for free or reduced-price lunch	0.14	1.08	0.13
Title I school ^b	0.51	0.19	2.64 **
Student-population race and ethnicity			
Percent white	-6.05	21.58	-0.28
Percent black or African American	-8.83	22.12	-0.40
Percent Hispanic	-8.89	21.92	-0.41
Percent other	-13.21	21.74	-0.61
Magnet school	-0.04	0.20	-0.20
Charter school	0.96	0.78	1.23
Locale			
Urban (reference category)	†	†	†
Suburban	-0.26	0.23	-1.14
Town	-0.12	0.47	-0.26
Rural	-0.34	0.29	-1.19

* $p < .05$, ** $p < .01$, *** $p < .001$.

† Not applicable.

^a A student identified with a disability by the Florida Department of Education.

^b School receives Title I funding from the U.S. Department of Education.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; National Student Clearinghouse, StudentTracker Data.

Table B8p. Results of logistic regression predicting the likelihood of obtaining a certification in Information Technology, sample for the cohort 2 analyses of postsecondary outcomes

	Estimate	Robust standard error	Z
Student-level characteristics			
Male (reference category)	†	†	†
Female	-0.31	0.14	-2.22 *
Race and ethnicity			
White (reference category)	†	†	†
Black or African American	-0.01	0.13	-0.09
Hispanic	0.04	0.08	0.52
Other	-0.03	0.19	-0.14
Migrant	1.08	0.44	2.47 *
Eligible for free or reduced-price lunch	0.06	0.09	0.72
Limited English proficient	-0.12	0.16	-0.78
Grade point average in 2007–08	0.28	0.11	2.53 *
Academically advanced	0.05	0.13	0.40
Primary disability ^a	-0.37	0.15	-2.54 *
Additional disability ^a	0.58	0.35	1.63
School-level characteristics			
Student population size	0.00	0.00	-3.12 **
Student-to-teacher ratio	-0.08	0.07	-1.14
Percentage of student population eligible for free or reduced-price lunch	-1.00	1.63	-0.61
Title I school ^b	0.46	0.35	1.33
Student-population race and ethnicity			
Percent white	-3.97	14.83	-0.27
Percent black or African American	-4.74	14.96	-0.32
Percent Hispanic	-2.39	15.34	-0.16
Percent other	-2.73	18.07	-0.15
Magnet school	0.47	0.28	1.67
Charter school	-0.98	0.44	-2.20 *
Locale			
Urban (reference category)	†	†	†
Suburban	0.31	0.28	1.11
Town	-0.02	0.36	-0.05
Rural	0.86	0.32	2.73 **

* $p < .05$, ** $p < .01$, *** $p < .001$.

† Not applicable.

^a A student identified with a disability by the Florida Department of Education.

^b School receives Title I funding from the U.S. Department of Education.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; National Student Clearinghouse, StudentTracker Data.

Table B8q. Results of logistic regression predicting the likelihood of obtaining any certification, sample for cohort 2 analyses of associate degree attainment

	Estimate	Robust standard error	Z
Student-level characteristics			
Male (reference category)	†	†	†
Female	-0.13	0.07	-1.81
Race and ethnicity			
White (reference category)	†	†	†
Black or African American	-0.27	0.05	-5.06 ***
Hispanic	-0.05	0.06	-0.81
Other	0.03	0.08	0.39
Migrant	-0.29	0.24	-1.22
Eligible for free or reduced-price lunch	-0.02	0.04	-0.58
Grade point average in 2007–08	0.46	0.05	8.95 ***
Academically advanced	0.06	0.09	0.62
Additional disability ^a	-0.27	0.12	-2.27 *
School-level characteristics			
Student population size	0.00	0.00	0.83
Student-to-teacher ratio	-0.01	0.01	-0.86
Percentage of student population eligible for free or reduced-price lunch	0.62	0.45	1.37
Title I school ^b	0.09	0.09	1.05
Student-population race and ethnicity			
Percent white	0.83	5.69	0.15
Percent black or African American	1.89	5.87	0.32
Percent Hispanic	0.91	5.83	0.16
Percent other	2.44	6.51	0.38
Magnet school	-0.01	0.10	-0.10
Charter school	-0.32	0.31	-1.03
Locale			
Urban (reference category)	†	†	†
Suburban	0.30	0.13	2.38 *
Town	0.13	0.22	0.58
Rural	0.30	0.20	1.53
Number of observations	41,304		

* $p < .05$, ** $p < .01$, *** $p < .001$.

† Not applicable.

^a A student identified as mentally or physically disabled by the Florida Department of Education. Primary disability was not included in the propensity score estimation because the standardized difference between treatment and control groups was greater than .25 standard deviations.

^b School receives Title I funding from the U.S. Department of Education.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; National Student Clearinghouse, StudentTracker Data.

Table B8r. Results of logistic regression predicting the likelihood of obtaining a gold-standard certification, sample for cohort 2 analyses of associate degree attainment

	Estimate	Robust standard error	Z
Student-level characteristics			
Race and ethnicity			
White (reference category)	†	†	†
Black or African American	-0.23	0.10	-2.26 *
Hispanic	-0.21	0.08	-2.84 **
Other	-0.09	0.13	-0.72
Migrant	0.82	0.49	1.69
Eligible for free or reduced-price lunch	0.05	0.06	0.83
Grade point average in 2007–08	-0.09	0.06	-1.42
Academically advanced	0.38	0.14	2.70 **
Disability	0.23	0.15	1.52
Additional disability ^a	0.21	0.26	0.82
School-level characteristics			
Student population size	0.00	0.00	0.04
Student-to-teacher ratio	-0.02	0.02	-0.96
Percentage of student population eligible for free or reduced-price lunch	0.10	1.23	0.08
Title I school ^b	-0.04	0.23	-0.18
Student-population race and ethnicity			
Percent white	-9.56	7.03	-1.36
Percent black or African American	-10.02	7.40	-1.35
Percent Hispanic	-9.52	7.25	-1.31
Percent other	-9.73	8.17	-1.19
Magnet school	-0.15	0.13	-1.22
Charter school	0.86	0.86	1.00
Locale			
Urban (reference category)	†	†	†
Suburban	0.02	0.15	0.11
Town	-0.22	0.29	-0.77
Rural	-0.12	0.21	-0.57
Number of observations	4,802		

* $p < .05$, ** $p < .01$, *** $p < .001$.

† Not applicable.

^a A student identified as mentally or physically disabled by the Florida Department of Education. Primary disability was not included in the propensity score estimation because the standardized difference between treatment and control groups was greater than .25 standard deviations.

^b School receives Title I funding from the U.S. Department of Education. SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; National Student Clearinghouse, StudentTracker Data .

Table B8s. Results of logistic regression predicting the likelihood of obtaining a certification in Architecture and Construction, sample for the cohort 2 analyses of associate degree attainment

	Estimate	Robust standard error	Z
Student-level characteristics			
Male (reference category)	†	†	†
Female	-2.16	0.25	-8.72 ***
Race and ethnicity			
White (reference category)	†	†	†
Black or African American	-0.22	0.33	-0.67
Hispanic	-0.07	0.26	-0.27
Other	-0.17	0.21	-0.79
Migrant	0.95	0.45	2.12 *
Limited English Proficient	0.24	0.16	1.54
Eligible for free or reduced-price lunch	0.11	0.21	0.49
Grade point average in 2007–08	0.24	0.13	1.86
Academically advanced	0.25	0.34	0.71
Disability	-0.17	0.19	-0.90
Additional disability ^a	1.03	0.41	2.49 **
School-level characteristics			
Student population size	0.00	0.00	-0.03
Student-to-teacher ratio	-0.15	0.08	-1.81
Percentage of student population eligible for free or reduced-price lunch	-1.63	1.71	-0.95
Title I school ^b	-0.53	0.32	-1.67
Student-population race and ethnicity			
Percent white	-5.79	21.75	-0.27
Percent black or African American	-3.61	21.54	-0.17
Percent Hispanic	-0.42	21.75	-0.02
Percent other	-10.41	27.91	-0.37
Magnet school	-0.08	0.33	-0.24
Charter school	0.35	0.57	0.61
Locale			
Urban (reference category)	†	†	†
Suburban	0.84	0.39	2.18 *
Town	1.98	0.52	3.78 ***
Rural	0.87	0.26	3.35 ***
Number of observations	3,974		

* $p < .05$, ** $p < .01$, *** $p < .001$.

† Not applicable.

^a A student identified as mentally or physically disabled by the Florida Department of Education. Primary disability was not included in the propensity score estimation because the standardized difference between treatment and control groups was greater than .25 standard deviations.

^b School receives Title I funding from the U.S. Department of Education

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; National Student Clearinghouse, StudentTracker Data.

Table B8t. Results of logistic regression predicting the likelihood of obtaining a certification in Arts, AV Technology, and Communications, sample for the cohort 2 analyses of associate degree attainment

	Estimate	Robust standard error	Z
Student-level characteristics			
Male (reference category)	†	†	†
Female	-0.85	0.10	-8.16 ***
Race and ethnicity			
White (reference category)	†	†	†
Black or African American	-0.25	0.13	-1.99 *
Hispanic	0.09	0.09	0.93
Other	0.04	0.16	0.27
Migrant	-0.17	0.33	-0.53
Limited English proficiency	-0.12	0.06	-1.93
Eligible for free or reduced-price lunch	-0.06	0.08	-0.79
Grade point average in 2007–08	-0.14	0.11	-1.20
Academically advanced	0.25	0.13	1.96
Disability	-0.06	0.14	-0.40
Additional disability ^a	-0.13	0.36	-0.37
School-level characteristics			
Student population size	0.00	0.00	-0.42
Student-to-teacher ratio	0.04	0.05	0.95
Percentage of student population eligible for free or reduced-price lunch	-0.82	1.13	-0.73
Title I school ^b	0.10	0.19	0.53
Student-population race and ethnicity			
Percent white	-6.18	8.63	-0.72
Percent black or African American	-5.67	8.59	-0.66
Percent Hispanic	-5.78	8.87	-0.65
Percent other	-9.92	10.57	-0.94
Magnet school	-0.15	0.16	-0.89
Charter school	-0.94	0.51	-1.83
Locale			
Urban (reference category)	†	†	†
Suburban	-0.22	0.16	-1.33
Town	-0.86	0.44	-1.95
Rural	-0.17	0.29	-0.58
Number of observations	4,748		

* $p < .05$, ** $p < .01$, *** $p < .001$.

† Not applicable.

^a A student identified as mentally or physically disabled by the Florida Department of Education. Primary disability was not included in the propensity score estimation because the standardized difference between treatment and control groups was greater than .25 standard deviations.

^b School receives Title I funding from the U.S. Department of Education.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; National Student Clearinghouse, StudentTracker Data.

Table B8u. Results of logistic regression predicting the likelihood of obtaining a certification in Health Science, sample for the cohort 2 analyses of associate degree attainment

	Estimate	Robust standard error	Z
Student-level characteristics			
Male (reference category)	†	†	†
Female	1.61	0.16	9.79 ***
Race and ethnicity			
White (reference category)	†	†	†
Black or African American	0.58	0.19	3.08 **
Hispanic	0.22	0.17	1.28
Other	0.37	0.22	1.66
Migrant	-1.08	0.70	-1.54
Limited English Proficient	0.09	0.20	0.44
Eligible for free or reduced-price lunch	0.06	0.07	0.86
Grade point average in 2007–08	0.55	0.08	7.12 ***
Academically advanced	-0.19	0.15	-1.26
Disability	0.14	0.17	0.82
Additional disability ^a	-0.05	0.38	-0.14
School-level characteristics			
Student population size	0.00	0.00	-0.70
Student-to-teacher ratio	0.05	0.06	0.99
Percentage of student population eligible for free or reduced-price lunch	-1.40	1.79	-0.78
Title I school ^b	-0.19	0.21	-0.90
Student-population race and ethnicity			
Percent white	18.25	20.52	0.89
Percent black or African American	19.70	20.92	0.94
Percent Hispanic	19.18	20.63	0.93
Percent other	29.87	19.62	1.52
Magnet school	0.01	0.18	0.08
Charter school	-0.35	0.75	-0.47
Locale			
Urban (reference category)	†	†	†
Suburban	-0.02	0.26	-0.08
Town	0.61	0.52	1.17
Rural	0.02	0.42	0.04
Number of observations	4,734		

* $p < .05$, ** $p < .01$, *** $p < .001$.

† Not applicable.

^a A student identified as mentally or physically disabled by the Florida Department of Education. Primary disability was not included in the propensity score estimation because the standardized difference between treatment and control groups was greater than .25 standard deviations.

^b School receives Title I funding from the U.S. Department of Education. SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; National Student Clearinghouse, StudentTracker Data.

Table B8v. Results of logistic regression predicting the likelihood of obtaining a certification in Hospitality and Tourism, sample for the cohort 2 analyses of associate degree attainment

	Estimate	Robust standard error	Z
Student-level characteristics			
Male (reference category)	†	†	†
Female	0.13	0.10	1.33
Race and ethnicity			
White (reference category)	†	†	†
Black or African American	-0.20	0.23	-0.87
Hispanic	-0.36	0.16	-2.2 *
Other	-0.23	0.27	-0.85
Eligible for free or reduced-price lunch	-0.57	0.17	-3.29 **
Limited English Proficient	0.11	0.17	0.66
Grade point average in 2007–08	-0.19	0.16	-1.17
Academically advanced	0.05	0.20	0.24
Disability ^a	0.47	0.15	3.12 **
Additional disability ^a	-1.11	0.58	-1.9
School-level characteristics			
Student population size	0.00	0.00	2.07 *
Student-to-teacher ratio	-0.06	0.05	-1.16
Percentage of student population eligible for free or reduced-price lunch	6.74	1.39	4.85 ***
Title I school ^b	-0.73	0.44	-1.65
Student-population race and ethnicity			
Percent white	5.89	12.52	0.47
Percent black or African American	3.79	12.43	0.31
Percent Hispanic	6.00	12.30	0.49
Percent other	20.27	16.99	1.19
Magnet school	-0.07	0.25	-0.3
Charter school	0.96	1.12	0.86
Locale			
Urban (reference category)	†	†	†
Suburban	0.44	0.35	1.27
Town	-2.31	1.09	-2.12 *
Rural	0.16	0.49	0.32
Number of observations	4,470		

* $p < .05$, ** $p < .01$, *** $p < .001$.

† Not applicable.

^a A student identified as mentally or physically disabled by the Florida Department of Education. Primary disability was not included in the propensity score estimation because the standardized difference between treatment and control groups was greater than .25 standard deviations.

^b School receives Title I funding from the U.S. Department of Education.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; National Student Clearinghouse, StudentTracker Data.

Table B8w. Results of logistic regression predicting the likelihood of obtaining a certification in Human Services, sample for the cohort 2 analyses of associate degree attainment

	Estimate	Robust standard error	Z
Student-level characteristics			
Male (reference category)	†	†	†
Female	1.61	0.16	9.79 ***
Race and ethnicity			
White (reference category)	†	†	†
Black or African American	0.58	0.19	3.08 **
Hispanic	0.22	0.17	1.28
Other	0.37	0.22	1.66
Migrant	-1.08	0.70	-1.54
Limited English Proficient	0.09	0.20	0.44
Eligible for free or reduced-price lunch	0.06	0.07	0.86
Grade point average in 2007–08	0.55	0.08	7.12 ***
Academically advanced	-0.19	0.15	-1.26
Disability	0.14	0.17	0.82
Additional disability ^a	-0.05	0.38	-0.14
School-level characteristics			
Student population size	0.00	0.00	-0.70
Student-to-teacher ratio	0.05	0.06	0.99
Percentage of student population eligible for free or reduced-price lunch	-1.40	1.79	-0.78
Title I school ^b	-0.19	0.21	-0.90
Student-population race and ethnicity			
Percent white	18.25	20.52	0.89
Percent black or African American	19.70	20.92	0.94
Percent Hispanic	19.18	20.63	0.93
Percent other	29.87	19.62	1.52
Magnet school	0.01	0.18	0.08
Charter school	-0.35	0.75	-0.47
Locale			
Urban (reference category)	†	†	†
Suburban	-0.02	0.26	-0.08
Town	0.61	0.52	1.17
Rural	0.02	0.42	0.04
Number of observations	4,322		

* $p < .05$, ** $p < .01$, *** $p < .001$.

† Not applicable.

^a A student identified as mentally or physically disabled by the Florida Department of Education. Primary disability was not included in the propensity score estimation because the standardized difference between treatment and control groups was greater than .25 standard deviations.

^b School receives Title I funding from the U.S. Department of Education.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08, National Student Clearinghouse, StudentTracker Data.

Table B8x. Results of logistic regression predicting the likelihood of obtaining a certification in Information Technology, sample for the cohort 2 analyses of associate degree attainment

	Estimate	Robust standard error	Z
Student-level characteristics			
Male (reference category)	†	†	†
Female	-0.21	0.27	-0.80
Race and ethnicity			
White (reference category)	†	†	†
Black or African American	-0.03	0.27	-0.13
Hispanic	0.24	0.15	1.58
Other	-0.05	0.38	-0.13
Migrant	1.98	0.68	2.89
Limited English Proficient	-0.01	0.15	-0.10
Eligible for free or reduced-price lunch	-0.04	0.18	-0.23
Grade point average in 2007–08	-0.02	0.14	-0.16
Academically advanced	0.09	0.28	0.31
Disability	-0.14	0.37	-0.38
Additional disability ^a	0.90	0.72	1.26
School-level characteristics			
Student population size	0.00	0.00	-2.85 **
Student-to-teacher ratio	-0.05	0.09	-0.50
Percentage of student population eligible for free or reduced-price lunch	-2.94	1.59	-1.85
Title I school ^b	0.59	0.40	1.48
Student-population race and ethnicity			
Percent white	-25.28	18.62	-1.36
Percent black or African American	-24.73	19.09	-1.30
Percent Hispanic	-23.24	19.28	-1.21
Percent other	-28.05	20.24	-1.39
Magnet school	0.42	0.33	1.26
Charter school	-0.77	0.57	-1.34
Locale			
Urban (reference category)	†	†	†
Suburban	0.27	0.29	0.93
Town	-0.19	0.58	-0.33
Rural	0.80	0.33	2.41 **
Number of observations	4,039		

* $p < .05$, ** $p < .01$, *** $p < .001$.

† Not applicable.

^a A student identified as mentally or physically disabled by the Florida Department of Education. Primary disability was not included in the propensity score estimation because the standardized difference between treatment and control groups was greater than .25 standard deviations.

^b School receives Title I funding from the U.S. Department of Education.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; National Student Clearinghouse, StudentTracker Data.

B.4 METHODS FOR CONFIRMING THAT TREATMENT AND COMPARISON GROUPS ARE BALANCED

Table B9a. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained any certification and students who did not obtain a certification, sample for the cohort 2 analyses of high school outcomes

Covariates	Unweighted covariate means		Weighted covariate means		Standardized difference between weighted means
	Any certification	No certification	Any certification	No certification	
Student-level					
Female	50.7	48.7	50.8	50.8	0.03
Race and ethnicity					
White	48.0	43.9	48.1	48.3	0.40
Black	19.4	24.6	19.3	19.1	0.50
Hispanic	26.2	26.4	26.3	26.2	0.08
Other	6.4	5.1	6.3	6.3	0.12
Migrant	0.6	0.6	0.6	0.6	0.15
Eligible for free or reduced-price lunch	36.4	41.2	36.4	36.2	0.48
Grade point average in 2007–08	2.90	2.50	2.90	2.91	0.01
Gifted student	7.6	6.0	7.6	7.6	0.17
Additional disability ^a	1.3	4.0	1.3	1.3	0.03
School-level covariates (in AY 2007–08)					
Student population	2,181.4	2,124.7	2,189.0	2,189.3	0.00
Student-to-teacher ratio	18.1	18.0	18.1	18.1	0.00
Percentage of student population eligible for free or reduced-price lunch	34.8	35.0	34.8	34.8	0.42
Title I school ^b	29.5	29.6	29.7	29.5	0.50
Student-population race and ethnicity ^c					
White	49.0	48.1	49.0	49.1	0.43
Black	22.6	23.4	22.6	22.5	0.31
Hispanic	23.4	23.3	23.5	23.4	0.28
Other	2.6	2.8	2.6	2.6	0.34
Magnet school	30.9	27.7	31.1	31.1	0.08
Charter school	1.8	2.2	1.5	1.5	0.19
Locale					
Urban	20.1	25.1	20.3	20.3	0.17
Suburban	55.2	50.7	54.9	54.7	0.31
Town	4.3	5.3	4.4	4.3	0.05
Rural	20.3	18.9	20.5	20.6	0.23

^a A student identified with a disability by the Florida Department of Education. Primary disability was not included in the propensity score estimation because the standardized difference between treatment and control groups was greater than .25 standard deviations.

^b School receives Title I funding from the U.S. Department of Education.

^c The sum of races and ethnicities does not equal 100 because the Common Core of Data does not collect data on all race groups.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08.

Table B9b. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a regular certification and students who obtained a gold-standard certification, sample for the cohort 2 analyses of high school outcomes

	Unweighted covariate means		Weighted covariate means		
Covariates	Gold-standard certification	Regular certification	Gold-standard certification	Regular certification	Standardized difference between weighted means
Student-level					
Race and ethnicity					
White	50.6	46.4	50.6	50.4	0.43
Black	17.1	20.9	17.1	17.1	0.20
Hispanic	25.7	26.5	25.8	26.1	0.77
Other	6.6	6.3	6.4	6.4	0.18
Migrant	0.6	0.6	0.5	0.5	0.41
Eligible for free or reduced-price lunch	35.5	36.9	35.7	35.8	0.25
Limited English proficiency	17.5	19.6	17.8	17.7	0.05
Grade point average in 2007–08	2.9	2.9	2.9	2.8	1.48
Gifted student	7.8	7.5	7.7	7.6	0.37
Primary disability ^a	8.0	6.1	7.9	7.9	0.11
Additional disability ^a	1.6	1.1	1.6	1.6	0.09
School-level covariates (in AY 2007–08)					
Student population	2,099.8	2,231.8	2,112.8	2,114.0	0.16
Student-to-teacher ratio	18.0	18.1	18.0	18.0	0.05
Percentage of student population eligible for free or reduced-price lunch	34.2	35.1	34.3	34.6	1.71
Title I school ^b	27.5	30.7	27.7	27.6	0.29
Student-population race and ethnicity ^c					
White	50.4	48.1	50.3	49.9	1.57
Black	21.5	23.3	21.5	21.7	0.85
Hispanic	22.8	23.7	23.0	23.2	1.22
Other	2.7	2.5	2.7	2.7	0.40
Magnet school	28.9	32.1	29.3	29.1	0.42
Charter school	2.4	1.5	1.9	2.2	2.26
Locale					
Urban	20.0	20.2	20.3	20.2	0.25
Suburban	54.7	55.6	54.3	55.0	1.32
Town	3.9	4.6	3.8	3.7	0.80
Rural	21.4	19.7	21.5	21.1	0.99

^a A student identified with a disability by the Florida Department of Education.

^b School receives Title I funding from the U.S. Department of Education.

^c The sum of races and ethnicities does not equal 100 because the Common Core of Data does not collect data on all race groups.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08.

Table B9c. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a certification in Architecture and Construction and students who obtained any other type of certification, sample for the cohort 2 analyses of high school outcomes

Covariates	Unweighted covariate means		Weighted covariate means		Standardized difference between weighted means
	Architecture and construction	Any other type of certification	Architecture and construction	Any other type of certification	
Student-level					
Female	12.7	48.4	12.7	12.6	0.20
Race and ethnicity					
White	63.5	48.5	63.5	64.1	1.10
Black	9.4	16.9	9.4	8.8	2.10
Hispanic	21.0	28.1	21.0	21.1	0.30
Other	6.1	6.5	6.1	6.1	0.20
Migrant	1.8	0.5	1.8	1.6	1.80
Eligible for free or reduced-price lunch	31.8	36.4	31.8	30.9	2.00
Limited English proficiency	13.9	19.4	13.9	13.7	0.60
Grade point average in 2007–08	2.81	2.90	2.81	2.83	0.00
Gifted student	7.1	7.7	7.1	7.2	0.60
Primary disability ^a	11.8	6.8	11.8	11.5	1.10
Additional disability ^a	2.6	1.4	2.6	2.6	0.30
School-level covariates (in AY 2007–08)					
Student population	1,932.2	2,240.1	1,932.2	1,930.9	0.00
Student-to-teacher ratio	17.3	18.0	17.3	17.3	0.00
Percentage of student population eligible for free or reduced-price lunch	30.2	33.5	30.2	29.9	1.80
Title I school ^b	19.6	26.4	19.6	19.2	1.00
Student-population race and ethnicity ^c					
White	60.3	49.3	60.3	60.8	1.90
Black	18.2	21.5	18.2	17.7	2.60
Hispanic	16.3	24.2	16.3	16.2	0.00
Other	2.6	2.6	2.6	2.6	1.80
Magnet school	24.0	30.2	24.0	23.2	2.00
Charter school	1.5	1.8	1.5	1.5	0.20
Locale					
Urban	10.8	20.1	10.8	11.0	0.60
Suburban	49.5	56.1	49.5	50.9	2.70
Town	9.9	3.1	9.9	9.5	1.40
Rural	29.8	20.7	29.8	28.6	2.50

^a A student identified with a disability by the Florida Department of Education.

^b School receives Title I funding from the U.S. Department of Education.

^c The sum of races and ethnicities does not equal 100 because the Common Core of Data does not collect data on all race groups.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08.

Table B9d. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a certification in Arts, AV Technology, and Communications and students who obtained any other type certification, sample for the cohort 2 analyses of high school outcomes

Covariates	Unweighted covariate means		Weighted covariate means		Standardized difference between weighted means
	Arts, AV tech, and communication	Any other type of certification	Arts, AV tech, and communication	Any other type of certification	
Student-level					
Female	41.1	58.9	41.1	39.7	2.70
Race and ethnicity					
White	48.9	46.4	48.9	49.9	1.90
Black	18.2	20.6	18.2	16.8	3.80
Hispanic	26.1	27.0	26.1	26.6	1.10
Other	6.7	6.1	6.7	6.7	0.00
Migrant	0.4	0.7	0.4	0.4	0.20
Eligible for free or reduced-price lunch	35.1	37.8	35.1	34.7	0.70
Limited English proficiency	18.4	19.7	18.4	18.3	0.20
Grade point average in 2007–08	2.8	2.9	2.8	2.8	0.00
Gifted student	7.9	7.5	7.9	7.9	0.10
Primary disability ^a	7.3	6.2	7.3	7.6	1.20
Additional disability ^a	1.60	1.10	1.60	1.70	0.40
School-level covariates (in AY 2007–08)					
Student population	2,197.9	2,215.3	2,197.9	2,198.6	0.00
Student-to-teacher ratio	18.2	18.0	18.2	18.3	0.02
Percentage of student population eligible for free or reduced-price lunch	34.1	35.3	34.1	33.8	1.40
Title I school ^b	27.7	31.4	27.7	27.2	1.10
Student-population race and ethnicity ^c					
White	49.2	48.0	49.2	49.7	2.10
Black	22.4	22.9	22.4	21.6	4.00
Hispanic	23.1	24.2	23.1	23.4	1.30
Other	2.8	2.5	2.8	2.8	1.30
Magnet school	29.0	33.9	29.0	27.2	4.10
Charter school	0.8	2.2	0.8	0.7	1.00
Locale					
Urban	22.0	19.1	22.0	21.9	0.30
Suburban	54.9	56.5	54.9	55.4	0.90
Town	3.1	4.7	3.1	3.2	0.60
Rural	20.0	19.7	20.0	19.6	1.00

^a A student identified with a disability by the Florida Department of Education.

^b School receives Title I funding from the U.S. Department of Education.

^c The sum of races and ethnicities does not equal 100 because the Common Core of Data does not collect data on all race groups.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08.

Table B9e. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a certification in Health Science and students who obtained any other type of certification, sample for the cohort 2 analyses of high school outcomes

Covariates	Unweighted covariate means		Weighted covariate means		Standardized difference between weighted means
	Health science	Any other type of certification	Health science	Any other type of certification	
Student-level					
Female	80.0	45.2	80.0	79.9	0.30
Race and ethnicity					
White	40.0	49.1	40.0	39.5	1.10
Black	25.8	18.2	25.8	25.1	1.50
Hispanic	27.4	26.6	27.4	28.6	2.80
Other	6.8	6.1	6.8	6.8	0.10
Migrant	0.6	0.6	0.6	0.6	0.30
Eligible for free or reduced-price lunch	40.0	35.8	40.0	40.5	0.90
Limited English proficiency	21.4	18.8	21.4	22.0	1.60
Grade point average in 2007–08	3.10	2.86	3.10	3.10	0.01
Gifted student	6.3	8.1	6.3	6.3	0.20
Primary disability ^a	3.7	7.1	3.7	3.7	0.10
Additional disability ^a	0.6	1.4	0.6	0.6	0.00
School-level covariates (in AY 2007–08)					
Student population	2,245.1	2,190.2	2,245.1	2,252.2	0.01
Student-to-teacher ratio	18.3	18.0	18.3	18.3	0.01
Percentage of student population eligible for free or reduced-price lunch	36.8	34.7	36.8	36.9	0.70
Title I school ^b	36.4	28.9	36.4	36.3	0.20
Student-population race and ethnicity ^c					
White	45.4	49.1	45.4	44.8	2.30
Black	24.7	22.3	24.7	24.5	0.60
Hispanic	25.3	23.6	25.3	26.1	3.50
Other	2.4	2.6	2.4	2.3	1.50
Magnet school	36.9	31.1	36.9	37.3	0.80
Charter school	2.2	1.4	2.2	2.1	1.10
Locale					
Urban	18.0	21.3	18.0	18.4	0.80
Suburban	56.5	54.8	56.5	56.8	0.60
Town	5.0	3.9	5.0	4.4	2.80
Rural	20.5	20.0	20.5	20.5	0.10

^a A student identified with a disability by the Florida Department of Education.

^b School receives Title I funding from the U.S. Department of Education.

^c The sum of races and ethnicities does not equal 100 because the Common Core of Data does not collect data on all race groups.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08.

Table B9f. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a certification in Hospitality and Tourism and students who obtained any other type of certification, sample for the cohort 2 analyses of high school outcomes

Covariates	Unweighted covariate means		Weighted covariate means		Standardized difference between weighted means
	Hospitality and tourism	Any other type of certification	Hospitality and tourism	Any other type of certification	
Student-level					
Female	55.6	50.6	55.6	56.1	1.00
Race and ethnicity					
White	51.6	47.1	51.6	50.9	1.50
Black	18.8	20.0	18.8	19.1	0.70
Hispanic	24.1	26.5	24.1	24.4	0.80
Other	5.5	6.5	5.5	5.6	0.60
Migrant	0.1	0.5	0.1	0.1	0.10
Eligible for free or reduced-price lunch	40.4	37.2	40.4	40.7	0.60
Limited English proficiency	14.3	19.4	14.3	14.6	0.80
Grade point average in 2007–08	2.79	2.90	2.79	2.80	0.01
Gifted student	6.6	7.8	6.6	6.5	0.30
Primary disability ^a	9.4	6.5	9.4	9.4	0.20
Additional disability ^a	1.4	1.3	1.4	1.5	0.40
School-level covariates (in AY 2007–08)					
Student population	2,134.4	2,218.0	2,134.4	2,133.6	0.00
Student-to-teacher ratio	18.0	18.1	18.0	17.9	0.01
Percentage of student population eligible for free or reduced-price lunch	35.4	34.5	35.4	35.7	2.10
Title I school ^b	25.2	29.3	25.2	25.5	0.70
Student-population race and ethnicity ^c					
White	49.8	48.2	49.8	49.4	1.50
Black	22.6	23.2	22.6	22.7	0.90
Hispanic	22.6	23.6	22.6	22.9	1.10
Other	2.6	2.6	2.6	2.6	0.20
Magnet school	23.2	32.7	23.2	23.5	0.70
Charter school	3.3	1.4	3.3	3.1	0.90
Locale					
Urban	21.2	20.3	21.2	20.6	1.60
Suburban	50.1	56.5	50.1	50.7	1.30
Town	3.8	3.6	3.8	3.9	0.10
Rural	24.8	19.6	24.8	24.8	0.00

^a A student identified with a disability by the Florida Department of Education.

^b School receives Title I funding from the U.S. Department of Education.

^c The sum of races and ethnicities does not equal 100 because the Common Core of Data does not collect data on all race groups.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08.

Table B9g. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a certification in Human Services and students who obtained any other type of certification, sample for the cohort 2 analyses of high school outcomes

Covariates	Unweighted covariate means		Weighted covariate means		Standardized difference between weighted means
	Human services	Any other type of certification	Human services	Any other type of certification	
Student-level					
Female	65.1	51.2	65.1	65.0	0.30
Race and ethnicity					
White	41.9	47.8	41.9	41.8	0.30
Black	23.5	19.0	23.5	23.7	0.40
Hispanic	29.6	26.6	29.6	29.7	0.10
Other	5.0	6.5	5.0	4.9	0.50
Migrant	0.3	0.3	0.3	0.3	0.50
Eligible for free or reduced-price lunch	38.8	36.4	38.8	38.9	0.20
Limited English proficiency	23.5	18.8	23.5	23.5	0.10
Grade point average in 2007–08	2.90	2.89	2.90	2.91	0.01
Gifted student	8.9	7.9	8.9	9.1	0.90
Primary disability ^a	4.7	6.5	4.7	4.6	0.40
Additional disability ^a	0.6	1.1	0.6	0.6	0.30
School-level covariates (in AY 2007–08)					
Student population	2,378.1	2,253.7	2,378.1	2,386.9	0.01
Student-to-teacher ratio	18.0	18.1	18.0	18.0	0.03
Percentage of student population eligible for free or reduced-price lunch	37.2	33.9	37.2	37.0	0.90
Title I school ^b	37.8	26.6	37.8	37.9	0.30
Student-population race and ethnicity ^c					
White	42.6	49.1	42.6	42.6	0.20
Black	25.7	22.1	25.7	25.8	0.50
Hispanic	27.4	23.7	27.4	27.3	0.20
Other	2.5	2.7	2.5	2.4	0.90
Magnet school	40.9	31.8	40.9	40.9	0.10
Charter school	2.4	1.1	2.4	2.2	1.20
Locale					
Urban	22.3	20.4	22.3	22.0	0.80
Suburban	64.4	58.8	64.4	64.5	0.10
Town	1.9	2.2	1.9	1.9	0.10
Rural	11.4	18.6	11.4	11.6	0.90

^a A student identified with a disability by the Florida Department of Education.

^b School receives Title I funding from the U.S. Department of Education.

^c The sum of races and ethnicities does not equal 100 because the Common Core of Data does not collect data on all race groups.SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08.

Table B9h. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a certification in Information Technology and students who obtained any other type of certification, sample for the cohort 2 analyses of high school outcomes

Covariates	Unweighted covariate means		Weighted covariate means		Standardized difference between weighted means
	Information technology	Any other type of certification	Information technology	Any other type of certification	
Student-level					
Female	42.9	51.2	42.9	42.5	0.80
Race and ethnicity					
White	53.3	46.6	53.3	53.2	0.10
Black	15.1	20.0	15.1	15.3	0.40
Hispanic	24.3	27.0	24.3	24.1	0.40
Other	7.3	6.4	7.3	7.4	0.30
Migrant	1.5	0.5	1.5	1.4	1.20
Eligible for free or reduced-price lunch	31.9	37.0	31.9	31.9	0.00
Limited English proficiency	17.3	19.4	17.3	17.2	0.20
Grade point average in 2007–08	3.02	2.89	3.02	3.01	0.02
Gifted student	7.9	7.7	7.9	7.9	0.10
Primary disability ^a	5.8	6.6	5.8	5.7	0.30
Additional disability ^a	1.6	1.3	1.6	1.5	0.70
School-level covariates (in AY 2007–08)					
Student population	1,964.4	2,241.1	1,964.4	1,956.2	0.01
Student-to-teacher ratio	17.6	18.0	17.6	17.6	0.02
Percentage of student population eligible for free or reduced-price lunch	34.1	34.8	34.1	34.3	0.60
Title I school ^b	31.1	29.8	31.1	30.6	1.00
Student-population race and ethnicity ^c					
White	53.0	47.6	53.0	52.8	0.50
Black	19.1	23.2	19.1	19.3	1.20
Hispanic	22.2	24.1	22.2	22.1	0.60
Other	2.8	2.6	2.8	2.8	1.00
Magnet school	34.5	32.5	34.5	34.7	0.40
Charter school	1.1	1.6	1.1	1.1	0.50
Locale					
Urban	17.6	20.7	17.6	17.9	0.90
Suburban	47.5	56.5	47.5	46.8	1.40
Town	5.4	3.1	5.4	5.6	0.80
Rural	29.5	19.6	29.5	29.7	0.40

^a A student identified with a disability by the Florida Department of Education.

^b School receives Title I funding from the U.S. Department of Education.

^c The sum of races and ethnicities does not equal 100 because the Common Core of Data does not collect data on all race groups.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08.

Table B9i. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a gold-standard or regular certification and students who did not obtain a certification, sample for the cohort 2 analyses of postsecondary outcomes

Covariates	Unweighted covariate means		Weighted covariate means		Standardized difference between weighted means
	Any certification	No certification	Any certification	No certification	
Student-level					
Female	51.2	51.5	51.2	51.2	0.00
Race and ethnicity					
White	48.1	46.4	48.1	48.2	0.10
Black	19.3	21.4	19.3	19.3	0.20
Hispanic	26.2	26.5	26.2	26.2	0.00
Other	6.4	5.7	6.4	6.4	0.10
Migrant	0.6	0.6	0.6	0.6	0.10
Eligible for free or reduced-price lunch	36.1	37.2	36.1	36.1	0.10
Grade point average in 2007–08	2.90	2.70	2.90	2.90	0.00
Gifted student	7.6	7.5	7.6	7.6	0.10
Additional disability ^a	1.20	2.70	1.20	1.20	0.10
School-level covariates (in AY 2007–08)					
Student population	2,190.1	2,179.5	2,190.1	2,190.1	0.00
Student-to-teacher ratio	18.1	18.2	18.1	18.1	0.00
Percentage of student population eligible for free or reduced-price lunch	34.7	33.7	34.7	34.7	0.00
Title I school ^b	29.50	26.80	29.50	29.40	0.20
Student-population race and ethnicity ^c					
White	49.10	49.70	49.10	49.10	0.10
Black	22.4	21.6	22.4	22.4	0.00
Hispanic	23.5	23.4	23.5	23.5	0.10
Other	2.6	2.9	2.6	2.6	0.20
Magnet school	30.8	27.8	30.8	30.9	0.10
Charter school	1.5	1.6	1.5	1.5	0.20
Locale					
Urban	20.2	24.4	20.2	20.3	0.10
Suburban	54.8	50.7	54.8	54.8	0.10
Town	4.3	5.2	4.3	4.3	0.00
Rural	20.6	19.8	20.6	20.6	0.10

^a A student identified with a disability by the Florida Department of Education. Primary disability was not included in the propensity score estimation because the standardized difference between treatment and control groups was greater than .25 standard deviations.

^b School receives Title I funding from the U.S. Department of Education.

^c The sum of races and ethnicities does not equal 100 because the Common Core of Data does not collect data on all race groups.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; National Student Clearinghouse, StudentTracker Data.

Table B9j. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a regular certification and students who obtained a gold-standard certification, sample for the cohort 2 analyses of postsecondary outcomes

	Unweighted covariate means		Weighted covariate means		
Covariates	Gold-standard certification	Regular certification	Gold-standard certification	Regular certification	Standardized difference between weighted means
Student-level					
Race and ethnicity					
White	50.9	46.4	50.8	51.0	0.40
Black	17.1	20.7	17.1	16.8	0.70
Hispanic	25.6	26.6	25.6	25.8	0.30
Other	6.4	6.3	6.5	6.4	0.30
Migrant	0.6	0.6	0.6	0.6	0.10
Eligible for free or reduced-price lunch	35.4	36.6	35.4	35.4	0.20
Grade point average in 2007–08	2.90	2.90	2.90	2.90	0.01
Gifted student	7.6	7.5	7.6	7.6	0.20
Primary disability ^a	7.70	5.80	7.70	7.70	0.00
Additional disability ^a	1.5	1.0	1.6	1.5	0.10
School-level covariates (in AY 2007–08)					
Student population	2,105.3	2,241.8	2,109.3	2,109.3	0.00
Student-to-teacher ratio	18.0	18.1	18.0	18.0	0.00
Percentage of student population eligible for free or reduced-price lunch	34.20	35.00	34.20	34.40	1.40
Title I school ^b	27.20	30.90	27.10	27.10	0.10
Student-population race and ethnicity ^c					
White	50.6	48.2	50.5	50.4	0.60
Black	21.2	23.2	21.2	21.3	0.40
Hispanic	23.0	23.8	23.0	23.1	0.50
Other	2.7	2.5	2.7	2.7	1.50
Magnet school	28.7	32.1	28.8	28.5	0.60
Charter school	1.9	1.3	2.0	2.2	1.50
Locale					
Urban	20.2	20.3	20.2	19.9	0.80
Suburban	54.1	55.3	54.3	54.6	0.60
Town	3.8	4.6	3.7	3.7	0.40
Rural	21.9	19.8	21.8	21.8	0.20

^a A student identified with a disability by the Florida Department of Education.

^b School receives Title I funding from the U.S. Department of Education.

^c The sum of races and ethnicities does not equal 100 because the Common Core of Data does not collect data on all race groups.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; National Student Clearinghouse, StudentTracker Data.

Table B9k. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a certification in Architecture and Construction and students who obtained any other type of certification, sample for the cohort 2 analyses of postsecondary outcomes

Covariates	Unweighted covariate means		Weighted covariate means		Standardized difference between weighted means
	Architecture and construction	Any other type of certification	Architecture and construction	Any other type of certification	
Student-level					
Female	12.8	49.5	12.9	12.9	0.40
Race and ethnicity					
White	63.5	47.8	64.4	64.4	2.00
Black	9.4	17.1	8.7	8.7	2.50
Hispanic	20.9	28.6	20.6	20.6	0.70
Other	6.2	6.5	6.3	6.3	0.30
Migrant	1.9	0.5	1.5	1.5	3.20
Eligible for free or reduced-price lunch	31.7	36.3	30.5	30.5	2.50
Limited English proficiency	14.2	19.9	13.4	13.4	2.40
Grade point average in 2007–08	2.84	2.92	2.84	2.84	0.01
Gifted student	6.7	7.7	7.3	7.3	2.20
Primary disability ^a	11.2	6.5	11.3	11.3	0.50
Additional disability ^a	2.2	1.3	2.0	2.0	1.30
School-level covariates (in AY 2007–08)					
Student population	1,927.5	2,278.5	1,921.7	1,921.7	0.01
Student-to-teacher ratio	17.4	18.1	17.2	17.2	0.05
Percentage of student population eligible for free or reduced-price lunch	29.6	33.3	29.8	29.8	1.00
Title I school ^b	17.3	26.3	17.9	17.9	1.70
Student-population race and ethnicity ^c					
White	61.0	48.7	60.7	60.7	1.00
Black	17.5	21.5	17.9	17.9	2.60
Hispanic	16.3	25.0	16.2	16.2	0.70
Other	2.6	2.6	2.5	2.5	1.60
Magnet school	22.5	29.0	22.0	22.0	1.40
Charter school	1.6	1.8	1.6	1.6	0.10
Locale					
Urban	10.7	19.6	11.4	11.4	2.30
Suburban	49.3	56.8	50.6	50.6	2.50
Town	9.7	3.1	9.4	9.4	1.30
Rural	30.3	20.6	28.6	28.6	3.60

^a A student identified with a disability by the Florida Department of Education.

^b School receives Title I funding from the U.S. Department of Education.

^c The sum of races and ethnicities does not equal 100 because the Common Core of Data does not collect data on all race groups.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; National Student Clearinghouse, StudentTracker Data.

Table B9I. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a certification in Arts, AV Technology, and Communications and students who obtained any other type certification, sample for the cohort 2 analyses of postsecondary outcomes

Covariates	Unweighted covariate means		Weighted covariate means		Standardized difference between weighted means
	Arts, AV tech, and communication	Any other type of certification	Arts, AV tech, and communication	Any other type of certification	
Student-level					
Female	41.3	59.5	41.3	40.1	2.4
Race and ethnicity					
White	49.2	46.2	49.2	49.8	1.3
Black	18.1	20.8	18.1	16.9	3.1
Hispanic	26.0	27.0	26.0	26.5	1.2
Other	6.8	6.1	6.8	6.8	0.1
Migrant	0.4	0.7	0.4	0.4	0.1
Eligible for free or reduced-price lunch	34.6	37.6	34.6	34.3	0.6
Limited English proficiency	18.4	19.7	18.4	18.2	0.5
Grade point average in 2007–08	2.87	2.96	2.87	2.86	0.0
Gifted student	7.8	7.4	7.8	7.9	0.3
Primary disability ^a	7.1	6.0	7.1	7.4	1.3
Additional disability ^a	1.5	1.0	1.5	1.6	0.4
School-level covariates (in AY 2007–08)					
Student population	2,197.9	2,215.3	2,197.9	2,198.6	0.0
Student-to-teacher ratio	18.2	18.0	18.2	18.3	0.0
Percentage of student population eligible for free or reduced-price lunch	34.0	35.1	34.0	33.6	2.0
Title I school ^b	27.6	31.1	27.6	26.9	1.5
Student-population race and ethnicity ^c					
White	49.3	48.1	49.3	49.8	1.7
Black	22.3	22.8	22.3	21.5	4.1
Hispanic	23.1	24.3	23.1	23.5	1.7
Other	2.8	2.5	2.8	2.8	0.4
Magnet school	28.7	33.7	28.7	26.9	4.1
Charter school	0.8	2.0	0.8	0.7	0.7
Locale					
Urban	22.0	19.2	22.0	21.7	0.9
Suburban	54.9	56.7	54.9	55.5	1.3
Town	3.0	4.5	3.0	3.0	0.4
Rural	20.1	19.7	20.1	19.9	0.5

^a A student identified with a disability by the Florida Department of Education.

^b School receives Title I funding from the U.S. Department of Education.

^c The sum of races and ethnicities does not equal 100 because the Common Core of Data does not collect data on all race groups.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; National Student Clearinghouse, StudentTracker Data.

Table B9m. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a certification in Health Science and students who obtained any other type of certification, sample for the cohort 2 analyses of postsecondary outcomes: 2013–14

Covariates	Unweighted covariate means		Weighted covariate means		Standardized difference between weighted means
	Health science	Any other type of certification	Health science	Any other type of certification	
Student-level					
Female	79.9	45.6	79.9	79.7	0.3
Race and ethnicity					
White	39.9	49.2	39.9	39.7	0.4
Black	25.9	18.2	25.9	25.3	1.3
Hispanic	27.4	26.5	27.4	28.2	2.0
Other	6.8	6.2	6.8	6.7	0.5
Migrant	0.5	0.6	0.5	0.6	0.7
Eligible for free or reduced-price lunch	40.0	35.4	40.0	40.2	0.3
Limited English proficiency	21.5	18.7	21.5	21.9	0.9
Grade point average in 2007–08	3.10	2.89	3.10	3.11	0.0
Gifted student	6.3	8.0	6.3	6.3	0.0
Primary disability ^a	3.7	6.9	3.7	3.7	0.1
Additional disability ^a	0.5	1.3	0.5	0.6	1.0
School-level covariates (in AY 2007–08)					
Student population	2,257.0	2,189.6	2,257.0	2,259.6	0.0
Student-to-teacher ratio	18.3	18.1	18.3	18.3	0.0
Percentage of student population eligible for free or reduced-price lunch	36.5	34.5	36.5	36.6	0.6
Title I school ^b	36.0	28.6	36.0	36.0	0.1
Student-population race and ethnicity ^c					
White	45.4	49.2	45.4	44.8	2.1
Black	24.6	22.1	24.6	24.6	0.3
Hispanic	25.3	23.6	25.3	26.0	3.0
Other	2.4	2.6	2.4	2.3	2.1
Magnet school	37.2	30.6	37.2	37.1	0.2
Charter school	2.2	1.5	2.2	2.0	1.0
Locale					
Urban	18.3	21.3	18.3	18.8	1.2
Suburban	56.9	54.8	56.9	56.8	0.1
Town	4.2	3.9	4.2	4.2	0.3
Rural	20.6	20.1	20.6	20.2	0.9

^a A student identified with a disability by the Florida Department of Education.

^b School receives Title I funding from the U.S. Department of Education.

^c The sum of races and ethnicities does not equal 100 because the Common Core of Data does not collect data on all race groups.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; National Student Clearinghouse, StudentTracker Data.

Table B9n. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a certification in Hospitality and Tourism and students who obtained any other type of certification, sample for the cohort 2 analyses of postsecondary outcomes

Covariates	Unweighted covariate means		Weighted covariate means		Standardized difference between weighted means
	Hospitality and tourism	Any other type of certification	Hospitality and tourism	Any other type of certification	
Student-level					
Female	55.7	51.0	55.7	56.0	0.6
Race and ethnicity					
White	50.7	47.5	50.7	51.4	1.4
Black	19.1	19.9	19.1	18.9	0.5
Hispanic	24.5	26.1	24.5	24.2	0.7
Other	5.7	6.5	5.7	5.5	0.9
Eligible for free or reduced-price lunch	39.9	36.5	39.9	40.5	1.2
Limited English proficiency	14.5	19.1	14.5	15.0	1.4
Grade point average in 2007–08	2.82	2.92	2.82	2.83	0.0
Gifted student	6.7	7.7	6.7	6.5	1.1
Primary disability ^a	9.0	6.3	9.0	9.1	0.2
Additional disability ^a	1.2	1.2	1.2	1.3	0.8
School-level covariates (in AY 2007–08)					
Student population	2,161.6	2,227.4	2,161.6	2,146.4	0.0
Student-to-teacher ratio	18.0	18.1	18.0	18.0	0.0
Percentage of student population eligible for free or reduced-price lunch	35.3	34.1	35.3	35.6	2.0
Title I school ^b	24.9	28.5	24.9	24.7	0.5
Student-population race and ethnicity ^c					
White	49.1	48.6	49.1	49.3	0.6
Black	22.8	22.8	22.8	22.7	0.2
Hispanic	23.0	23.6	23.0	22.9	0.5
Other	2.6	2.6	2.6	2.6	1.3
Magnet school	23.6	32.5	23.6	23.4	0.6
Charter school	3.5	1.5	3.5	3.2	1.6
Locale					
Urban	20.9	20.4	20.9	20.8	0.2
Suburban	51.6	56.8	51.6	51.9	0.6
Town	3.2	3.1	3.2	3.4	1.1
Rural	24.3	19.6	24.3	23.9	1.0

^a A student identified with a disability by the Florida Department of Education.

^b School receives Title I funding from the U.S. Department of Education.

^c The sum of races and ethnicities does not equal 100 because the Common Core of Data does not collect data on all race groups.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; National Student Clearinghouse, StudentTracker Data.

Table B9o. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a certification in Human Services and students who obtained any other type of certification, sample for the cohort 2 analyses of postsecondary outcomes

Covariates	Unweighted covariate means		Weighted covariate means		Standardized difference between weighted means
	Human services	Any other type of certification	Human services	Any other type of certification	
Student-level					
Female	65.2	51.3	65.2	65.4	0.5
Race and ethnicity					
White	42.2	47.9	42.2	42.3	0.1
Black	23.6	19.1	23.6	23.9	0.8
Hispanic	29.2	26.5	29.2	29.1	0.1
Other	5.0	6.6	5.0	4.7	1.5
Migrant	0.3	0.3	0.3	0.3	0.0
Eligible for free or reduced-price lunch	38.3	36.0	38.3	39.0	1.4
Limited English proficiency	22.9	18.8	22.9	23.1	0.3
Grade point average in 2007–08	2.91	2.92	2.91	2.92	0.0
Gifted student	8.9	7.7	8.9	9.1	0.0
Primary disability ^a	4.8	6.4	4.8	4.5	1.4
Additional disability ^a	0.6	1.1	0.6	0.6	0.3
School-level covariates (in AY 2007–08)					
Student population	2,197.9	2,215.3	2,197.9	2,198.6	0.0
Student-to-teacher ratio	18.0	18.1	18.0	18.0	0.0
Percentage of student population eligible for free or reduced-price lunch	37.0	33.8	37.0	36.9	0.9
Title I school ^b	37.7	26.3	37.7	37.9	0.5
Student-population race and ethnicity ^c					
White	42.9	49.2	42.9	42.8	0.1
Black	25.6	21.9	25.6	25.8	1.2
Hispanic	27.2	23.8	27.2	27.0	0.9
Other	2.5	2.7	2.5	2.4	0.8
Magnet school	40.6	31.0	40.6	41.1	1.0
Charter school	2.4	1.4	2.4	2.5	0.6
Locale					
Urban	22.4	20.0	22.4	22.2	0.3
Suburban	64.2	57.9	64.2	63.8	1.0
Town	1.9	2.6	1.9	1.9	0.4
Rural	11.4	19.5	11.4	12.1	2.1

^a A student identified with a disability by the Florida Department of Education.

^b School receives Title I funding from the U.S. Department of Education.

^c The sum of races and ethnicities does not equal 100 because the Common Core of Data does not collect data on all race groups.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; National Student Clearinghouse, StudentTracker Data.

Table B9p. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a certification in Information Technology and students who obtained any other type of certification, sample for the cohort 2 analyses of postsecondary outcomes

Covariates	Unweighted covariate means		Weighted covariate means		Standardized difference between weighted means
	Information technology	Any other type of certification	Information technology	Any other type of certification	
Student-level					
Female	43.4	50.9	43.4	43.2	0.5
Race and ethnicity					
White	53.7	47.9	53.7	53.1	1.3
Black	15.1	19.0	15.1	15.2	0.1
Hispanic	24.1	26.7	24.1	24.3	0.4
Other	7.0	6.5	7.0	7.4	1.6
Migrant	1.6	0.5	1.6	1.6	0.2
Eligible for free or reduced-price lunch	31.6	36.1	31.6	31.8	0.4
Limited English proficiency	17.2	19.3	17.2	17.3	0.2
Grade point average in 2007–08	3.04	2.93	3.04	3.03	0.0
Gifted student	7.1	7.8	7.1	7.5	1.6
Primary disability ^a	6.0	6.2	6.0	5.6	1.8
Additional disability ^a	1.7	1.2	1.7	1.4	2.5
School-level covariates (in AY 2007–08)					
Student population	1,947.2	2,207.2	1,947.2	1,951.9	0.0
Student-to-teacher ratio	17.6	18.1	17.6	17.6	0.0
Percentage of student population eligible for free or reduced-price lunch	33.6	34.6	33.6	34.2	3.0
Title I school ^b	29.7	28.4	29.7	30.1	0.8
Student-population race and ethnicity ^c					
White	53.5	48.8	53.5	53.0	2.1
Black	18.4	22.3	18.4	19.1	3.8
Hispanic	22.4	24.0	22.4	22.2	0.6
Other	2.8	2.6	2.8	2.8	1.3
Magnet school	32.7	31.9	32.7	34.1	2.9
Charter school	1.2	1.6	1.2	1.1	0.9
Locale					
Urban	18.0	20.6	18.0	17.7	0.8
Suburban	46.4	56.4	46.4	46.4	0.0
Town	5.2	3.1	5.2	5.5	1.2
Rural	30.3	19.9	30.3	30.4	0.1

^a A student identified with a disability by the Florida Department of Education.

^b School receives Title I funding from the U.S. Department of Education.

^c The sum of races and ethnicities does not equal 100 because the Common Core of Data does not collect data on all race groups.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; National Student Clearinghouse, StudentTracker Data.

Table B9q. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained any certification and students who did not obtain a certification, sample for the cohort 2 analyses of associate degree attainment

Covariates	Unweighted covariate means		Weighted covariate means		Standardized difference between weighted means
	Any certification	No certification	Any certification	No certification	
Student-level					
Female	52.2	53.6	52.0	51.5	1.01
Race and ethnicity					
White	41.3	40.2	41.1	41.5	0.90
Black	20.2	22.1	20.3	20.1	0.54
Hispanic	32.6	32.4	32.8	32.8	0.00
Other	6.0	5.4	5.9	5.6	0.98
Migrant	0.4	0.5	0.4	0.5	0.66
Eligible for free or reduced-price lunch	0.4	0.4	0.4	0.4	0.01
Grade point average in 2007–08	2.79	2.63	2.77	2.76	0.02
Gifted student	4.9	4.1	4.7	3.9	3.78
Additional disability ^a	1.3	1.8	1.4	0.8	5.39
School-level covariates (in AY 2007–08)					
Student population	2269.2	2283.5	2277.5	2305.7	0.03
Student-to-teacher ratio	18.2	18.4	18.2	18.3	0.06
Percentage of student population eligible for free or reduced-price lunch	36.6	34.3	36.3	35.7	4.13
Title I school ^b	32.1	25.9	31.7	29.3	5.16
Student-population race and ethnicity ^c					
White	44.4	46.4	44.5	45.0	1.89
Black	23.5	21.1	23.3	22.3	4.71
Hispanic	27.3	27.3	27.4	27.9	1.85
Other	2.5	2.8	2.6	2.5	1.27
Magnet school	33.5	29.0	33.1	31.9	2.55
Charter school	1.6	1.9	1.6	1.7	0.75
Locale					
Urban	18.9	22.2	18.5	17.9	1.62
Suburban	59.1	55.3	59.3	59.8	0.99
Town	3.6	4.3	3.6	3.4	0.98
Rural	18.5	18.3	18.6	18.9	0.81

^a A student identified with a disability by the Florida Department of Education. Primary disability was not included in the propensity score estimation because the standardized difference between treatment and control groups was greater than .25 standard deviations.

^b School receives Title I funding from the U.S. Department of Education.

^c The sum of races and ethnicities does not equal 100 because the Common Core of Data does not collect data on all race groups.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; National Student Clearinghouse, StudentTracker Data..

Table B9r. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a gold-standard certification and students who obtained a regular certification, sample for the cohort 2 analyses of associate degree attainment

	Unweighted covariate means		Weighted covariate means		
Covariates	Gold-standard certification	Regular certification	Gold-standard certification	Regular certification	Standardized difference between weighted means
Student-level					
Race and ethnicity					
White	44.8	39.3	44.5	44.5	0.02
Black	18.2	21.4	18.6	18.7	0.27
Hispanic	30.7	33.6	30.9	30.9	0.05
Other	6.2	5.8	6.0	5.9	0.31
Migrant	0.6	0.4	0.6	0.5	0.38
Eligible for free or reduced-price lunch	37.9	40.0	37.7	37.7	0.15
Grade point average in 2007–08	2.77	2.79	2.76	2.76	0.00
Gifted student	5.7	4.4	5.4	5.8	1.84
Disability	8.4	6.5	8.4	8.5	0.31
Additional disability ^a	1.7	1.1	1.8	2.1	2.03
School-level covariates (in AY 2007–08)					
Student population	2219.8	2297.3	2235.9	2230.3	0.01
Student-to-teacher ratio	18.1	18.2	18.2	18.2	0.00
Percentage of student population eligible for free or reduced-price lunch	35.6	37.1	35.4	35.6	1.14
Title I school ^b	29.1	33.8	28.6	28.6	0.01
Student-population race and ethnicity ^c					
White	46.4	43.3	46.2	46.2	0.08
Black	22.1	24.2	22.1	22.4	1.16
Hispanic	26.4	27.9	26.6	26.4	0.65
Other	2.6	2.5	2.7	2.7	1.28
Magnet school	29.7	35.7	29.5	29.5	0.00
Charter school	2.2	1.2	2.2	2.4	1.27
Locale					
Urban	18.3	19.1	18.1	17.9	0.5
Suburban	58.5	59.5	59.0	59.1	0.1
Town	3.5	3.6	3.6	3.4	1.25
Rural	19.7	17.8	19.2	19.6	0.94

^a A student identified with a disability by the Florida Department of Education. Primary disability was not included in the propensity score estimation because the standardized difference between treatment and control groups was greater than .25 standard deviations.

^b School receives Title I funding from the U.S. Department of Education.

^c The sum of races and ethnicities does not equal 100 because the Common Core of Data does not collect data on all race groups. SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; National Student Clearinghouse, StudentTracker Data.

Table B9s. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a certification in Architecture and Construction and students who obtained any other type of certification, sample for the cohort 2 analyses of associate degree attainment

Covariates	Unweighted covariate means		Weighted covariate means		Standardized difference between weighted means
	Architecture and construction	Any other type of certification	Architecture and construction	Any other type of certification	
Student-level					
Female	11.5	54.7	11.9	11.9	0.2
Race and ethnicity					
White	55.8	40.3	54.2	54.2	0.2
Black	13.9	20.6	14.4	13.2	3.6
Hispanic	24.4	33.1	25.3	26.7	3.2
Other	5.9	6.0	6.1	5.9	1.0
Migrant	2.4	0.3	2.5	3.3	4.5
Eligible for free or reduced-price lunch	35.2	39.5	36.1	35.5	1.3
Grade point average in 2007–08	2.83	2.78	2.83	2.86	0.1
Gifted student	5.6	4.8	5.8	6.6	3.3
Disability	11.5	6.9	11.2	10.7	1.5
Additional disability ^a	4.2	1.2	3.6	3.9	1.3
School-level covariates (in AY 2007–08)					
Student population	1990.7	2286.8	2023.1	1991.9	0.0
Student-to-teacher ratio	17.4	18.2	17.4	17.3	0.0
Percentage of student population eligible for free or reduced-price lunch	32.5	36.8	32.5	33.1	3.4
Title I school ^b	20.9	32.8	20.6	22.0	3.4
Student-population race and ethnicity ^c					
White	55.4	43.7	54.4	53.8	2.3
Black	19.5	23.7	19.8	20.3	2.8
Hispanic	20.1	27.8	20.8	20.9	0.7
Other	2.4	2.6	2.4	2.4	2.2
Magnet school	23.7	34.2	23.5	23.6	0.3
Charter school	2.1	1.6	2.2	2.0	1.2
Locale					
Urban	12.2	19.3	12.6	12.8	0.5
Suburban	50.2	59.7	52.0	52.5	0.9
Town	10.1	3.2	10.5	11.1	2.0
Rural	27.5	17.9	24.9	23.6	3.0

^a A student identified with a disability by the Florida Department of Education. Primary disability was not included in the propensity score estimation because the standardized difference between treatment and control groups was greater than .25 standard deviations.

^b School receives Title I funding from the U.S. Department of Education.

^c The sum of races and ethnicities does not equal 100 because the Common Core of Data does not collect data on all race groups.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; National Student Clearinghouse, StudentTracker Data.

Table B9t. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a certification in Arts, AV Technology, and Communication and students who obtained any other type of certification, sample for the cohort 2 analyses of associate degree attainment

Covariates	Unweighted covariate means		Weighted covariate means		Standardized difference between weighted means
	Arts, AV tech, and communication	Any other type of certification	Arts, AV tech, and communication	Any other type of certification	
Student-level					
Female	40.5	62.2	40.5	40.5	0.1
Race and ethnicity					
White	43.2	39.7	43.2	43.4	0.5
Black	17.8	22.3	17.8	17.3	1.4
Hispanic	32.2	32.9	32.2	32.4	0.6
Other	6.8	5.2	6.8	6.9	0.2
Migrant	0.3	0.6	0.3	0.3	0.6
Eligible for free or reduced-price lunch	36.3	41.8	36.3	36.6	0.5
Grade point average in 2007–08	2.75	2.82	2.75	2.75	0.0
Gifted student	5.4	4.4	5.4	5.4	0.0
Disability	7.6	6.8	7.6	7.4	0.9
Additional disability ^a	1.5	1.2	1.5	1.5	0.0
School-level covariates (in AY 2007–08)					
Student population	2287.7	2253.3	2287.7	2288.2	0.0
Student-to-teacher ratio	18.2	18.1	18.2	18.3	0.0
Percentage of student population eligible for free or reduced-price lunch	34.9	38.0	34.9	34.9	0.5
Title I school ^b	28.9	34.7	28.9	28.3	1.3
Student-population race and ethnicity ^c					
White	46.1	43.0	46.1	46.3	0.7
Black	22.7	24.1	22.7	22.4	1.5
Hispanic	26.0	28.5	26.0	26.1	0.7
Other	2.8	2.4	2.8	2.7	1.9
Magnet school	29.2	37.3	29.2	29.3	0.3
Charter school	0.7	2.4	0.7	0.7	0.2
Locale					
Urban	19.4	18.4	19.4	19.3	0.2
Suburban	58.8	59.4	58.8	58.3	0.9
Town	3.0	4.1	3.0	3.2	1.5
Rural	18.8	18.1	18.8	19.1	0.7

^a A student identified with a disability by the Florida Department of Education. Primary disability was not included in the propensity score estimation because the standardized difference between treatment and control groups was greater than .25 standard deviations.

^b School receives Title I funding from the U.S. Department of Education.

^c The sum of races and ethnicities does not equal 100 because the Common Core of Data does not collect data on all race groups.SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; National Student Clearinghouse, StudentTracker Data.

Table B9u. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a certification in Health Science and students who obtained any other type of certification, sample for the cohort 2 analyses of associate degree attainment

Covariates	Unweighted covariate means		Weighted covariate means		Standardized difference between weighted means
	Health science	Any other type of certification	Health science	Any other type of certification	
Student-level					
Female	81.1	44.9	81.1	80.7	1.02
Race and ethnicity					
White	32.7	43.4	32.6	33.3	1.48
Black	26.6	18.7	26.7	25.6	2.32
Hispanic	34.9	32.0	34.9	35.2	0.61
Other	5.8	6.0	5.9	5.9	0.15
Migrant	0.2	0.5	0.2	0.2	0.15
Eligible for free or reduced-price lunch	45.3	37.8	45.5	46.5	1.99
Grade point average in 2007–08	2.93	2.75	2.93	2.91	0.02
Gifted student	4.1	5.1	4.1	4.5	1.85
Disability	5.3	7.6	5.3	5.0	1.51
Additional disability ^a	0.8	1.5	0.8	0.8	0.86
School-level covariates (in AY 2007–08)					
Student population	2250.3	2273.9	2258.3	2275.5	0.02
Student-to-teacher ratio	18.4	18.1	18.4	18.4	0.01
Percentage of student population eligible for free or reduced-price lunch	39.7	35.8	39.6	39.5	0.94
Title I school ^b	38.8	30.4	38.8	39.1	0.64
Student-population race and ethnicity ^c					
White	39.7	45.6	39.5	39.1	1.56
Black	25.8	22.9	25.9	26.1	0.87
Hispanic	30.1	26.6	30.2	30.5	0.89
Other	2.3	2.6	2.3	2.4	1.84
Magnet school	39.8	32.0	40.0	42.0	4.05
Charter school	2.3	1.4	2.3	2.2	0.87
Locale					
Urban	16.7	19.4	16.8	17.0	0.58
Suburban	60.6	58.7	61.0	61.3	0.52
Town	4.3	3.4	3.9	3.5	1.91
Rural	18.4	18.5	18.3	18.2	0.28

^a A student identified with a disability by the Florida Department of Education. Primary disability was not included in the propensity score estimation because the standardized difference between treatment and control groups was greater than .25 standard deviations.

^b School receives Title I funding from the U.S. Department of Education.

^c The sum of races and ethnicities does not equal 100 because the Common Core of Data does not collect data on all race groups.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; National Student Clearinghouse, StudentTracker Data.

Table B9v. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a certification in Hospitality and Tourism and students who obtained any other type of certification, sample for the cohort 2 analyses of associate degree attainment

Covariates	Unweighted covariate means		Weighted covariate means		Standardized difference between weighted means
	Hospitality and tourism	Any other type of certification	Hospitality and tourism	Any other type of certification	
Student-level					
Female	57.0	51.7	57.1	58.5	2.75
Race and ethnicity					
White	46.4	40.8	46.1	46.5	0.82
Black	20.2	20.2	20.1	20.3	0.49
Hispanic	28.4	32.9	28.7	28.5	0.34
Other	5.0	6.0	5.1	4.6	2.10
Migrant	0.0	0.5	0.0	0.0	0.00
Eligible for free or reduced-price lunch	39.8	39.2	40.0	38.5	3.02
Grade point average in 2007–08	2.78	2.79	2.77	2.79	0.02
Gifted student	4.5	4.9	4.6	4.9	1.78
Disability	9.0	7.0	9.1	8.5	2.02
Additional disability ^a	0.5	1.4	0.5	0.5	0.35
School-level covariates (in AY 2007–08)					
Student population	2241.2	2271.5	2259.0	2245.1	0.02
Student-to-teacher ratio	18.1	18.2	18.2	18.1	0.03
Percentage of student population eligible for free or reduced-price lunch	37.1	36.5	37.1	37.8	5.15
Title I school ^b	29.7	32.3	29.2	29.3	0.12
Student-population race and ethnicity ^c					
White	44.9	44.4	44.5	44.2	0.85
Black	22.6	23.5	22.8	23.2	2.56
Hispanic	27.5	27.3	27.8	27.5	1.00
Other	2.67	2.53	2.68	2.69	0.04
Magnet school	29.2	33.9	29.5	29.1	0.85
Charter school	3.18	1.46	3.22	2.86	2.07
Locale					
Urban	18.8	18.9	19.0	17.5	3.96
Suburban	56.0	59.4	56.6	59.2	5.26
Town	2.4	3.7	2.1	1.9	1.81
Rural	22.8	18.1	22.3	21.4	1.96

^a A student identified with a disability by the Florida Department of Education. Primary disability was not included in the propensity score estimation because the standardized difference between treatment and control groups was greater than .25 standard deviations.

^b School receives Title I funding from the U.S. Department of Education.

^c The sum of races and ethnicities does not equal 100 because the Common Core of Data does not collect data on all race groups.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; National Student Clearinghouse, StudentTracker Data.

Table B9w. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a certification in Human Services and students who obtained any other type of certification, sample for the cohort 2 analyses of associate degree attainment

Covariates	Unweighted covariate means		Weighted covariate means		Standardized difference between weighted means
	Human services	Any other type of certification	Human services	Any other type of certification	
Student-level					
Female	68.1	49.3	68.2	67.8	0.79
Race and ethnicity					
White	35.7	42.3	35.7	36.0	0.52
Black	24.0	19.6	24.1	24.4	0.79
Hispanic	36.2	31.9	36.1	35.9	0.57
Other	4.1	6.3	4.1	3.8	1.63
Migrant	0.1	0.5	0.1	0.1	0.75
Eligible for free or reduced-price lunch	43.2	38.6	43.1	43.0	0.14
Grade point average in 2007–08	2.74	2.79	2.74	2.74	0.00
Gifted student	3.8	5.0	3.8	3.7	0.70
Disability	4.2	7.7	4.2	4.0	0.93
Additional disability ^a	0.4	1.5	0.4	0.4	0.03
School-level covariates (in AY 2007–08)					
Student population	2444.1	2237.6	2445.6	2450.9	0.01
Student-to-teacher ratio	18.0	18.2	18.1	18.1	0.01
Percentage of student population eligible for free or reduced-price lunch	40.0	35.9	40.0	39.9	0.61
Title I school ^b	41.9	30.3	41.9	41.9	0.06
Student-population race and ethnicity ^c					
White	37.3	45.7	37.3	37.5	0.63
Black	27.0	22.8	27.0	27.4	1.79
Hispanic	31.8	26.5	31.8	31.1	2.06
Other	2.3	2.6	2.3	2.3	0.94
Magnet school	47.0	31.1	47.0	47.8	1.54
Charter school	2.9	1.4	2.9	3.2	1.85
Locale					
Urban	23.3	18.0	23.4	23.9	1.34
Suburban	66.1	57.9	66.2	64.1	4.33
Town	1.1	4.0	1.1	1.3	2.25
Rural	9.5	20.1	9.4	10.6	4.16

^a A student identified with a disability by the Florida Department of Education. Primary disability was not included in the propensity score estimation because the standardized difference between treatment and control groups was greater than .25 standard deviations.

^b School receives Title I funding from the U.S. Department of Education.

^c The sum of races and ethnicities does not equal 100 because the Common Core of Data does not collect data on all race groups.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; National Student Clearinghouse, StudentTracker Data.

Table B9x. Unweighted sample characteristics and weighted standardized differences between the model covariate means for students who obtained a certification in Information Technology and students who obtained any other type of certification, sample for the cohort 2 analyses of associate degree attainment

Covariates	Unweighted covariate means		Weighted covariate means		Standardized difference between weighted means
	Information technology	Any other type of certification	Information technology	Any other type of certification	
Student-level					
Female	43.7	52.6	44.4	43.7	1.33
Race and ethnicity					
White	44.5	41.1	42.4	42.8	0.74
Black	16.6	20.4	16.1	16.6	1.31
Hispanic	31.9	32.6	35.1	34.0	2.42
Other	7.0	5.9	6.3	6.6	1.22
Migrant	1.8	0.4	1.5	1.3	1.86
Eligible for free or reduced-price lunch	34.1	39.5	35.6	35.8	0.43
Grade point average in 2007–08	2.8	2.78	2.78	2.77	0.02
Gifted student	4.4	4.9	4.9	4.8	0.57
Disability	8.7	7.1	8.8	8.7	0.41
Additional disability ^a	3.06	1.24	2.93	3.11	1.09
School-level covariates (in AY 2007–08)					
Student population	2034.1	2280.9	2060.7	2044.0	0.02
Student-to-teacher ratio	17.9	18.2	18.0	17.9	0.03
Percentage of student population eligible for free or reduced-price lunch	35.2	36.6	36.9	36.9	0.05
Title I school ^b	29.3	32.2	30.7	30.3	0.86
Student-population race and ethnicity ^c					
White	49.0	44.2	46.2	46.3	0.33
Black	19.7	23.6	20.4	20.4	0.22
Hispanic	25.7	27.4	27.9	27.7	0.74
Other	2.7	2.5	2.7	2.7	0.58
Magnet school	31.0	33.7	34.6	34.5	0.31
Charter school	1.3	1.6	1.5	1.4	0.39
Locale					
Urban	20.1	18.8	18.5	18.6	0.10
Suburban	46.7	59.7	46.3	46.4	0.15
Town	3.1	3.6	3.4	3.5	0.41
Rural	30.1	17.9	31.7	31.5	0.41

^a A student identified with a disability by the Florida Department of Education. Primary disability was not included in the propensity score estimation because the standardized difference between treatment and control groups was greater than .25 standard deviations.

^b School receives Title I funding from the U.S. Department of Education.

^c The sum of races and ethnicities does not equal 100 because the Common Core of Data does not collect data on all race groups.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08; National Student Clearinghouse, StudentTracker Data.

APPENDIX C. ROLLOUT OF CAPE RESULTS

This appendix provides additional results from the analyses presented in chapters 3 and 4. It includes detailed results about certifications earned for both cohorts in each year and for all certification areas. It presents pass rates for cohort 2 for each certification title and identifies the gold-standard certifications. Finally, figures in chapter 4 show the group differences in various postsecondary outcomes. This appendix reports the numbers for each group that correspond to the differences in outcomes.

Table C1a1. Number and percentage of industry certifications earned in Florida by students in cohort 1, by certification area and year: 2007–08 and 2008–09

	Percent of certifications earned in 2007–08 (<i>n</i> = 245)	Percent of certifications earned in 2008–09 (<i>n</i> = 1,377)	Percent of certifications earned in 2007–08 or 2008–09 (<i>n</i> = 1,622)
Areas			
Agriculture	0.0	0.1	0.1
Architecture and Construction	24.1	8.3	10.7
Arts, AV Technology, and Communication	4.1	24.4	21.3
Business Management and Administration	0.0	2.5	2.2
Engineering and Technology Education	0.0	0.9	0.7
Health Science	34.7	35.4	35.3
Hospitality and Tourism	0.0	4.8	4.1
Human Services	6.9	9.2	8.9
Information Technology	30.2	6.8	10.3
Law, Public Safety, and Security	0.0	3.1	2.6
Manufacturing	0.0	3.8	3.3
Transportation and Distribution	0.0	0.7	0.6
Total	100.0	100.0	100.0

NOTE: Percentages may not sum to 100 because of rounding.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse.

Table C1a2. Number and percentage of industry certifications earned in Florida by students in cohort 2, by certification area and year: 2009–10 and 2010–11

	Percent of certifications earned in 2009–10 (<i>n</i> = 4,953)	Percent of certifications earned in 2010–11 (<i>n</i> = 14,122)	Percent of all certifications earned in 2009–10 or 2010–11 (<i>n</i> = 19,075)
Areas			
Agriculture	0.5	0.5	0.5
Architecture and Construction	9.0	5.4	6.3
Arts, AV Technology, and Communication	63.3	40.1	46.1
Business Management and Administration	0.3	0.7	0.6
Engineering and Technology Education	0.8	0.4	0.5
Health Science	12.1	20.7	18.4
Hospitality and Tourism	4.4	8.6	7.5
Human Services	0.9	15.0	11.4
Information Technology	6.0	5.9	5.9
Law, Public Safety, and Security	0.2	0.7	0.6
Manufacturing	0.6	0.7	0.7
Transportation and Distribution	1.8	1.2	1.3
Total	100.0	100.0	100.0

NOTE: Percentages may not sum to 100 because of rounding.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse.

Table C1b1. Percentage distribution of students in cohort 1, both overall and among those earning certifications, by sex, race/ethnicity, eligibility for free or reduced-price lunch, and year: 2007–08 and 2008–09

	Overall (n = 271,666)	Among those who earned a certification in 2007–08 (n = 215)		Among those who earned a certification in 2008–09 (n = 1,345)		Among those who earned a certification in 2007–08 or 2008–09 (n = 1,538)	
		Percentage	Difference ^a	Percentage	Difference ^a	Percentage	Difference ^a
Sex							
Male	52.8	50.7	-2.1	39.5	-13.3	40.6	-12.2
Female	47.2	49.3	2.1	60.5	13.3	59.4	12.2
Race and ethnicity							
White	46.3	53.7	7.4	58.3	12.0	57.6	11.3
Black	24.9	18.2	-6.7	12.5	-12.5	13.4	-11.5
Hispanic	24.5	22.9	-1.6	25.0	0.5	24.7	0.2
Other	4.3	5.1	0.9	4.2	0.0	4.3	0.0
Eligible for free or reduced- price lunch							
Yes	50.2	46.0	-4.1	40.9	-9.3	41.7	-8.4
No	49.8	54.0	4.1	59.1	9.3	58.3	8.4

^a Relative to corresponding "Overall" distribution.

NOTE: CTE = career and technical education. Percentages may not sum to 100 because of rounding.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse.

Table C1b2. Percentage distribution of students in cohort 2, both overall and among those earning certifications, by sex, race/ethnicity, eligibility for free or reduced-price lunch, and year: 2009–10 and 2010–11

	Overall (n = 255,650)	Among those who earned a certification in 2009–10 (n = 4,551)		Among those who earned a certification in 2010–11 (n = 12,914)		Among those who earned a certification in 2009–10 or 2010–11 (n = 16,123)	
		Percentage	Difference ^a	Percentage	Difference ^a	Percentage	Difference ^a
Sex							
Male	52.7	57.6	4.9	47.4	-5.3	49.3	-3.4
Female	47.3	42.4	-4.9	52.6	5.3	50.7	3.4
Race and ethnicity							
White	44.2	54.5	10.3	46.5	2.3	48.0	3.8
Black	24.6	16.5	-8.1	20.2	-4.4	19.4	-5.2
Hispanic	26.2	21.6	-4.6	27.2	1.0	26.2	0.0
Other	4.9	7.4	2.4	6.2	1.2	6.4	1.4
Eligible for free or reduced- price lunch							
Yes	55.7	47.5	-8.2	54.6	-1.1	53.4	-2.3
No	44.3	52.5	8.2	45.4	1.1	46.6	2.3

^a Relative to corresponding "Overall" distribution.

NOTE: Percentages may not sum to 100 because of rounding.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse.

Table C1c1. Percentage of certifications earned by students in cohort 1, by sex, race/ethnicity, eligibility for free or reduced-price lunch, and certification area: 2007–08 and 2008–09

	Number of certifications ^a	Sex		Race and ethnicity				Free lunch eligible	
		Male	Female	White	Black	Hispanic	Other	Yes	No
All certification areas	1,622	42.9	57.1	57.7	13.2	24.5	4.6	41.5	58.5
Agriculture									
Number and percent distribution	2	50.0	50.0	100	0	0	0	0	100
Difference from all certification areas	†	7.1	-7.1	42.3	-13.2	-25	-4.6	-41.5	41.5
Architecture and Construction									
Number and percent distribution	173	93.6	6.4	79.8	6.9	6.9	6.4	28.3	71.7
Difference from all certification areas	†	50.7	-50.7	22	-6.3	-18	1.8	-13.2	13.2
Arts, AV Technology, and Communication									
Number and percent distribution	346	61	39	57.2	6.9	31	5.2	32.4	67.6
Difference from all certification areas	†	18.1	-18.1	-0.5	-6.3	6.1	0.6	-9.1	9.1
Business Management and Administration									
Number and percent distribution	35	25.7	74.3	77.1	20	0	2.9	28.6	71.4
Difference from all certification areas	†	-17.2	17.2	19.4	6.8	-25	-1.7	-12.9	12.9
Engineering and Technology Education									
Number and percent distribution	12	91.7	8.3	83.3	0	17	0	16.7	83.3
Difference from all certification areas	†	48.8	-48.8	25.6	-13.2	-7.8	-4.6	-24.8	24.8
Health Science									
Number and percent distribution	572	13.5	86.5	47.8	22.1	27	3.5	51.9	48.1
Difference from all certification areas	†	-29.4	29.4	-9.9	8.9	2.1	-1.1	10.4	-10.4
Hospitality and Tourism									
Number and percent distribution	66	47	53	72.7	7.6	18	1.5	37.9	62.1
Difference from all certification areas	†	4.1	-4.1	15	-5.6	-6.3	-3	-3.6	3.6
Human Services									
Number and percent distribution	144	0	100	50.7	8.3	39	2.1	50.7	49.3
Difference from all certification areas	†	-42.9	42.9	-7	-4.9	14	-2.5	9.2	-9.2

See notes at end of table.

Table C1c1. Percentage of certifications earned by students in cohort 1, by sex, race/ethnicity, eligibility for free or reduced-price lunch, and certification area: 2007–08 and 2008–09—Continued

	Number of certifications ^a	Sex		Race and ethnicity				Free lunch eligible	
		Male	Female	White	Black	Hispanic	Other	Yes	No
Information Technology									
Number and percent distribution	167	84.4	15.6	56.3	9	26	8.4	39.5	60.5
Difference from all certification areas	†	41.5	-41.5	-1.5	-4.2	1.9	3.8	-2	2
Law, Public Safety, and Security									
Number and percent distribution	42	45.2	54.8	52.4	23.8	17	7.1	35.7	64.3
Difference from all certification areas	†	2.3	-2.3	-5.4	10.6	-7.8	2.6	-5.8	5.8
Manufacturing									
Number and percent distribution	53	45.3	54.7	77.4	5.7	11	5.7	41.5	58.5
Difference from all certification areas	†	2.4	-2.4	19.6	-7.5	-13	1.1	0	0
Transportation, Distribution, Logistics									
Number and percent distribution	10	100	0	100	0	0	0	20	80
Difference from all certification areas	†	57.1	-57.1	42.3	-13.2	-25	-4.6	-21.5	21.5

† Not applicable.

^a Includes certifications earned in 2007–08 and 2008–09.

NOTE: Distributions shown in this table are certification-level distributions. Percentages may not sum to 100 because of rounding.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse.

Table C1c2. Percentage of certifications earned by students in cohort 2, by sex, race/ethnicity, eligibility for free or reduced-price lunch, and certification area: 2010–11 and 2011–12

	Number of certifications ^a	Sex		Race and ethnicity				Free lunch eligible	
		Male	Female	White	Black	Hispanic	Other	Yes	No
All certification areas	19,075	50.9	49.1	49.3	18.8	25.3	6.6	52.8	47.2
Agriculture									
Number and percent distribution	99	63.6	36.4	81.8	2	12	4	34.3	65.7
Difference from all certification areas	†	12.7	-12.7	32.5	-16.8	-13	-2.6	-18.5	18.5
Architecture and Construction									
Number and percent distribution	1,210	88	12	63.8	9.8	20	6.2	45.5	54.5
Difference from all certification areas	†	37.1	-37.1	14.5	-9	-5.1	-0.4	-7.3	7.3
Arts, AV Technology, and Communication									
Number and percent distribution	8,801	60.6	39.4	50.6	17.2	25	7	51.3	48.7
Difference from all certification areas	†	9.7	-9.7	1.3	-1.7	-0.1	0.4	-1.5	1.5
Business Management and Administration									
Number and percent distribution	112	23.2	76.8	61.6	17	17	4.5	48.2	51.8
Difference from all certification areas	†	-27.7	27.7	12.3	-1.9	-8.3	-2.1	-4.6	4.6
Engineering and Technology Education									
Number and percent distribution	102	87.3	12.7	62.7	2.9	22	12.7	29.4	70.6
Difference from all certification areas	†	36.3	-36.3	13.4	-15.9	-3.7	6.1	-23.4	23.4
Health Science									
Number and percent distribution	3,516	19.9	80.1	38.6	27.3	27	7.1	57.9	42.1
Difference from all certification areas	†	-31	31	-10.7	8.5	1.7	0.5	5.1	-5.1
Hospitality and Tourism									
Number and percent distribution	1,440	43.5	56.5	52.8	18.1	24	5.6	56.9	43.1
Difference from all certification areas	†	-7.4	7.4	3.5	-0.8	-1.8	-1	4.1	-4.1
Human Services									
Number and percent distribution	2,169	34.4	65.6	42	23.9	29	5.1	55.3	44.7
Difference from all certification areas	†	-16.5	16.5	-7.3	5.1	3.7	-1.5	2.5	-2.5

See notes at end of table.

Table C1c2. Percentage of certifications earned by students in cohort 2, by sex, race/ethnicity, eligibility for free or reduced-price lunch, and certification area: 2010–11 and 2011–12—Continued

	Number of certifications ^a	Sex		Race and ethnicity				Free lunch eligible	
		Male	Female	White	Black	Hispanic	Other	Yes	No
Information Technology									
Number and percent distribution	1,128	60.6	39.4	54.7	14.1	24	7.4	48.6	51.4
Difference from all certification areas	†	9.7	-9.7	5.4	-4.7	-1.5	0.8	-4.2	4.2
Law, Public Safety, and Security									
Number and percent distribution	113	50.4	49.6	53.1	17.7	26	3.5	61.9	38.1
Difference from all certification areas	†	-0.5	0.5	3.8	-1.1	0.4	-3.1	9.1	-9.1
Manufacturing									
Number and percent distribution	134	60.4	39.6	77.6	8.2	8.2	6	37.3	62.7
Difference from all certification areas	†	9.5	-9.5	28.3	-10.6	-17	-0.6	-15.5	15.5
Transportation, Distribution, Logistics									
Number and percent distribution	251	96.8	3.2	60.2	3.6	32	4.8	66.9	33.1
Difference from all certification areas	†	45.9	-45.9	10.9	-15.3	6.2	-1.8	14.1	-14.1

† Not applicable.

^a Includes certifications earned in 2009–10 and 2010–11.

NOTE: Distributions shown in this table are certification-level distributions. Percentages may not sum to 100 because of rounding.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse.

Table C1d1. Comparison of the percentage of certifications and the percentage of Florida public schools with a grade 12, by school locale, percent underrepresented minority, percent eligible for free or reduced-price lunch, and locale poverty level: 2007–08 and 2008–09

Characteristic	Certifications ^a		Florida schools with a grade 12 in the 2005 CCD data	
	<i>n</i>	%	<i>n</i>	%
Locale				
City	388	23.9	295	31.6
Fringe/suburb	874	53.9	402	43.1
Town/rural	291	17.9	236	25.3
Unknown/unable to match to CCD	69	4.3	0	0.0
Percent underrepresented minority ^b				
Lowest third	796	49.1	302	32.4
Middle third	339	20.9	302	32.4
Highest third	418	25.8	311	33.3
Unknown/unable to match to CCD	69	4.3	18	1.9
Percent eligible for free or reduced-price lunch				
Lowest third	626	38.6	300	32.2
Middle third	691	42.6	302	32.4
Highest third	236	14.6	311	33.3
Unknown/unable to match to CCD	69	4.3	20	2.1
Locale, by percent eligible for free or reduced-price lunch				
City: Lowest third	123	7.6	100	10.7
City: Middle third	138	8.5	101	10.8
City: Highest third	127	7.8	89	9.5
Fringe/suburb: Lowest third	402	24.8	138	14.8
Fringe/suburb: Middle third	391	24.1	131	14.0
Fringe/suburb: Highest third	81	5.0	122	13.1
Town/rural: Lowest third	101	6.2	62	6.7
Town/rural: Middle third	162	10.0	70	7.5
Town/rural: Highest third	28	1.7	100	10.7
Unknown/unable to match to CCD	69	4.3	20	2.1

^a Includes certifications earned in 2007–08 and 2008–09.

^b Underrepresented minority includes American Indian/Alaska Native students, black students, and Hispanic students.

NOTE: CCD = Common Core of Data. Percentages may not sum to 100 because of rounding.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2005–06.

Table C1d2. Comparison of the percentage of certifications and the percentage of Florida public schools with a grade 12, by school locale, percent underrepresented minority, percent eligible for free or reduced-price lunch, and locale poverty level: 2009–10 and 2010–11

Characteristic	Certifications ^a		Florida schools with a grade 12 in the 2007 CCD data	
	<i>n</i>	%	<i>n</i>	%
Locale				
City	3,691	19.4	334	30.3
Fringe/suburb	10,055	52.7	440	40.0
Town/rural	4,638	24.3	325	29.5
Unknown/unable to match to CCD	691	3.6	2	0.2
Percent underrepresented minority ^b				
Lowest third	7,578	39.7	343	31.2
Middle third	5,178	27.2	343	31.2
Highest third	5,628	29.5	353	32.1
Unknown/unable to match to CCD	691	3.6	62	5.6
Percent eligible for free or reduced-price lunch				
Lowest third	7,077	37.1	343	31.2
Middle third	7,736	40.6	343	31.2
Highest third	3,571	18.7	353	32.1
Unknown/unable to match to CCD	691	3.6	62	5.6
Locale, by percent eligible for free or reduced-price lunch				
City: Lowest third	1,180	6.2	113	10.3
City: Middle third	1,622	8.5	101	9.2
City: Highest third	889	4.7	92	8.4
Fringe/suburb: Lowest third	3,839	20.1	140	12.7
Fringe/suburb: Middle third	4,399	23.1	143	13.0
Fringe/suburb: Highest third	1,817	9.5	136	12.4
Town/rural: Lowest third	2,058	10.8	90	8.2
Town/rural: Middle third	1,715	9.0	99	9.0
Town/rural: Highest third	865	4.5	125	11.4
Unknown/unable to match to CCD	691	3.6	62	5.6

^a Includes certifications earned in 2009–10 and 2010–11.

^b Underrepresented minority includes American Indian/Alaska Native students, black students, and Hispanic students.

NOTE: CCD = Common Core of Data. Percentages may not sum to 100 because of rounding.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08.

Table C1e1. Percentage of certifications earned by students in cohort 1, by certification area, school locale, percent underrepresented minority, percent eligible for free or reduced-price lunch, and locale poverty level: 2007–08 and 2008–09

Characteristic	Agriculture	Architecture and Construction	Arts, AV Technology, and Communication	Business Management and Administration	Engineering and Technology Education	Health Science	Hospitality and Tourism	Human Services	Information Technology	Law, Public Safety, and Security	Manufacturing	Transportation and distribution
Overall	0.1	10.7	21.3	2.2	0.7	35.3	4.1	8.9	10.3	2.6	3.3	0.6
Locale												
City	0.0	3.9	13.1	1.3	0.8	30.4	6.7	7.2	23.2	7.5	5.7	0.3
Fringe/suburb	0.0	11.1	24.5	1.8	1.0	37.9	1.9	10.3	7.4	0.9	2.1	1.0
Town/rural	0.7	15.8	18.6	4.8	0.0	35.1	7.6	8.6	3.8	1.0	4.1	0.0
Unknown/unable to match to CCD	0.0	21.7	39.1	0.0	0.0	30.4	1.4	1.4	1.4	2.9	1.4	0.0
Percent underrepresented minority^a												
Lowest third	0.0	15.3	20.6	4.0	1.4	32.0	3.6	7.7	7.3	1.4	5.7	1.0
Middle third	0.6	8.8	20.1	0.9	0.3	40.7	8.0	7.1	2.7	8.6	1.8	0.6
Highest third	0.0	1.4	20.8	0.0	0.0	37.8	2.2	13.9	23.7	0.0	0.2	0.0
Unknown/unable to match to CCD	0.0	21.7	39.1	0.0	0.0	30.4	1.4	1.4	1.4	2.9	1.4	0.0
Percent eligible for free or reduced-price lunch												
Lowest third	0.0	10.9	31.3	3.8	1.8	19.0	4.8	7.7	7.8	5.9	5.8	1.3
Middle third	0.0	12.7	14.5	1.6	0.1	48.3	3.9	10.6	5.4	0.4	2.2	0.3
Highest third	0.8	0.8	9.7	0.0	0.0	41.5	3.4	9.3	33.9	0.0	0.4	0.0
Unknown/unable to match to CCD	0.0	21.7	39.1	0.0	0.0	30.4	1.4	1.4	1.4	2.9	1.4	0.0

See notes at end of table.

Table C1e1. Percentage of certifications earned by students in cohort 1, by certification area, school locale, percent underrepresented minority, percent eligible for free or reduced-price lunch, and locale poverty level: 2007–08 and 2008–09—Continued

Characteristic	Agriculture	Architecture and Construction	Arts, AV Technology, and Communication	Business Management and Administration	Engineering and Technology Education	Health Science	Hospitality and Tourism	Human Services	Information Technology	Law, Public Safety, and Security	Manufacturing	Transportation and distribution
Locale, by percent eligible for free or reduced- price lunch												
City: Lowest third	0.0	4.9	22.0	4.1	2.4	0.0	14.6	4.9	6.5	23.6	16.3	0.8
City: Middle third	0.0	6.5	9.4	0.0	0.0	58.0	5.8	15.9	2.9	0.0	1.4	0.0
City: Highest third	0.0	0.0	8.7	0.0	0.0	29.9	0.0	0.0	61.4	0.0	0.0	0.0
Fringe/suburb: Lowest third	0.0	13.7	30.6	4.0	2.0	25.6	1.5	6.0	9.0	2.0	4.0	1.7
Fringe/suburb: Middle third	0.0	10.7	20.2	0.0	0.3	48.3	0.8	11.8	6.9	0.0	0.5	0.5
Fringe/suburb: Highest third	0.0	0.0	14.8	0.0	0.0	48.1	9.9	24.7	2.5	0.0	0.0	0.0
Town/rural: Lowest third	0.0	6.9	45.5	3.0	0.0	15.8	5.9	17.8	5.0	0.0	0.0	0.0
Town/rural: Middle third	0.0	22.8	4.9	6.8	0.0	40.1	9.9	3.1	3.7	1.9	6.8	0.0
Town/rural: Highest third	7.1	7.1	0.0	0.0	0.0	75.0	0.0	7.1	0.0	0.0	3.6	0.0
Unknown/unable to match to CCD	0.0	21.7	39.1	0.0	0.0	30.4	1.4	1.4	1.4	2.9	1.4	0.0

^a Underrepresented minority includes American Indian/Alaska Native students, black students, and Hispanic students.

NOTE: CCD = Common Core of Data. Percentages may not sum to 100 because of rounding. These certifications were earned in 2007–08 and 2008–09.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), Public Elementary/Secondary School Universe Survey,” 2005–06.

Table C1e2. Percentage of certifications earned by students in cohort 2, by area, school locale, percent underrepresented minority, percent eligible for free or reduced-price lunch, and locale poverty level: 2009–10 and 2010–11

Characteristic	Agriculture	Architecture and Construction	Arts, AV Technology, and Communication	Business Management and Administration	Engineering and Technology Education	Health Science	Hospitality and Tourism	Human Services	Information Technology	Law, Public Safety, and Security	Manufacturing	Transportation and distribution
Overall	0.5	6.3	46.1	0.6	0.5	18.4	7.5	11.4	5.9	0.6	0.7	1.3
Locale												
City	0.1	3.1	49.6	0.5	1.0	16.2	8.1	12.9	5.9	1.0	1.1	0.6
Fringe/suburb	0.7	5.7	46.6	0.5	0.5	19.1	6.8	13.8	4.9	0.5	0.4	0.5
Town/rural	0.5	10.3	44.5	0.9	0.2	17.5	7.9	5.9	8.6	0.6	1.2	2.0
Unknown/unable to match to CCD	0.0	7.1	32.1	0.1	0.0	26.2	13.9	4.9	2.5	0.1	0.1	12.9
Percent underrepresented minority^a												
Lowest third	0.7	8.8	47.1	0.9	0.9	16.7	6.1	9.7	6.4	0.8	1.1	0.8
Middle third	0.3	5.6	49.0	0.8	0.2	13.6	9.8	11.8	6.1	0.7	0.7	1.5
Highest third	0.5	3.6	43.9	0.0	0.4	24.3	6.7	14.0	5.5	0.3	0.2	0.4
Unknown/unable to match to CCD	0.0	7.1	32.1	0.1	0.0	26.2	13.9	4.9	2.5	0.1	0.1	12.9
Percent eligible FRPL												
Lowest third	0.7	9.0	49.8	0.7	0.9	14.8	5.0	10.4	6.2	0.8	1.2	0.5
Middle third	0.6	5.8	45.3	0.7	0.4	18.1	9.7	12.3	5.4	0.6	0.4	0.8
Highest third	0.2	2.2	43.3	0.3	0.3	24.9	6.7	12.7	7.1	0.2	0.4	1.8
Unknown/unable to match to CCD	0.0	7.1	32.1	0.1	0.0	26.2	13.9	4.9	2.5	0.1	0.1	12.9

See notes at end of table.

Table C1e2. Percentage of certifications earned by students in cohort 2, by area, school locale, percent underrepresented minority, percent eligible for free or reduced-price lunch, and locale poverty level: 2009–10 and 2010–11—Continued

Characteristic	Agriculture	Architecture and Construction	Arts, AV Technology, and Communication	Business Management and Administration	Engineering and Technology Education	Health Science	Hospitality and Tourism	Human Services	Information Technology	Law, Public Safety, and Security	Manufacturing	Transportation and distribution
Locale, by percent eligible FRPL												
City: Lowest third (FRPL)	0.0	4.0	49.6	0.5	2.6	13.9	9.3	7.8	6.4	3.1	2.4	0.5
City: Middle third (FRPL)	0.3	4.0	45.8	0.7	0.4	19.3	9.2	15.2	4.2	0.0	0.0	0.9
City: Highest third (FRPL)	0.0	0.1	56.5	0.0	0.0	13.7	4.4	15.6	8.2	0.0	1.3	0.1
Fringe/suburb: Lowest third (FRPL)	1.0	8.9	49.9	0.9	0.8	15.2	3.3	12.9	5.2	0.5	0.9	0.5
Fringe/suburb: Middle third (FRPL)	0.7	4.8	46.1	0.4	0.3	17.6	9.3	14.2	5.3	0.6	0.1	0.6
Fringe/suburb: Highest third (FRPL)	0.1	1.2	40.8	0.0	0.5	31.3	7.9	14.7	3.5	0.0	0.0	0.1
Town/rural: Lowest third (FRPL)	0.4	12.1	49.9	0.2	0.1	14.6	5.9	7.1	8.2	0.0	1.3	0.3
Town/rural: Middle third (FRPL)	0.5	10.0	42.9	1.6	0.5	18.1	11.0	4.7	6.5	1.3	1.6	1.3
Town/rural: Highest third (FRPL)	0.6	6.4	35.0	1.0	0.0	23.1	6.5	5.3	13.8	0.7	0.5	7.2
Unknown/unable to match to CCD	0.0	7.1	32.1	0.1	0.0	26.2	13.9	4.9	2.5	0.1	0.1	12.9

^a Underrepresented minority includes American Indian/Alaska Native students, black students, and Hispanic students.

NOTE: These certifications were earned in 2009–10 and 2010–11. Percentages may not sum to 100 because of rounding.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08.

Table C1f1. Certification pass rates and the number of certifications that were earned and/or attempted by students in cohort 1, by certification area: 2007–08 and 2008–09

Certification area	Number of certifications attempted ^a	Number of certifications earned ^a	Certification-level pass rate ^b
Agriculture	17	2	11.8
Architecture and Construction	236	173	73.3
Arts, AV Technology, and Communication	540	346	64.1
Business Management and Administration	127	35	27.6
Engineering and Technology Education	28	12	42.9
Health Science	723	572	79.1
Hospitality and Tourism	76	66	86.8
Human Services	161	144	89.4
Information Technology	189	167	88.4
Law, Public Safety, and Security	43	42	97.7
Manufacturing	56	53	94.6
Transportation, distribution, logistics	21	10	47.6
Total	2,217	1,622	73.2

^a Among certifications earned and/or attempted in 2007–08 and 2008–09.

^b The numerator for this certification-level pass rate is the number of certifications earned/passed in 2007–08 and 2008–09, and the denominator is the number of certifications attempted in 2007–08 and 2008–09. Certifications exams that were failed, retaken, and passed in the same academic year were counted as one certification earned and one certification attempted (as opposed to one certification earned and two certifications attempted).

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse.

Table C1f2. Certification pass rates and the number of certifications that were earned and/or attempted by students in cohort 2, by certification area: 2009–10 and 2010–11.

Certification area	Number of certifications attempted ^a	Number of certifications earned ^a	Certification-level pass rate ^b
Agriculture	258	99	38.4
Architecture and Construction	2,458	1,210	49.2
Arts, AV Technology, and Communication	13,145	8,801	67.0
Business Management and Administration	302	112	37.1
Engineering and Technology Education	461	102	22.1
Health Science	4,627	3,516	76.0
Hospitality and Tourism	2,489	1,440	57.9
Human Services	2,600	2,169	83.4
Information Technology	2,511	1,128	44.9
Law, Public Safety, and Security	147	113	76.9
Manufacturing	172	134	77.9
Transportation, distribution, logistics	682	251	36.8
Total	29,852	19,075	63.9

^a Among certifications earned and/or attempted in 2009–10 and 2010–11.

^b The numerator for this certification-level pass rate is the number of certifications earned/passed in 2009–10 and 2010–11, and the denominator is the number of certifications attempted in 2009–10 and 2010–11. Certifications exams that were failed, retaken, and passed in the same academic year were counted as one certification earned and one certification attempted (as opposed to one certification earned and two certifications attempted).

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse.

Table C1g. Student-level pass rates and the number of students in cohort 1 who earned and/or attempted a certification, by sex, race/ethnicity, and eligibility for free or reduced-price lunch: 2007–08 and 2008–09

	Overall cohort numbers ^a	Number of students attempting a certification in 2007–08 or 2008–09	Number of students earning a certification in 2007–08 or 2008–09	Student-level pass rate ^b	Difference ^c
Overall	271,666	2,116	1,538	72.7	n/a
Sex					
Male	143,330	902	624	69.2	-3.5
Female	128,336	1,214	914	75.3	2.6
Race					
White	125,654	1,214	885	72.9	0.2
Black	67,707	314	206	65.6	-7.1
Hispanic	66,464	498	380	76.3	3.6
Other	11,554	89	66	74.2	1.5
Eligible for free or reduced-price lunch					
Yes	136,288	898	642	71.5	-1.2
No	135,378	1,218	896	73.6	0.9

^a Some subgroups do not sum to overall total due to missing information.

^b The numerator for this student-level certification pass rate is the number of students who earned certifications in 2007–08 and 2008–09, and the denominator is the number of students who attempted certifications in 2007–08 and 2008–09. Some students earned/attempted multiple certifications; as a result, the student-level certification pass rate is slightly different from the certification-level pass rate (see table C1f1 for certification-level pass rates).

^c Relative to the “Overall” student-level pass rate.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse.

Table C1h. Certification pass rates and the number of certifications earned and/or attempted by students in cohort 1, by school locale, percent underrepresented minority, percent eligible for free or reduced-price lunch, and locale poverty level: 2007–08 and 2008–09

	Number attempted ^a	Number earned	Certification-level pass rate ^b	Difference ^c
Overall	2,217	1,622	73.2	†
Locale				
City	613	388	63.3	-9.9
Fringe/suburb	1,177	874	74.3	1.1
Town/rural	344	291	84.6	11.4
Unknown/unable to match to CCD	83	69	83.1	10.0
Percent underrepresented minority^d				
Lowest third	1,068	796	74.5	1.4
Middle third	516	339	65.7	-7.5
Highest third	550	418	76.0	2.8
Unknown/unable to match to CCD	83	69	83.1	10.0
Percent eligible FRPL				
Lowest third	851	626	73.6	0.4
Middle third	956	691	72.3	-0.9
Highest third	327	236	72.2	-1.0
Unknown/unable to match to CCD	83	69	83.1	10.0
Locale, by percent eligible FRPL				
City: Lowest third (FRPL)	229	123	53.7	-19.5
City: Middle third (FRPL)	235	138	58.7	-14.4
City: Highest third (FRPL)	149	127	85.2	12.1
Fringe/suburb: Lowest third (FRPL)	511	402	78.7	5.5
Fringe/suburb: Middle third (FRPL)	540	391	72.4	-0.8
Fringe/suburb: Highest third (FRPL)	126	81	64.3	-8.9
Town/rural: Lowest third (FRPL)	111	101	91.0	17.8
Town/rural: Middle third (FRPL)	181	162	89.5	16.3
Town/rural: Highest third (FRPL)	52	28	53.8	-19.3
Unknown/unable to match to CCD	83	69	83.1	10.0

† Not applicable.

^a Includes certifications earned/attempted in 2007–08 and 2008–09.

^b The numerator for this certification-level pass rate is the number of certifications earned/passed in 2007–08 and 2008–09, and the denominator is the number of certifications attempted in 2007–08 and 2008–09. Certifications exams that were failed, retaken, and passed in the same academic year were counted as one certification earned and one certification attempted (as opposed to one certification earned and two certifications attempted).

^c Relative to the “Overall” certification-level pass rate.

^d “Underrepresented minority” includes American Indian/Alaska Native students, black students, and Hispanic students.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2005–06.

Table C1i1. High school completion status among students in cohort 1, both overall and among those earning certifications, by certification year: 2008–09

	Overall	Among those who earned a certification in 2007–08		Among those who earned a certification in 2008–09		Among those who earned a certification in 2007–08 or 2008–09	
		Percentage	Difference ^a	Percentage	Difference ^b	Percentage	Difference ^c
High school completion status ²							
Regular high school diploma	58.9	94.4	35.5	95.8	36.9	95.6	36.7
GED® test credential	6.4	0.0	-6.4	0.2	-6.2	0.2	-6.2
Other high school credential	4.3	2.8	-1.5	1.3	-2.9	1.6	-2.7
Dropped out	8.8	0.9	-7.9	0.1	-8.6	0.3	-8.5
Other nongraduate ³	21.7	1.9	-19.8	2.5	-19.1	2.4	-19.3

^a Relative to corresponding number in the “Overall” column.

^b As of 2008–09.

^c Includes, for example, retained students as well as students who withdrew so as to enter the adult education program prior to completion of graduation requirements.

NOTE: Percentages may not sum to 100 because of rounding.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse.

Table C1i2. High school completion status among students in cohort 2, both overall and among those earning certifications, by certification year: 2010–11

	Overall ^a	Among those who earned a certification in 2009–10		Among those who earned a certification in 2010–11		Among those who earned a certification in 2009–10 or 2010–11	
		Percentage	Difference ^a	Percentage	Difference ^a	Percentage	Difference ^a
High school completion status ^b							
Regular high school diploma	63.0	93.9	30.9	95.8	32.8	95.2	32.2
GED® test credential	5.6	0.7	-4.9	0.1	-5.5	0.2	-5.4
Other high school credential	4.9	1.4	-3.5	1.9	-3.1	1.8	-3.1
Dropped out	7.2	0.6	-6.6	0.3	-6.8	0.4	-6.8
Other nongraduate ^c	19.3	3.4	-15.8	1.9	-17.4	2.4	-16.9

^a Relative to corresponding number in the “Overall” column.

^b As of 2010–11.

^c Includes, for example, retained students as well as students who withdrew so as to enter the adult education program prior to completion of graduation requirements.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse.

Table C1j1. Postsecondary enrollment and persistence rates among high school credential earners in cohort 1, both overall and among those who earned a certification, by certification year: 2011–12

	All high school credential earners (n = 162,649)	Among those who earned a certification in 2007–08 (n = 207)		Among those who earned a certification in 2008–09 (n = 1,306)		Among those who earned a certification in 2007–08 or 2008–09 (n = 1,492)	
		Percentage	Difference ^a	Percentage	Difference ^a	Percentage	Difference ^a
Ever enrolled in a FL public university or a FL public community college	65.1	72.0	6.9	78.0	12.9	77.1	12.0
Immediate enrollment in a FL public university or a FL public community college ^{b,c}	64.6	67.8	3.2	71.0	6.3	70.8	6.2
FL public university or FL public community college enrollment in more than 1 academic year ^d	86.6	90.1	3.5	90.0	3.4	89.9	3.3
Ever enrolled in a FL public university	21.5	27.5	6.0	29.4	7.9	28.9	7.4
Immediate enrollment in a FL public university ^{b,e}	71.9	77.2	5.3	71.4	-0.6	71.9	0.0
FL public university enrollment in more than 1 academic year ^f	92.3	95.5	3.2	93.4	1.1	93.5	1.3
Ever enrolled in a FL public community college	56.6	60.9	4.2	68.7	12.1	67.8	11.2
Immediate enrollment in a FL public community college ^{b,g}	47.6	45.2	-2.3	50.4	2.8	50.2	2.6
FL public community college enrollment in more than 1 academic year ^h	82.8	86.0	3.1	87.4	4.6	87.2	4.4

^a Relative to corresponding percentage from the “All high school credential earners” column.

^b Students who enrolled in a university by the fall semester following their high school credential year were categorized as having immediate enrollment.

^c Among those who ever enrolled in either a Florida public university or a Florida public community college.

^d Among those with immediate enrollment in either a Florida public university or a Florida public community college.

^e Among those who ever enrolled in a Florida public university.

^f Among those with immediate enrollment in a Florida public university.

^g Among those who ever enrolled in a Florida public community college.

^h Among those with immediate enrollment in a Florida public community college.

NOTE: FL = Florida. Results are limited to students who earned a high school credential as of the 2008–09 academic year.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse.

Table C1j2. Postsecondary enrollment and persistence rates among high school credential earners in cohort 2, both overall and among those who earned a certification, by certification year: 2013–14

	All high school credential earners (<i>n</i> = 162,141)	Among those who earned a certification in 2009–10 (<i>n</i> = 4,300)		Among those who earned a certification in 2010–11 (<i>n</i> = 12,578)		Among those who earned a certification in 2009–10 or 2010–11 (<i>n</i> = 15,561)	
		Percentage	Difference ^a	Percentage	Difference ^a	Percentage	Difference ^a
Ever enrolled in a FL public university or a FL public community college	65.2	74.3	9.1	74.5	9.3	74.3	9.1
Immediate enrollment in a FL public university or a FL public community college ^{b,c}	64.2	66.6	2.4	68.3	4.0	67.7	3.5
FL public university or FL public community college enrollment in more than 1 academic year ^d	84.4	86.3	1.9	87.2	2.8	86.9	2.5
Ever enrolled in a FL public university	22.5	32.1	9.6	28.3	5.8	28.7	6.2
Immediate enrollment in a FL public university ^{b,e}	71.1	70.7	-0.4	69.5	-1.6	69.9	-1.3
FL public university enrollment in more than 1 academic year ^f	91.4	90.8	-0.7	90.5	-0.9	90.4	-1.1
Ever enrolled in a FL public community college	56.8	64.0	7.2	64.5	7.6	64.3	7.5
Immediate enrollment in a FL public community college ^{b,g}	45.8	42.2	-3.6	48.8	3.0	47.4	1.5
FL public community college enrollment in more than 1 academic year ^h	79.7	82.2	2.5	84.8	5.1	84.2	4.5

^a Relative to corresponding percentage from the “All high school credential earners” column.

^b Students who enrolled in a university by the fall semester following their high school credential year were categorized as having immediate enrollment.

^c Among those who ever enrolled in either a Florida public university or a Florida public community college.

^d Among those with immediate enrollment in either a Florida public university or a Florida public community college.

^e Among those who ever enrolled in a Florida public university.

^f Among those with immediate enrollment in a Florida public university.

^g Among those who ever enrolled in a Florida public community college.

^h Among those with immediate enrollment in a Florida public community college.

NOTE: FL = Florida. Results are limited to students who earned a high school credential as of 2010–11.

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse.

Table C1k1. The highest postsecondary degree earned among high school credential earners in cohort 1 who immediately enrolled in a Florida public community college, both overall and among those who earned a certification, by the certification year: Summer 2012

	All high school credential earners with immediate postsecondary enrollment	Among those who earned a certification in 2007–08		Among those who earned a certification in 2008–09		Among those who earned a certification in 2007–08 or 2008–09	
		Percentage	Difference ^a	Percentage	Difference ^a	Percentage	Difference ^a
Among those with immediate enrollment at a Florida public community college	<i>n</i> = 43,812	<i>n</i> = 57		<i>n</i> = 452		<i>n</i> = 508	
No postsecondary credential	61.6	52.6	-9.0	54.4	-7.2	54.1	-7.4
Associate degree, or sub-associate postsecondary credential	30.9	38.6	7.7	37.8	7.0	38.0	7.1
Bachelor's degree, or higher	7.6	8.8	1.2	7.7	0.2	7.9	0.3

^a Relative to corresponding percentage from the “All high school credential earners with immediate postsecondary enrollment” column.
NOTE: Results are limited to students who (1) earned a high school credential as of 2008–09 and (2) had immediate enrollment at a Florida public community college. Students who enrolled in a Florida public community college by the fall semester following their high school credential year were categorized as having immediate enrollment. Results were also limited to credentials awarded by the Florida public community colleges and universities system. Percentages may not sum to 100 because of rounding.
SOURCE: Florida Department of Education, PK–20 Education Data Warehouse.

Table C1k2. The highest postsecondary degree earned among high school credential earners in cohort 2 who immediately enrolled in a Florida public community college, both overall and among those who earned a certification, by certification year: Summer 2014

	All high school credential earners with immediate postsecondary enrollment	Among those who earned a certification in 2009–10		Among those who earned a certification in 2010–11		Among those who earned a certification in 2009–10 or 2010–11	
		Percentage	Difference ^a	Percentage	Difference ^a	Percentage	Difference ^a
Among those with immediate enrollment at a Florida public community college	<i>n</i> = 42,245	<i>n</i> = 1,163		<i>n</i> = 3,956		<i>n</i> = 4,743	
No postsecondary credential	78.6	71.5	-7.1	73.8	-4.8	73.8	-4.8
Associate degree, or sub-associate postsecondary credential	21.4	28.5	7.2	26.2	4.8	26.2	4.9
Bachelor's degree, or higher	0.1	0.0	-0.1	0.0	-0.1	0.0	-0.1

^a Relative to corresponding percentage from the “All high school credential earners with immediate postsecondary enrollment” column.
NOTE: Results are limited to students who (1) earned a high school credential as of 2010–11 and (2) had immediate enrollment at a Florida public community college. Students who enrolled in a Florida public community college by the fall semester following their high school credential year were categorized as having immediate enrollment. Results are also limited to credentials awarded by the Florida public community colleges and universities system. Percentages may not sum to 100 because of rounding.
SOURCE: Florida Department of Education, PK–20 Education Data Warehouse.

Table C2. Certification pass rates and the number of certifications earned and/or attempted by students in cohort 2, by certification title and gold-standard certification status: 2009–10 and 2010–11

Certification area	Certification title	Certification code	Gold-standard certification?	Number earned	Number attempted	Pass rate ^a
Total				19,075	29,852	63.9
All gold-standard certifications				6,934	11,626	59.6
All non-gold-standard certifications				12,141	18,226	66.6
Agriculture, food, natural resources	Certified Agriculture Technician	FLFBR001	no	6	9	66.7
Agriculture, food, natural resources	Certified Horticulture Professional	FNGLA001	yes	60	172	34.9
Agriculture, food, natural resources	NOCTI Agricultural Mechanics	NOCTI012	no	13	16	81.3
Agriculture, food, natural resources	NOCTI Production Agriculture	NOCTI011	no	20	61	32.8
Architecture and Construction	ADDA Drafter Certification	AMDDA001	yes	70	139	50.4
Architecture and Construction	Autodesk Certified Associate - 3dsMax Design Certified Associate	ADESK026	no	3	18	16.7
Architecture and Construction	Autodesk Certified Associate – AutoCAD	ADESK016	yes	282	902	31.3
Architecture and Construction	Autodesk Certified Associate – AutoCAD Architecture	ADESK017	yes	17	142	12.0
Architecture and Construction	Autodesk Certified Associate – Inventor	ADESK019	no	85	197	43.1
Architecture and Construction	Autodesk Certified Associate - Revit Architecture	ADESK020	yes	36	57	63.2
Architecture and Construction	Autodesk Certified Expert – AutoCAD	ADESK012	no	1	1	100.0
Architecture and Construction	Autodesk Certified Professional - AutoCAD	ADESK021	yes	3	5	60.0
Architecture and Construction	Autodesk Certified User – AutoCAD	ADESK002	yes	9	80	11.3
Architecture and Construction	Autodesk Certified User - Autodesk Inventory	ADESK011	yes	0	1	0.0
Architecture and Construction	Chief Architect User Certification	CARCH001	no	0	15	0.0
Architecture and Construction	HEAT	HVACE007	no	22	28	78.6
Architecture and Construction	NCCER Advanced Carpentry - Level 4	NCCER075	no	1	1	100.0
Architecture and Construction	NCCER Cabinetmaking	NCCER002	no	10	10	100.0
Architecture and Construction	NCCER Carpentry - Level 2	NCCER032	no	18	18	100.0
Architecture and Construction	NCCER Carpentry Fundamentals - Level 1	NCCER005	yes	396	555	71.4
Architecture and Construction	NCCER Construction Technology	NCCER008	yes	66	76	86.8
Architecture and Construction	NCCER Electrical - Level 1	NCCER010	yes	68	69	98.6
Architecture and Construction	NCCER Electrical - Level 2	NCCER038	yes	19	19	100.0
Architecture and Construction	NCCER Electrical - Level 3	NCCER039	no	14	14	100.0
Architecture and Construction	NCCER Finish Carpentry - Level 2	NCCER015	no	3	3	100.0
Architecture and Construction	NCCER Form Carpentry - Level 3	NCCER016	no	1	1	100.0
Architecture and Construction	NCCER HVAC - Level 1	NCCER018	yes	20	22	90.9

See notes at end of table.

Table C2. Certification pass rates and the number of certifications earned and/or attempted by students in cohort 2, by certification title and gold-standard certification status: 2009–10 and 2010–11—Continued

Certification area	Certification title	Certification code	Gold-standard certification?	Number earned	Number attempted	Pass rate ^a
Architecture and Construction	NCCER HVAC - Level 2	NCCER081	no	4	4	100.0
Architecture and Construction	NCCER HVAC - Level 3	NCCER082	no	2	2	100.0
Architecture and Construction	NCCER HVAC - Level 4	NCCER083	no	2	2	100.0
Architecture and Construction	NCCER Industrial Maintenance-Mechanic	NCCER085	no	1	1	100.0
Architecture and Construction	NCCER Masonry - Level 1	NCCER025	no	26	26	100.0
Architecture and Construction	NOCTI Horticulture-Landscaping	NOCTI033	no	31	50	62.0
Arts, AV tech and communication	Adobe Certified Associate (Dreamweaver)	ADOBE010	yes	2,613	3,495	74.8
Arts, AV tech and communication	Adobe Certified Associate (Flash)	ADOBE011	yes	768	1,065	72.1
Arts, AV tech and communication	Adobe Certified Associate (Photoshop)	ADOBE012	no	5,186	8,008	64.8
Arts, AV tech and communication	Adobe Certified Associate (Premiere Pro)	ADOBE018	no	5	99	5.1
Arts, AV tech and communication	Adobe Certified Expert (Acrobat)	ADOBE013	no	11	12	91.7
Arts, AV tech and communication	Adobe Certified Expert (After Effects)	ADOBE002	no	0	2	0.0
Arts, AV tech and communication	Adobe Certified Expert (Illustrator)	ADOBE003	no	2	8	25.0
Arts, AV tech and communication	Adobe Certified Expert (InDesign)	ADOBE004	no	4	4	100.0
Arts, AV tech and communication	Adobe Certified Expert (Photoshop)	ADOBE005	no	58	137	42.3
Arts, AV tech and communication	Adobe Certified Expert (Premiere Pro)	ADOBE007	no	4	9	44.4
Arts, AV tech and communication	Adobe Certified Professional: Macromedia	ADOBE008	no	0	1	0.0
Arts, AV tech and communication	Adobe Dreamweaver Developer	ADOBE017	no	0	2	0.0
Arts, AV tech and communication	Apple Certified Pro (ACP) - DVD Studio Pro	APPLE008	no	1	1	100.0
Arts, AV tech and communication	Apple Certified Pro (ACP) - Final Cut Pro	APPLE009	no	69	180	38.3
Arts, AV tech and communication	Apple Certified Pro (ACP) - Logic Pro	APPLE010	no	0	1	0.0
Arts, AV tech and communication	Introduction to Graphic Communications	GAERF002	no	0	10	0.0
Arts, AV tech and communication	NOCTI Television Broadcasting	NOCTI013	no	80	111	72.1
Business Management and Administration	A*S*K Certification – Entrepreneurship	IASKB001	no	0	26	0.0
Business Management and Administration	A*S*K Certification - Finance	IASKB002	no	0	1	0.0
Business Management and Administration	A*S*K Certification – Marketing	IASKB003	no	9	89	10.1
Business Management and Administration	Certification for Legal Professionals	TAFLP001	yes	6	49	12.2
Business Management and Administration	NOCTI Accounting Basic	NOCTI015	no	14	37	37.8

See notes at end of table.

Table C2. Certification pass rates and the number of certifications earned and/or attempted by students in cohort 2, by certification title and gold-standard certification status: 2009–10 and 2010–11—Continued

Certification area	Certification title	Certification code	Gold-standard certification?	Number earned	Number attempted	Pass rate ^a
Business Management and Administration	ParaPro Assessment	EDTSO001	no	79	92	85.9
Business Management and Administration	Pre-Professional Assessment and Certification	AAFC001	no	4	7	57.1
Business Management and Administration	Quickbooks Certified User	INTUT001	yes	0	1	0.0
Engineering and technology ed	Certified Solidworks Associate (CSWA)	SOLID001	no	69	280	24.6
Engineering and technology ed	Certified Solidworks Professional (CSWP)	SOLID002	no	1	1	100.0
Engineering and technology ed	Mastercam Certified Programmer Mill Level 1	CNCSI001	no	12	142	8.5
Engineering and technology ed	NOCTI Pre-Engineering/Engineering Technology	NOCTI014	no	20	38	52.6
Health Science	Certified EKG Technician (CET)	NATHA002	no	421	567	74.3
Health Science	Certified Health Unit Coordinator (CHUC)	NAHUC001	no	3	18	16.7
Health Science	Certified Medical Administrative Assistant	NATHA003	no	1,497	1,721	87.0
Health Science	Certified Nursing Assistant (CNA)	FDMQA002	no	1,324	1,784	74.2
Health Science	Certified Phlebotomy Technician	NATHA007	no	12	12	100.0
Health Science	Certified Veterinary Assistant (CVA)	ANICT001	no	123	148	83.1
Health Science	First Responder	NREMT003	no	53	271	19.6
Health Science	Licensed Practical Nurse (LPN)	FDMQA017	yes	32	36	88.9
Health Science	NOCTI Health Assisting	NOCTI009	no	51	70	72.9
Hospitality and Tourism	Certified Food Manager (CFM)	IFSEA001	no	67	73	91.8
Hospitality and Tourism	Certified Food Safety Manager	NRFSP001	no	25	33	75.8
Hospitality and Tourism	Certified Professional Food Manager	NRAEF003	yes	818	1,292	63.3
Hospitality and Tourism	Certified Rooms Division Specialist (CRDS)	AHLAE001	no	0	13	0.0
Hospitality and Tourism	Foodservice Management Professional (FMP)	NRAEF001	yes	7	7	100.0
Hospitality and Tourism	Hospitality Skills Certification for Line-Level Staff	AHLAE003	no	9	9	100.0
Hospitality and Tourism	National ProStart Certificate of Achievement	NRAEF002	yes	514	1,062	48.4
Human Services	Certified Home Care Aide	NAHCH001	no	53	58	91.4
Human Services	Child Development Associate	CPREC001	yes	122	213	57.3
Human Services	Cosmetologist	FLDOP002	no	4	9	44.4
Human Services	Early Childhood Professional Certificate	FLDOE001	no	39	44	88.6
Human Services	Introductory Child Care Training Certificate	FLDCF004	no	48	67	71.6

See notes at end of table.

Table C2. Certification pass rates and the number of certifications earned and/or attempted by students in cohort 2, by certification title and gold-standard certification status: 2009–10 and 2010–11—Continued

Certification area	Certification title	Certification code	Gold-standard certification?	Number earned	Number attempted	Pass rate ^a
Human Services	NOCTI Early Childhood Care and Education	NOCTI031	no	56	65	86.2
Human Services	National Professional Certification in C	NRETF001	no	1,698	1,976	85.9
Human Services	National Professional Certification in R	NRETF002	no	114	129	88.4
Human Services	Skill Connect Assessment - Nurse Assistant	SKUSA004	no	0	1	0.0
Human Services	Staff Credential	FLDCF005	no	35	38	92.1
Information Technology	Certified Internet Web (CIW) Associate Design Specialist	PROSO001	yes	25	52	48.1
Information Technology	Certified Internet Web (CIW) E-Commerce	PROSO003	yes	28	28	100.0
Information Technology	Certified Internet Web (CIW) Professional	PROSO002	no	3	4	75.0
Information Technology	Certified Internet Web (CIW) Site Designer Professional	PROSO012	no	4	4	100.0
Information Technology	Cisco Certified Entry Networking Technician (CCENT)	CISCO003	no	14	47	29.8
Information Technology	CompTIA A+	COMPT001	yes	102	255	40.0
Information Technology	CompTIA CDIA+	COMPT002	no	0	1	0.0
Information Technology	CompTIA Network+	COMPT006	yes	26	40	65.0
Information Technology	CompTIA Security+	COMPT008	yes	1	1	100.0
Information Technology	GIS Technician (Entry Level)	DIGIT001	no	7	7	100.0
Information Technology	MCIT Professional: Enterprise Support Technician	MICRO033	yes	6	7	85.7
Information Technology	Microsoft Certified Desktop Support Tech	MICRO006	yes	17	18	94.4
Information Technology	Microsoft Certified IT Professional	MICRO007	no	2	2	100.0
Information Technology	Microsoft Certified Professional (MCP)	MICRO008	no	8	9	88.9
Information Technology	Microsoft Certified Solution Developer	MICRO009	no	0	22	0.0
Information Technology	Microsoft Certified Systems Administrator	MICRO046	yes	3	6	50.0
Information Technology	Microsoft Certified Technology Specialist	MICRO049	yes	1	4	25.0
Information Technology	Microsoft MCAS Bundle Certification	MICRO061	no	157	621	25.3
Information Technology	Microsoft Office Master	MICRO017	yes	78	128	60.9
Information Technology	Microsoft Office Specialist (MOS) Bundle Certification	MICRO069	yes	643	1,219	52.7
Information Technology	NOCTI Computer Programming	NOCTI035	no	2	11	18.2
Information Technology	Oracle Certified Associate (OCA)	ORACL001	yes	0	24	0.0
Information Technology	Sun Certified Java Associate	SUNMI002	yes	1	1	100.0
Law, Public Safety, and Security	Fire Fighter I	FLSFM005	no	2	2	100.0
Law, Public Safety, and Security	NOCTI Criminal Justice	NOCTI010	no	97	131	74.0

See notes at end of table.

Table C2. Certification pass rates and the number of certifications earned and/or attempted by students in cohort 2, by certification title and gold-standard certification status: 2009–10 and 2010–11—Continued

Certification area	Certification title	Certification code	Gold-standard certification?	Number earned	Number attempted	Pass rate ^a
Law, Public Safety, and Security	Private Security Officer	FDLIC006	no	1	1	100.0
Law, Public Safety, and Security	Security Officer (Class D)	FDLIC004	no	13	13	100.0
Manufacturing	Certified Welder	AWELD001	no	29	30	96.7
Manufacturing	MSSC Certified Production Technician	MSSCN001	yes	5	16	31.3
Manufacturing	NCCER Welder - Level 1	NCCER061	no	46	48	95.8
Manufacturing	NOCTI Apparel and Textile Production and Merchandising	NOCTI003	no	54	78	69.2
Transportation, distribution, logistics	ASE Automobile Service Consultant (C1)	NIASE013	no	2	5	40.0
Transportation, distribution, logistics	ASE Automobile/Light Truck Technician: Brakes	NIASE007	yes	20	209	9.6
Transportation, distribution, logistics	ASE Automobile/Light Truck Technician: Electrical/Electronic Systems	NIASE008	yes	7	24	29.2
Transportation, distribution, logistics	ASE Automobile/Light Truck Technician: Engine Performance	NIASE009	yes	4	14	28.6
Transportation, distribution, logistics	ASE Automobile/Light Truck Technician: Engine Repair	NIASE010	yes	4	23	17.4
Transportation, distribution, logistics	ASE Automobile/Light Truck Technician: Heating and Air Conditioning	NIASE011	yes	4	16	25.0
Transportation, distribution, logistics	ASE Automobile/Light Truck Technician: Suspension and Steering	NIASE014	yes	21	65	32.3
Transportation, distribution, logistics	ASE Collision Repair and Refinishing Technician: Non-structural Analysis and Damage Repair	NIASE018	no	0	18	0.0
Transportation, distribution, logistics	ASE Collision Repair and Refinishing Technician: Painting & Refinishing	NIASE029	no	8	20	40.0
Transportation, distribution, logistics	ASE Collision Repair and Refinishing Technician: Structural Analysis and Damage Repair	NIASE032	no	0	1	0.0
Transportation, distribution, logistics	FAA Aircraft Airframe and Powerplant Certification	FEDAA002	no	27	27	100.0
Transportation, distribution, logistics	FAA Airframe Mechanic	FEDAA004	yes	8	8	100.0
Transportation, distribution, logistics	FAA Ground School	FEDAA013	no	9	15	60.0
Transportation, distribution, logistics	FAA Powerplant Mechanic	FEDAA010	no	9	9	100.0
Transportation, distribution, logistics	FAA Private Pilot	FEDAA011	yes	4	9	44.4
Transportation, distribution, logistics	NA3SA End of Program Test: Automatic Transmission	NIASE036	no	2	4	50.0
Transportation, distribution, logistics	NA3SA End of Program Test: Brakes	NIASE037	no	19	36	52.8
Transportation, distribution, logistics	NA3SA End of Program Test: Electrical/Electronic Systems	NIASE038	no	26	53	49.1
Transportation, distribution, logistics	NA3SA End of Program Test: Engine Performance	NIASE039	no	11	16	68.8

See notes at end of table.

Table C2. Certification pass rates and the number of certifications earned and/or attempted by students in cohort 2, by certification title and gold-standard certification status: 2009–10 and 2010–11—Continued

Certification area	Certification title	Certification code	Gold-standard certification?	Number earned	Number attempted	Pass rate ^a
Transportation, distribution, logistics	NA3SA End of Program Test: Engine Repair	NIASE044	no	18	30	60.0
Transportation, distribution, logistics	NA3SA End of Program Test: Heating and Air Conditioning	NIASE043	no	13	14	92.9
Transportation, distribution, logistics	NA3SA End of Program Test: Manual Drive	NIASE042	no	0	1	0.0
Transportation, distribution, logistics	NA3SA End of Program Test: Painting and Refinishing	NIASE040	no	2	11	18.2
Transportation, distribution, logistics	NA3SA End of Program Test: Suspension and Steering	NIASE041	no	33	54	61.1

^a The numerator for each certification-level pass rate is the number shown in the corresponding “Number earned” column, and the denominator is the number shown in the corresponding “Number attempted” column. Certifications exams that were failed, retaken, and passed in the same academic year were counted as one certification earned and one certification attempted (as opposed to one certification earned and two certifications attempted).

SOURCE: Florida Department of Education, PK–20 Education Data Warehouse; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08.

Table C3a. Percentage of students in cohort 2 found employed in Florida, by industry certification type and area: Fall of 2011, 2012, 2013, 2014, and 2015

Industry certification status/area	Fall 2011	Fall 2012	Fall 2013	Fall 2014	Fall 2015
Among all 2007-08 Florida ninth-graders who earned a high school credential ^a by 2010–11					
Earned an industry certification in 2009–10 or 2010–11	46.2	55.7	60.1	62.2	64.9
Did not earn an industry certification in 2009–10 or 2010–11	44.7	53.6	57.5	60.1	62.7
Certification earners minus certification non-earners	1.5	2.1	2.6	2.1	2.2
Among those who earned an industry certification in 2009–10 or 2010–11 ^b					
Earned at least one gold-standard certification	44.5	54.3	59.5	61.0	63.6
Earned only regular certification(s)	47.2	56.5	60.4	62.9	65.6
Gold-standard certification earners minus all other certification earners	-2.7	-2.2	-0.8	-1.9	-2.1
Architecture and Construction certification earners	46.2	54.9	59.8	59.2	60.2
All other certification earners	46.1	55.6	59.9	62.0	64.6
Architecture and Construction certification earners minus all other certification earners	0.1	-0.7	-0.1	-2.8	-4.4
Arts, AV Technology, and Communication certification earners	43.4	53.0	57.4	60.2	62.8
All other certification earners	48.4	57.7	62.2	63.7	66.4
Arts, AV Technology, and Communication certification earners minus all other certification earners	-5.0	-4.7	-4.8	-3.5	-3.6
Health Science certification earners	47.9	58.2	62.7	64.9	67.6
All other certification earners	45.9	55.4	59.7	61.9	64.7
Health Science certification earners minus all other certification earners	2.0	2.9	3.0	3.1	2.9
Hospitality and Tourism certification earners	53.7	64.4	68.1	68.0	70.5
All other certification earners	45.7	54.9	59.3	61.7	64.4
Hospitality and Tourism certification earners minus all other certification earners	8.0	9.5	8.8	6.3	6.1
Human Services certification earners	49.6	58.3	61.9	64.4	68.0
All other certification earners	45.9	55.2	59.7	61.7	64.3
Human Services certification earners minus all other certification earners	3.7	3.2	2.2	2.7	3.7
Information Technology certification earners	42.3	52.2	58.3	61.0	61.9
All other certification earners	46.1	55.7	60.1	62.2	65.1
Information Technology certification earners minus all other certification earners	-3.8	-3.5	-1.8	-1.2	-3.2

^a The high school credential earners are those who earned either a standard diploma, a certificate of completion, a GED® test credential, a special certificate of completion, or a special diploma.

^b Among propensity-matched 2007–08 Florida ninth-graders who (1) earned a high school credential by 2010–11 and (2) earned an industry certification in 2009–10 and/or 2010–11.

NOTE: Detail may not sum to totals because of rounding. SOURCE: Florida Department of Education, PK–20 Education Data Warehouse, Florida Education and Training Placement Information Program; National Center for Education Statistics, Common Core of Data (CCD), “Public Elementary/Secondary School Universe Survey,” 2007–08.

Table C3b. Average 4th-quarter earnings (in dollars) among students in cohort 2 who were found employed full-time full-quarter in Florida, by industry certification type and area: Fall of 2011, 2012, 2013, 2014, and 2015

Industry certification status/area	Fall 2011	Fall 2012	Fall 2013	Fall 2014	Fall 2015
Among all 2007-08 Florida ninth-graders who earned a high school credential ^a by 2010-11:					
Earned an industry certification in 2009-10 or 2010-11	\$5,084	\$5,484	\$5,918	\$6,550	\$7,604
Did not earn an industry certification in 2009-10 or 2010-11	5,318	5,543	5,969	6,479	7,454
Certification earners minus certification non-earners	-234	-59	-51	71	150
Among those who earned an industry certification in 2009-10 or 2010-11 ^b					
Earned at least one gold-standard certification	5,105	5,530	5,914	6,606	7,663
Earned only regular certification(s)	5,058	5,455	5,916	6,507	7,561
Gold-standard certification earners minus all other certification earners	47	75	-2	99	102
Architecture and Construction certification earners	5,167	5,404	5,956	6,990	8,131
All other certification earners	5,157	5,536	5,950	6,595	7,645
Architecture and Construction certification earners minus all other certification earners	10	-132	6	395	486
Arts, AV Technology, and Communication certification earners	5,093	5,393	5,807	6,400	7,425
All other certification earners	5,087	5,537	5,985	6,624	7,690
Arts, AV Technology, and Communication certification earners minus all other certification earners	6	-144	-178	-224	-265
Health Science certification earners	5,102	5,459	5,802	6,450	7,693
All other certification earners	5,070	5,482	5,937	6,562	7,579
Health Science certification earners minus all other certification earners	32	-23	-135	-112	114
Hospitality and Tourism certification earners	4,836	5,488	5,757	6,374	7,238
All other certification earners	5,130	5,481	5,940	6,575	7,645
Hospitality and Tourism certification earners minus all other certification earners	-294	7	-183	-201	-407
Human Services certification earners	5,047	5,376	5,987	6,623	7,603
All other certification earners	5,076	5,500	5,902	6,519	7,601
Human Services certification earners minus all other certification earners	-29	-124	85	104	2
Information Technology certification earners	5,604	5,893	6,175	6,731	8,011
All other certification earners	5,177	5,463	5,922	6,546	7,578
Information Technology certification earners minus all other certification earners	427	430	253	185	433

^a The high school credential earners are those who earned either a standard diploma, a certificate of completion, a GED® test credential, a special certificate of completion, or a special diploma.

^b Among propensity-matched 2007-08 Florida ninth-graders who (1) earned a high school credential by 2010-11 and (2) earned an industry certification in 2009-10 and/or 2010-11.

SOURCE: Florida Department of Education, PK-20 Education Data Warehouse, Florida Education and Training Placement Information Program; National Center for Education Statistics, Common Core of Data (CCD), "Public Elementary/Secondary School Universe Survey," 2007-08.

Table C3c. Percentage of students in cohort 2 who were receiving Temporary Assistance for Needy Families (TANF) and/or food stamps in Florida, by industry certification type and area: Fall of 2011, 2012, 2013, and 2014

Industry certification status/area	Fall 2011	Fall 2012	Fall 2013	Fall 2014
Among all 2007-08 Florida ninth-graders who earned a high school credential ^a by 2010-11:				
Earned an industry certification in 2009-10 or 2010-11	13.5	10.5	9.8	10.0
Did not earn an industry certification in 2009-10 or 2010-11	17.3	15.0	14.2	14.4
Certification earners minus certification non-earners	-3.8	-4.5	-4.4	-4.3
Among those who earned an industry certification in 2009-10 or 2010-11 ^b				
Earned at least one gold-standard certification	13.2	9.2	8.8	9.0
Earned only regular certification(s)	13.7	11.3	10.3	10.6
Gold-standard certification earners minus all other certification earners	-0.5	-2.0	-1.5	-1.6
Architecture and Construction certification earners	12.4	6.3	5.4	6.1
All other certification earners	12.4	9.5	8.8	8.7
Architecture and Construction certification earners minus all other certification earners	0.0	-3.3	-3.4	-2.7
Arts, AV Technology, and Communication certification earners	12.7	9.6	8.8	9.0
All other certification earners	14.0	11.1	10.3	10.8
Arts, AV Technology, and Communication certification earners minus all other certification earners	-1.2	-1.4	-1.5	-1.8
Health Science certification earners	14.1	11.9	10.7	11.4
All other certification earners	13.4	10.1	9.6	9.8
Health Science certification earners minus all other certification earners	0.7	1.8	1.2	1.6
Hospitality and Tourism certification earners	15.9	11.5	11.7	11.5
All other certification earners	13.1	10.4	9.5	9.9
Hospitality and Tourism certification earners minus all other certification earners	2.8	1.1	2.2	1.6
Human Services certification earners	14.3	11.6	11.9	12.8
All other certification earners	13.2	10.3	9.3	9.6
Human Services certification earners minus all other certification earners	1.1	1.3	2.6	3.2
Information Technology certification earners	12.0	8.8	8.6	8.3
All other certification earners	13.3	10.4	9.6	10.0
Information Technology certification earners minus all other certification earners	-1.3	-1.6	-1.1	-1.7

^a The high school credential earners are those who earned either a standard diploma, a certificate of completion, a GED® test credential, a special certificate of completion, or a special diploma.

^b Among propensity-matched 2007-08 Florida ninth-graders who (1) earned a high school credential by 2010-11 and (2) earned an industry certification in 2009-10 and/or 2010-11.

NOTE: According to staff at the Florida Department of Education, these data could not be linked in 2015. Detail may not sum to totals because of rounding.

SOURCE: Florida Department of Education, PK-20 Education Data Warehouse, Florida Education and Training Placement Information Program; National Center for Education Statistics, Common Core of Data (CCD), "Public Elementary/Secondary School Universe Survey," 2007-08.

APPENDIX D. GLOSSARY

Term	Definition
<i>Articulated credit</i>	Credit earned under an agreement that guarantees the transfer of credits from one educational institution (either secondary or postsecondary) to another. In this report, articulated credit refers to the transfer of credits from secondary to postsecondary educational institutions.
<i>Career and Professional Education (CAPE) Industry Certification Funding List</i>	A list of industry certifications, certificates, and courses adopted by the Florida State Board of Education for implementation of the Florida <i>Career and Professional Education Act</i> (Florida Administrative Code, Rule 6A-6.0573).
<i>Common Core of Data</i>	The U.S. Department of Education’s comprehensive national database on public elementary and secondary schools and school districts.
<i>Common Core of Data Public Elementary/ Secondary School Universe Survey Data</i>	A complete listing of all public elementary and secondary schools in the United States, including basic information and descriptive statistics on schools, students, and teachers (see https://nces.ed.gov/ccd/pubschuniv.asp).
<i>Comparison group</i>	A group that is similar to the treatment group except that they did not receive the service or participate in the program that the treatment group received. In this report, the comparison group consists of students who were similar to certification earners across observable characteristics, such as past academic performance and demographic characteristics, but who did not earn a certification.
<i>Covariate</i>	A variable that might predict the outcome of the study and is included in the regression model. In this report, covariates include whether a student earned a certification as well as student characteristics, such as past academic performance and demographic characteristics ¹
<i>Covariate mean</i>	The average value of a covariate.
<i>Education Data Warehouse</i>	A single repository of data about students served in the Florida K–20 public education system, as well as educational facilities, curriculum, and staff involved in instructional activities (see http://www.fldoe.org/accountability/data-sys/).

Term	Definition
<i>Florida Education Training and Placement Information Program (FETPIP)</i>	A data collection and consumer reporting system established by Florida Statutes Section 1008.39 to provide follow-up data on former students and program participants who have graduated, exited, or completed a public education or training program within the state of Florida (see http://www.fldoe.org/accountability/fl-edu-training-placement-info-program/).
<i>Florida School Report Card</i>	Also known as the School Public Accountability Report, an annual report card on the educational progress of schools, school districts, and the state, generated to comply with federal legislative requirements. The School Public Accountability Report contains several types of data (indicators) designed to inform parents and the public about the progress of Florida's public schools. This report meets public reporting requirements and provides certain additional information on the status of Florida's schools (http://doeweb-prd.doe.state.fl.us/eds/nclbspa/index.cfm).
<i>Gold Standard Career Pathways</i>	Identified each year by the state of Florida, a subset of industry and third-party certifications based on national standards and associated with occupations in high demand or linked to emerging industries. These certifications confer statewide articulated credit that may be applied toward attaining an associate degree.
<i>Gold Standard Career Pathways Articulation Agreements</i>	Agreements that allow students in Gold Standard Career Pathways to earn college credit toward the associate degree program identified in the articulation agreement.
<i>Logistic regression</i>	A statistical model that uses observed characteristics to predict that one of two possible outcomes will occur. ¹
<i>Marginal effect</i>	The effect on the dependent variable that results from changing an independent variable by a small amount. ¹
<i>National Student Clearinghouse</i>	A database containing enrollment and degree records for students in all public and private postsecondary institutions in the United States.
<i>Propensity score</i>	A numeric score that describes the probability that an individual will participate in or receive a specific treatment. ²

Term	Definition
<i>Propensity score matching</i>	A statistical technique that creates a comparison group by using observable characteristics to estimate the probability (or propensity) of individuals participating in or receiving a specific treatment.
<i>Purposive sample</i>	A sample that is systematically drawn from a population based on guidelines set by the study. A purposive sample results in some individuals being more likely to be selected than others. In contrast, when a sample is drawn completely at random, all individuals in the population have the same likelihood of being selected.
<i>Standardized difference</i>	A transformation of the difference between treatment and comparison group averages into a new estimate that allows researchers to compare the size of the difference between treatment and comparison group means for any two variables.
<i>Statistical significance</i>	The probability that a relationship between two estimates is not due to random chance alone. This study uses a threshold of 5 percent, which indicates that statistically significant results have, at most, a 5 percent chance of not being significant.
<i>Statistical weight</i>	A numeric value that adjusts an individual's impact on an estimate or outcome. Statistical weights are often based on the individual's probability of being included in a specific group (e.g., the probability of being sampled from a population or receiving a given treatment).
<i>Treatment group</i>	A group of students who received a service or participated in a program. In this report, certification earners are the treatment group.

¹ Wooldridge, J. (2009). *Introductory econometrics: A modern approach* (4th ed.). Mason, OH: South-Western Cengage Learning.

² Rosenbaum, P., & Rubin, D. (1983). The central role of the propensity score in observational studies for causal effects. *Biometrika*, 41-55.



The Department of Education's mission is to promote student achievement and preparation for global competitiveness by fostering educational excellence and ensuring equal access.

www.ed.gov