



AMERICAN ENTERPRISE INSTITUTE
FOR PUBLIC POLICY RESEARCH

Certificate Pathways to Postsecondary Success and Good Jobs

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Prepared for the American Enterprise Institute Conference,
“Degrees of Difficulty: Can American Higher Education Regain Its Edge?”
February 15, 2011

The collected papers for this conference can be found at www.aei.org/event/100346.

Overview

This paper argues that the United States faces a decline in the education attainment of the labor force that will reduce economic growth and limit national prosperity. We will not be able to halt this decline or reach national postsecondary attainment goals established by the Administration unless significantly higher percentages of working adults and low-income and minority youth complete college credentials with labor market value. Further, and more to the central point of this paper, these two groups are unlikely to reach ambitious attainment objectives without a rapid expansion of non-degree credentials – specifically, sub-baccalaureate certificates awarded for completion of carefully organized, occupationally focused programs of study of at least one academic year in duration.

This is a big challenge to postsecondary education but there is good news here. First, careful review of labor market research indicates that most certificates of one year or more have significant value in the labor market. Second, it seems feasible to quickly ramp up certificate programs; some colleges in some states are showing the way, boosting enrollment in these programs and producing large numbers of quality certificates. Third, there is evidence that completion rates in some of the best, most rigorous certificate programs are significantly higher than in degree offerings. Fourth, there is evidence to suggest that certificate programming can be economically efficient both for students and for state and federal higher education investors. Finally, there are strong indications that low-income and minority youth and working adults can find in certificate programs the success that has been so elusive in degree programs.

This paper considers the evidence and makes recommendations about sub-baccalaureate certificates as a pathway to postsecondary attainment. The first section examines the demographic factors that underlie the importance of boosting attainment of working adults and

low-income and minority youth who are now without postsecondary credentials. Section two summarizes the current status and trends of certificate production, attainment, completion rates, and costs, and the third section reviews findings from research about the labor market value of certificates. Section four considers the advantages of certificate programs in meeting the needs of working adults and low-income and minority youth. This chapter describes the certificate programs of the Tennessee Technology Centers as an example of how certificates can boost the attainment of populations not now served well by traditional degree offerings. The final section concludes with recommendations for action at the federal, state, and institutional level that could increase certificate awards.

This paper is not an argument that low-income and minority youth and working adults should be “tracked” into certificate programs rather than into degree programs where long-term economic and social returns may be greater (for the relatively few who manage to complete them). Good certificate programs are stepping-stones to further degreed education, not a dead-end alternative to it. However, they are also stepping-stones to good jobs.

In the contemporary economy, where some form of postsecondary credential is increasingly the ticket of entry to family-supporting jobs, America’s inverse pyramid of sub-baccalaureate education that produces half as many associate’s degrees as bachelor’s and half as many one-year-or-more certificates as associate’s degrees makes little sense. A national commitment to expand high quality certificate programs of at least one year offers a strategy to reverse the likely decline in labor force educational attainment, meet postsecondary attainment objectives, serve hard-to-serve populations, and strengthen economic growth.

The Importance of Increased Education Attainment in the Labor Force

Over the past several decades, rising educational attainment in a rapidly growing labor force contributed very significantly to productivity, economic growth, and national competitiveness in an increasingly global economy. A Joint Economic Committee report in 2000 found several estimates of the effect of human capital gains on economic growth in the range of 15 percent to 25 percent.¹ That review and other studies also have underscored the indirect contribution of educational advances in fueling innovation and the adoption of new technology.²

From 1960 to 2000, the labor force more than doubled from about 70 million to about 141 million workers. The number of workers in their prime productive years, ages 25 to 54, increased by over 130 percent in that 40-year period.

This stunning growth in the labor force was accompanied by huge gains in educational attainment. In 1960, just 41 percent of the population over the age of 25 had completed high school but, by 2000, 80.4 percent had at least at high school diploma. College attainment of the labor force grew at an even faster pace. In 1960, only 7.7 percent of adults (age 25 and older) had a bachelor's degree or higher, but by 2000 this had increased to 24.4 percent. Especially from 1970 to 2000, workers entering their prime working years of 25 to 54 had much higher levels of education than those aging out of the prime age group and those leaving the workforce altogether.

But these advantageous trends have fully played out. Over the years 2000 to 2040, the labor force will not grow at anywhere near the rate of growth of the years 1960-2000. The Bureau of Labor Statistics projects over all labor force growth of only 29 percent between 2000 and 2040 and growth of only 16 percent among prime age workers.

Slow labor force growth is only half the story. From 2000 to 2040, we can expect very little gain in the educational attainment of the workforce, at least as a consequence of young adults moving into and through the labor force. The older cohorts in the current labor force (from age 35 to 54) are now as well educated as the younger cohorts (age 25 to 34), especially in the percentage with at least a high school degree, but also in the percentage with some postsecondary attainment. That means over the next several decades there will be no “automatic” attainment gain as current workers age and older workers leave the labor force. In fact, without some big changes in the pattern of attainment by age, race, and economic status, it is likely that the newer workers coming into the workforce will have lower levels of attainment than the older workers leaving. Workforce attainment levels will stagnate or decline and future economic growth will slow as a consequence.

In the face of these trends, President Obama proposed to the February 2009 joint session of Congress that, “By 2020, America will once again have the highest proportion of college graduates in the world.” Efforts to clarify and quantify that goal led by the National Center for Higher Education Management Systems (NCHEMS) have produced a general consensus that taking international leadership in this way would require U.S. college attainment rates to reach 60 percent in the cohort of young adults ages 25 to 40. In 2008, only 37.8 percent of this age group had degrees at the associate’s level or higher, and at present rates of growth, this would increase to only 41.9 percent by 2020. To close the gap, NCHEMS projects the need to increase degree production 4.2 percent every year between 2008 and 2020.³

The White House has added two complementary goals of adding five million community college graduates between now and 2020, and providing all Americans with a year of credentialed education or training beyond high school.

Meeting these goals will be a huge challenge. Even with the most optimistic assumptions about high school graduation, college continuation, and degree completion, there simply are not enough traditional students to meet ambitious goals within existing patterns of attainment. A realistic appraisal of demographic trends and historic attainment patterns can lead only to a conclusion that increasing workforce attainment – even maintaining current levels of attainment – requires big changes in the postsecondary enrollment and completion of two groups in particular – minority youth and working adults.

Younger age cohorts are more racially and ethnically diverse than adults now in the labor force with greater representation from groups that historically have not been well served in either K-12 or postsecondary education. The proportion of the labor force made up by Hispanic and Black Americans will grow rapidly, reaching 24 percent and 15 percent, respectively, by 2050 while the share made up by whites will shrink to 53 percent.

Unfortunately, Blacks and Hispanics are far less likely than White students to complete high school, attend college, and complete a postsecondary credential. According to NCES data compiled by the College Board, enrollment rates for recent high school graduates for Blacks increased from just 40 percent in 1975 to 56 percent in 2008. The rates for Hispanics increased from 53 percent to 62 percent. But these gains failed to keep pace with gains for Whites, whose direct-from-high-school enrollment rates increased from 49 percent to 70 percent over that same period.⁴

Beginning Postsecondary Survey (BPS:04/09) data indicate that the college completion gap between Whites and Blacks and Hispanics is not getting any smaller. A study of students beginning their enrollment in 2004 found that 66.9 percent of white students had completed a credential or were still enrolled five years later, while for Hispanics this rate was 57.9 percent

and for Blacks it was 56.6 percent. The six-year BA or AA degree achievement rate for Whites, Hispanics and Blacks was 46.6 percent, 25.3 percent and 24.3 respectively.

There are about 62 million adults (age 25+) in the labor force who do not have postsecondary credentials of any kind. Many have been reading the signals of the labor market and more and more of them have been enrolling in college. The percentage of credential-seeking undergraduates in postsecondary institutions who are age 24 and older increased from only about 27 percent in 1970 to about 40 percent by 2000, even as overall undergraduate enrollment more than doubled over that same period.

Unfortunately, there are very high levels of attrition from college before completion among working adults as compared to traditional students. An analysis of all students of all ages who began their postsecondary education in 2004 revealed that, by 2009, 49.4 percent had completed a credential and an additional 15.0 percent were still working on one. The remaining 35.6 percent were no longer enrolled and had received no credential. However, of those who were between the ages of 24 and 29 when they enrolled, only 34.9 percent had completed any sort of credential, 14.2 percent were still working on one and than half had dropped out without receiving any credential. Students who were above the age of 30 when they enrolled had significantly lower rates of completion.⁵

This paper argues that both these groups – minority youth and working adults – who have found limited success in traditional degree-focused educational pathways, can find more success in high quality certificate programs. The next two sections elaborate some basic information about certificates and their labor market value.

Sub-Baccalaureate Certificates

The Integrated Postsecondary Education Data System (IPEDS), a system of inter-related surveys gathering information annually from all postsecondary institutions participating in federal student financial aid programs, asks institutions to report sub-baccalaureate certificates by field of study in one of three categories as follows:

- Certificates acknowledging completion of an “organized program of study” at the postsecondary level of less than one academic year; that is, programs that, with full-time enrollment, can be completed in less than one academic year, defined as 30 semester hours, 45 quarter hours, or 900 contact hours;
- Certificates for programs of at least one but less than two academic years – designed for completion in 30 to 60 semester credit hours, 45 to 90 quarter hours, or 900 to 1,800 contact hours;
- Certificates for programs of two to four years – designed for completion in at least 60 but less than 120 credit hours, or in at least 1,800 but less than 3,600 contact hours.

Measuring Annual Certificate Production

There are some limitations with use of the IPEDS data for research into the production of certificate awards. First, there is no state or other secondary level oversight of reporting and institutions sometimes report incorrectly; e.g., reporting awards for non-credit programs when they are asked to report only awards for credit programs or placing programs into the wrong reporting category. Anecdotally, there seems to be more reporting errors in IPEDS certificate data than in degree data.

Second, there is wide variation in the length of certificate programs within the IPEDS categories. Awards for very short programs of three to six semester hours and for longer programs of 25 to 29 semester hours are all reported as “less-than-one-year certificates.” One-to-two-year certificate awards can represent just 30 semester hours but they can represent nearly twice as many credits, even within the same institution. This huge variation in the length of study is unique to certificate programs; credit hours required in degree programs rarely vary more than five to ten percent from institution to institution, across all the states.

Third, many institutions acknowledge that there is much less oversight of certificate programs by state authorities and by regional accrediting bodies than of degree programs. As a result, programs of the same name that purport to be aimed at the same occupational entry can vary dramatically in length and content from one institution to another, even within the same state. This creates obvious difficulties in making comparisons among different programs and different institutions.⁶

As indicated in Table 1, certificate awards of all lengths reached just over 800,000 in 2009, nearly tripling over 15 years from almost 300,000 in 1994. While much of that increase came in awards for completion of short-term programs, awards for completion of programs of one year or more than doubled. (In this summary, certificates of one to two years and of two to four years are grouped as “more than one year” or as “long-term” certificates.) This is significantly faster than the pace in increase in postsecondary degree production. From 1994 to 2009, associate’s degree awards from all postsecondary sectors grew 53.2 percent, while bachelor’s degrees only increased 38.3 percent over those 15 years.

Table 1: 15 Years of sub-baccalaureate certificate awards (All institutional sectors, 50 states and DC)

Certificate by Length	2009		2004		1999		1994	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Less Than 1 Year	435,733	53.4	338,465	51.5	228,973	48.3	118,962	41.4
More Than 1 Year	379,601	46.6	318,896	48.5	244,266	51.6	168,681	58.6
Total	815,334	100.0	657,451	100.0	473,239	100.0	287,642	100.0
Source: Compiled by author from IPEDS								

Table 2: 15 Years of sub-baccalaureate certificate awards (Public two-year colleges only, 50 states and DC)

Certificate by Length	2009		2004		1999		1994	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Less Than 1 Year	219,099	59.5	169,765	56.3	92,136	45.2	81,529	42.2
More Than 1 Year	148,837	40.4	132,032	43.7	111,609	54.8	111,584	57.8
Total	376,936	100.0	301,797	100.0	203,745	100.0	191,113	100.0
Source: Compiled by author from IPEDS								

It appears that this 15-year pace of increase in certificate awards has slowed slightly over the past five or six years, especially in awards for programs of one year or more. The certificate production data shown in Table 2 suggests this slowdown can be attributed in large part to relatively flat growth in production of long-term certificates among public two-year colleges.

From 1994 to 2009, public two-year colleges increased their production of certificate awards for long-term programs by just 33 percent while increasing their production of awards for short-term programs by 169 percent. In 1994, public two-year colleges produced 66.2 percent of all long-term certificates, but by 2009 their share had fallen to only 39.2 percent. Nationally, public two-year colleges have ceded almost all the growth in long-term certificates to for-profit

institutions. Public two-years have increasingly concentrated their sub-associate awards in short-term programs.

In all institutional sectors, certificate awards are heavily skewed toward healthcare programs. In 2009, 44.1 percent of all certificates were awarded for completion of healthcare related programs; 41.9 percent of the long-term awards were for health care. At the associate's and bachelor's degree level, only 11.9 percent of awards were related to healthcare occupations.

The number of certificate awards for programs of at least one year and the increase in such awards is very uneven among the states. On a per population basis, some states produce over twice the national average while other states produce as little as one-third of the national average. Some of the states producing a lot of long-term certificates on a per population basis do not produce significant numbers of associate's degrees. However, certificate production does not have to come at the expense of associate degree production. Arizona, Florida, Minnesota, Kansas, Iowa, and Wyoming are among the top per capita producers of both long-term certificates and associate's degrees. If every state produced as many long-term certificates per capita as does Arizona, the annual number of these long-term certificates would more than double to almost 800,000.

A quick comparison of the patterns of certificate production between Arizona (a high certificate producing state) and Connecticut (a low certificate producing state) is helpful in demonstrating the wide variation among states in the relative importance of these postsecondary credentials. In 2009, Arizona (with a population of about 6.6 million) produced about 30,000 certificates for programs of all lengths while Connecticut (with a population of 3.5 million) produced only about 8,000. For every 10,000 of population, Arizona produced 45.5 certificates

while Connecticut produced 23.1 certificates. (These numbers for Arizona do not include the University of Phoenix Online Campus.)

In Connecticut, community colleges (public two-year degree granting institutions) played almost no role in certificate production, awarding just 11 percent of all certificate awards in the state and almost none for programs of more than one year. The major institutional players in the certificate business in Connecticut are the private, for-profit, degree and non-degree granting colleges who awarded 5,555 long-term certificates and 1,297 short-term ones (fully one-half of those were from a single truck driving school). In Arizona, on the other hand, community colleges were major players in certificate programming, awarding 36 percent of them (upwards of 10,600 awards) and more than half of them were for programs of one year or more. The for-profit sector was still very active in Arizona, producing 6,244 long-term certificates and 5,508 short-term awards.

Of course, there are different economies in these states. Connecticut may be slightly less dependent than Arizona on those technical occupational categories that tend to rank high among the primary targets of certificate programming. But, differences in economic structure and performance do not offer a satisfactory explanation of the huge disparity, especially in the public sector, in certificate production between these two states. Informal interviews with community college officials in these two states suggest that institutional culture and state policy frameworks sharply influence the relative interest in certificate level programming. It may be that community/technical colleges in Connecticut have come to place a much higher value on associate's degrees as the appropriate, more legitimate, threshold of sub-baccalaureate postsecondary education than is the case in Arizona where certificates as well as degrees are seen as having academic validity.

Certificate Completion Rates

It is unfortunately not feasible to compare completion rates across certificate programs and degree programs within institutions. Colleges report their graduation rates to IPEDS by tracking a cohort of beginning students enrolling on a full-time basis without differentiating in that reporting if the students enroll in a certificate program or a degree program. That information is often not available even in state student record systems since many colleges do not maintain records separating the beginning cohort by credential objective.

However, there are a number of non-degree-granting, certificate-only institutions with one and two year programs in several states, and it is feasible to compare their IPEDS-reported completion rates with those of institutions that both award certificates and grant degrees. In 2008, the combined 150 percent of time graduation rate for all 1,010 public two-year degree-granting institutions) in the 50 states was 20.4 percent. That rate is based on and includes the entire cohort of first-time, full-time students from 2005, and those in all certificate and degree programs. In 2008 these institutions produced 526,525 associate's degrees and 334,002 certificates; 38.6 percent of the certificates were for completion of long-term programs.

In 2008, the combined 150 percent of time graduation rate for all 362 public one- and two-year non-degree granting, certificate-only institutions in the 50 states was 60.6 percent. Of course, this includes students pursuing short-term certificates as well as long-term certificates (as it does in the degree-granting institutions). In that year, 54.6 percent of certificate awards from this sector were for completion of programs of at least one year. This indicates a much higher rate of program completion for programs in certificate-only institutions than in degree-granting institutions and suggests a higher rate of completion for certificates than for degrees.

The Cost of Certificate Programs

Again, the only way to compare certificate costs relative to degree costs at a national level is by examining the cost structure of public certificate-only institutions versus public degree-granting institutions. This is useful only with some careful caveats that acknowledge the big differences between these sectors in terms of mission, scale, and instructional content. Many certificate-only institutions have limited general education instruction, at least very little that is discrete compared to general education content embedded within the occupation and technical programs.

On a cost per FTE basis, public certificate-only institutions appear more costly than degree-granting institutions, according to analysis of data available through IPEDS. In 2007-08, the 362 public, non-degree-granting one- and two-year colleges reported total core expenditures of \$1.64 billion with total 12-month FTE of 127,840 for an average FTE cost of about \$12,800. That year, the 1,010 public degree-granting two-year institutions reported total core expenditures of \$41.35 billion with total 12-month FTE of 4,147,350 for an average FTE cost of about \$9,970.

In terms of “years of attainment” per FTE basis, however, there is a different story. By this measure, in 2007-08 the degree-granting institutions produced about 0.30 years of attainment per FTE while the certificate-only institutions produced about 0.42 years of attainment per FTE.⁷ That is a 40 percent difference. While this is an imperfect indicator of efficiency comparing institutions, not programs, it nonetheless offers hints that, even after accounting for the different program lengths, certificate-oriented programs are probably more economically efficient than associate’s degree-oriented programs.

Estimating Current Certificate Attainment

Counting the annual production of certificates, even with the limitations of IPEDS, is less difficult than trying to estimate the stock of current certificate holders – the number of people in the population who actually have a certificate as their highest level of postsecondary credential. The American Community Survey (ACS) annually surveys a sample of the population to determine education attainment but does not ask if the respondent has attained a certificate. For someone with less than an associate’s degree, any attainment beyond high school can be classified only as either “some college credit, but less than one year of college credit” or “one or more years of college credit, no degree.”

Both of these categories include individuals who may have obtained a postsecondary credential below the degree level – including a certificate award for completion of a short-term program or an award for completion of a long-term program. Obviously, however, both categories also include many more individuals who may have enrolled in college with certificate or degree objectives but dropped out before obtaining any credential.

The Census Bureau calculates that in 2009 there were about 33.8 million individuals age 25 and over some college but no degree.⁸ Taking into account enrollment, persistence, and attainment patterns revealed by NCES studies, and taking into account IPEDS-reported annual production data for the last 25 years, it seems likely that at least two-thirds of these 33.8 million have no postsecondary credential. It might be generously calculated that eight to ten million have a sub-baccalaureate certificate as their highest level of postsecondary attainment. It might be reasonably estimated that about four to six million have a certificate representing completion of an organized program of study of at least one year.

Labor Market Returns to Certificates

National level research on the labor market returns to certificates is quite limited. As noted above, decennial census and annual ACS data do not specifically identify certificate holders. Individuals who might have completed a discrete program of occupational preparation are indistinguishable from those who might have taken only a few scattered general education or technical courses. Although there are widely available estimates for median earnings by level of education that include the attainment category of “some college, no degree” these are of no help in estimating returns to certificates.

Without decennial census or ACS data to compare to wage data for certificate holders, most national level research relies on longitudinal surveys of education and employment carried out by the U. S. Department of Education and supplemented by wage and occupational surveys of the Census Bureau and the Bureau of Labor Statistics. The National Education Longitudinal Studies (NELS) program analyzes the educational, vocational, and personal development of a sample of individuals beginning with their elementary or high school years, and following them over time as they move into the workforce. The NELS program now consists of five studies, three of which are useful for tracking labor market outcomes of postsecondary education: the National Longitudinal Study of the High School Class of 1972 (NLS-72), High School and Beyond (HS&B), and the National Education Longitudinal Study of 1988 (NELS:88).

The big limitation of these longitudinal surveys is that, while they can track certificate awards and earnings for certificate holders relative to degrees or no awards, they do not differentiate among certificates based on the length of the program of study. Thus, certificate awards for programs of just a few credit hours cannot be distinguished from programs of one to two years or more.

On the other hand, research that draws on these surveys is generally consistent in reporting that one year of study after high school results in earnings significantly above of the level of those with no postsecondary participation. Estimates of this earnings advantage to one year of study range from five to ten percent and generally find that earnings and wages rise further with credits completed above one year. This research also indicates that postsecondary participation of less than one year seems to have very little earnings return. Further, research drawing on these national longitudinal surveys generally finds no evidence that certificate attainment, without regard to length of study, consistently results in higher earnings.

Taken together, these findings from national level, survey-based research suggest that certificates for short-term programs of less than one year do not demonstrate significant labor market returns. These findings from national level research suggest that certificates for programs of study of a year or more have strong labor market returns. Some of the research specifically identifies an advantage to completing a long-term certificate versus merely accumulating postsecondary credit but not all findings are conclusive in this regard.⁹

Research at the state level on returns to certificates is less ambiguous and more consistently finds significant earnings advantage to certificates for programs of one year and more. Most of this state level research rests on matching student records against wage data available through the state-maintained Unemployment Insurance records. This approach has some advantages over NCES surveys. It is not self-reported data as is the case with the national longitudinal surveys. It can examine the returns to education for individual student by comparing earnings before the start of the education program with earnings after completion of the program. It also permits comparisons in wage records between students who have completed

programs of various lengths and wage records of students who started but did not complete these same programs.

It is unfortunate that all states do not routinely make these earnings comparisons or, if they do, choose not to make this information publically accessible. However, enough do to conclude from the research that certificates for programs of at least one year of study almost always offer good labor market returns to recipients and that they provide a platform for career entry and advancement in occupations paying family-supporting wages. Taken as a whole, this state level research suggests that individuals who complete long-term programs of study make significantly more money than those who enroll in these programs but do not complete them. Individuals who complete short-term programs of study do not make significantly more money than those who enroll in these programs but do not complete them. That is generally true across all fields of study.

Field of study is an important predictor of earnings outcomes. In some fields, the average of those who complete long-term certificates make as much money as the average of those who complete associate's degree programs. That seems to be due to the fact that certificate completers pursue and earn awards in fields with relatively high labor market returns and then they take jobs where they can realize those returns. Many who gain associate's degrees do not go on to higher attainment, and a significant number of them hold majors in areas that offer limited labor markets prospects for job seekers with less than bachelor's degree.¹⁰

There is significant and immediate labor demand for increased awards for completion of long-term certificate programs. The Center on Education and the Workforce at Georgetown University forecasts that the U.S. economy will create 47 million job openings over the 10-year period from 2008 to 2018. Nearly two-thirds of these jobs will require at least some

postsecondary education. Further, half of the jobs that must be filled by workers with postsecondary education – 14 million jobs – will be accessible to individuals with a sub-baccalaureate credential; *that is*, an associate’s degree or long-term certificate.¹¹ In fact, BLS Occupational Employment Projections suggest jobs that require only an associate’s degree or a postsecondary vocational award (a certificate) will grow slightly *faster* than occupations requiring a bachelor’s degree or more. This demand represents an opportunity for very rapid growth in the annual production of occupationally oriented associate’s degrees and long-term certificates.

With this foundation of information about certificate programs and their labor market value, the section below returns to the argument that more aggressive certificate programming can offer an important strategy to boost postsecondary attainment.

Certificate Programs as a Pathway to Attainment for Working Adults and Low-Income and Minority Youth

Given the accumulating evidence about demand, earnings, and relative efficiency, it seems both feasible and desirable to ramp up certificate offerings and aim them directly at low-income and minority youth and working adults who are not having much success in traditional pathways to degrees. These two groups are already finding some success in certificate programs and, with a more intentional approach to the design and expansion of long-term certificate awards, they could find still more success.

BPS survey data indicate that older students are much more likely to earn certificates than degrees when they do enroll in either four-year or two-year institutions. Of students who enrolled in 2004 at age 24-29, 19.5 percent received a certificate by 2009 while only 15.4 percent

received a degree. Of those 30 years of age and older, 17.8 percent received a certificate while only 14.4 percent gained a degree.¹²

In 2007, the Black and Hispanic share of all associate's degrees was 22.7 versus 63.6 for Whites. The Black and Hispanic share of certificates of one to two years was significantly larger – 32.7 versus 55.2 for Whites.

A study of educational and employment outcomes for low-income students in Florida suggested that certificate programs, in addition to leading generally to good economic outcomes for completers, may have some particular advantages for students from low-income families.¹³ That study drew from a longitudinal student record system in Florida that integrates data from students' high school, college, and employment experience. It followed two cohorts of Florida public school students who entered the ninth grade in 1995 and in 1996.

The Florida research suggested that strong earnings effects of degree attainment (associate's, bachelor's, and advanced) were largely confined to students who had performed well in high school. They were continuing in postsecondary study a trajectory of success apparent in high school. However, the research found that obtaining a certificate from a two-year college in Florida significantly increased the earnings of students who did not necessarily perform well in high school, relative to those who attended college but did not obtain a credential. These students were finding new success in certificate programs, changing trajectory from their high school years. Moreover, the Florida study confirmed other research that found strong returns to completion of good certificate programs, even relative to associate's degree completers.

The study also pointed out that the majority of low-income students who did not perform well in high school and went on to two-year colleges took courses in college they were unlikely

to complete or that would not have much effect on their earnings even if they were completed. To be clear, the Florida research found that the overall likelihood of obtaining any postsecondary credential for all students whose high school GPA was a “C” or less was only about 19 percent. Still, there was a much greater chance of completing certificate programs than degree programs.

The Tennessee Example

A close examination of a large state system of certificate granting institutions in Tennessee offers some insight into what might make certificate programs a particularly good investment for working adults and recent high school graduates who struggle for success in more traditional community college degree programs.

There are 27 postsecondary institutions in Tennessee offering only certificate-level programs and serving almost exclusively non-traditional students. The Tennessee Technology Centers began as secondary-level, multi-district vocational technical schools in the 1960s under the supervision of the State Board of Education and began to serve adults in the 1970s. In most states, analogous institutions were merged into community/technical college systems but, in Tennessee (as in a few other states), they continue to operate as a discrete set of non degree-granting postsecondary institutions.¹⁴

The Technology Centers award “certificates” for programs of about 500 to 900 clock hours and “diplomas” for programs that exceed one year in length. Diploma programs average about 1400 clock hours and some extend over 2000 clock hours. They are all designed to lead immediately to employment in a specific occupation. In 2008-09, The Centers awarded 2,066 certificates and 4,696 diplomas, serving 12,112 students on an FTE basis. Collectively, the Technology Centers offer about 60 programs, some just at the shorter-term certificate level but

most at the longer-term diploma level. Some of the more popular programs are Practical Nursing, Business Systems Technology, Computer Operations, Electronics Technology, Automotive Service and Repair, CAD Technology, and Industrial Maintenance.

Most students in the Technology Centers are low-income. Nearly 70% come from households with annual income of less than \$24,000 per year and 45% report household income of less than \$12,000 annually.¹⁵ Thus, most students enrolling in full-time and part-time programs qualify for federal Pell Grants; many receive WIA support for costs of attendance. The Black and Hispanic percentage of Technology Centers students is greater than the percentage of minorities the state population. Average age of the students is 32 years, and all the Technology Centers report a mix of new high school graduates, young adults getting serious about career development, and older adult workers seeking the postsecondary credentials they decided not to pursue when they were younger.

The 2007 IPEDS-reported “150 percent of time” graduation rate for full-time, first time students in the Tennessee Tech Centers community colleges was 70 percent. The 2007 IPEDS average among all public, two-year and one-year, non-degree-granting institutions was about 66 percent, but that includes many institutions whose average program length is almost certainly much shorter than the average length of programs of the Tennessee technology centers.¹⁶ In comparison with more apparently analogous institutions in Ohio, Oklahoma, Florida, and a few other states, most of Tennessee’s technology centers clearly are national leaders in graduation rates. Every year for the past several years at least 80 percent and sometimes as many as 90 percent of the program completers available for job placement are employed in jobs related to their program 12 months after completing their program. The Occupational Education Council accredits the Tech Centers, and one of its requirements is that institutions maintain annual job

placement rates of at least 75 percent. While Tennessee does not use UI data to track the labor market returns for its Technology Center completers, internal surveys indicate consistently high earnings compared with industry/occupational averages.¹⁷

A growing consensus in Tennessee holds that the key explanation for the high completion rates in the technology centers can be found in the program structure. Tennessee's technology centers operate on a fixed schedule, consistent from term to term (usually from 8:00 AM to 2:30 PM, Monday through Friday) with a clearly defined time-to-degree based on clock hours of instruction. The full set of competencies for each program is prescribed up front – students enroll as a cohort in a single coherent program, not individual courses. The programs are advertised, priced, and delivered to the students not as separate courses but as integral programs of instruction. Progression through the program is based not on seat time, but rather on the self-paced mastery of specific occupational competencies.

Clearly, this approach discourages part-time attendance. It asks students to commit to an intensive program of full-time instruction. But it consolidates the classroom time into a fixed period each day and it offers a clear and predictable timetable. The technology centers have found that this certainty allows students to work part-time and to meet family responsibilities. Transparency about tuition, duration, success rates, and job placement outcomes (published clearly in college brochures and websites) apparently enables students to assess costs and benefits, see the reasons for continued attendance, and make the sacrifices necessary to achieve program goals.

The technology centers also build necessary remedial education into the programs, enabling students to start right away in the occupational program they came to college to pursue, building their basic math and language skills as they go and using the program itself as context

for basic skill improvement.¹⁸ Getting immediately into the program skills that attracted these students to the college in the first place seems to strengthen their motivation and encourage persistence and completion. While the students are held to a common and rigorous basic skill and workforce readiness standard, connecting basic skills development to technical skills demonstrates relevancy and seems to promote success.

Block scheduling gives students greater control and predictability in organizing work, childcare, and other life responsibilities. The students know their full schedule before they even begin and, as importantly, they know when they will be done. Cohort enrollment – grouping students in the same prescribed sequence of instruction that meet daily – also promotes learning communities widely acknowledged as an effective strategy for improving student outcomes in community colleges.

Certificate Program Structure in Most States

To be clear, most community colleges and many non-degree granting institutions do not offer certificate programs with Tennessee’s completion-focused structure. Students seeking an occupationally oriented certificate at most community colleges pursue a traditional “collegiate” pathway to the credential that is very similar to degree pathways. Generally, they must complete 10 to 12 separate courses, each typically counting for three credit hours. Courses usually meet for 60-90 minutes twice a week for 16 weeks over the semester. Many courses have pre-requisites so taking the right courses in the proper sequence is critical (and some courses are not offered every semester).

Just as in degree programs, many newly enrolled students in many certificate programs are required to take “development education” courses (over one, two, or even three semesters) to

build their math and language skills before they can even enroll in the program-level math and English courses that often represent a gateway into their field of study. These dev-ed courses are credit bearing but do not count toward the certificate requirements. Piecing together a coherent academic pathway to a credential from an array of individual courses that sometimes are awkwardly and inconsistently scheduled in small chunks over 16 week semesters is hard for students who are often not well-prepared, typically face severe and immediate financial pressures, frequently have family responsibilities, and do not have supports or academic advisors to help guide them through the multiple choices required by complex, conventional academic systems. Most students respond to these scheduling challenges by attending only part-time, trying to squeeze in one or at most two courses each semester and occasionally stopping out for a full semester. The pathway to a certificate, especially one that represents completion of a program of at least one year is long and choppy; things go wrong; students simply drop out.

However, in some community colleges, many certificate pathways do closely resemble the Tennessee tech center model, and there is strong potential for expanding the application of the practices and strategies that constitute the technology center model. While good certificate programs incorporate general education content, they sometimes do this on an “applied” basis, integrating critical reading, writing, math, and problem-solving skill development into the technical instruction. Whole program design, rather than course-by-course design, is common in many certificate programs in colleges where it would never be utilized as an instructional strategy in academic programs.

Recommendations for Action at the National, State, and Institutional Level

Increasing the number of certificate awards for completion of organized programs of study of at least one year is a desirable and feasible strategy for increasing overall postsecondary attainment pursuant to White House goals. More concretely, it is a good strategy for heading off the loss of skilled workers in the national labor force that would otherwise occur as older, more educated workers age out of their working years and are replaced by less educated, younger workers. However, boosting certificate programs for working adults and low-income and minority youth will not happen without purposeful action by national, state, and college leaders. The trajectory of increase in long-term certificate awards is positive but gradual, and it has slowed over the past several years even as, on a long-term basis, certificate growth has outstripped gains in degree awards.

Concerted action at the national, state, and institutional levels is necessary if certificate programs are to achieve their promise in increasing postsecondary attainment for working adults and low-income and minority youth who are not now succeeding in traditional degree pathways to credentials.

At the National Level

Federal government authorities in the Administration and at the Departments of Education and Labor can play an important policy leadership role by promoting sub-baccalaureate certificate attainment – above the threshold of one-year programs – as a viable component of national postsecondary attainment planning and as a valuable outcome of postsecondary participation. Important needs include better tools for the Census Bureau for tracking changes in attainment, more rigorous reporting requirements for IPEDS, more critical

research about certificates by the National Center for Education Statistics, and more careful work by the Department of Labor to relate certificate pathways to occupational outcomes.

National and regional accrediting bodies should step up to greater responsibility in their oversight of long-term certificate programs. That means, among other things, acknowledging the importance of whole program, competency-based programming rather than relying exclusively on course-by-course seat time requirements; supporting, not discouraging, the compression of classroom time through hybrid course design; and promoting the effective use of applied math, English, and general education content.

National employer groups should encourage their affiliates to pay sharper attention to certificates as a measure of postsecondary attainment. Of special importance is the need to help employers see the advantages of long-term versus only short-term certificates for current and prospective employees. There is inevitable tension between the logical desire of most employers to squeeze postsecondary education and training of current employees into work-related short chunks that can be incorporated into employee development plans and their longer term shared interest in a more highly skilled workforce with the higher competencies and platform skills typically associated with longer-term credentials. National employer groups can help promote the importance and legitimacy of long-term certificates as a strategy to pull under-prepared youth and adults to postsecondary attainment.

At the State Level

State higher education authorities should insure that the financial and regulatory framework for public postsecondary education encourages enrollment and success in long-term certificate programs, especially in their community colleges. They should encourage their

community colleges to build out certificate programs with labor market payoff. They should also work with statewide and regional employer groups, general business and sector-specific, to promote the advantages to both employers and working adults of high value certificate programs. State workforce development and higher education agencies have a special responsibility – which few are now meeting – to measure the labor market returns to certificates and, for that matter, to all occupationally oriented programs at the associate’s degree level as well. State agencies should routinely match postsecondary student records against administrative record of the state-maintained Unemployment Insurance programs. Ideally, states would assess earnings outcomes for completers versus non-completers in every program area and also compare earnings of those with postsecondary credentials to a sample of those without in all occupational categories. Importantly, this information should be made widely available to students, prospective students, and their employers.

In some states, public postsecondary institutions have left the certificate marketplace to the for-profit sector. This is not a sound strategy for the long haul. It works for the for-profits as long as federal tuition subsidies are generously available, but it drives them toward high-margin programs and toward students willing to incur high levels of debt. Some proprietary institutions have better success in getting students to completion than do most community colleges, but many have poor graduation rates.

At the Institutional Level

Most of the hard work in developing the promise of high value certificate programs needs to be done at the college level by staff and faculty who have a shared interest in promoting better success at their institutions. In a few states, non-degree-granting one-year and two-year

institutions can be a major player in this work but, in most states, it is the community colleges that must lead.

The first step is to examine the scale and scope of existing certificate programs with a view toward expanding the range of programs in high value occupational fields and boosting enrollment in those programs, especially by working adults and low-income and minority youth. If there is a single state model to hold up for comparison, it is probably Arizona where the community colleges have built out an impressive array of certificate programs with some apparent consistency statewide but also demonstrating responsiveness to regional labor markets. Arizona's community colleges also offer a strong example of aggressive outreach to build the participation of working adults and low-income and minority youth.

But for colleges the issue is not just scale and scope and expanding access. The Tennessee Technology Center model demonstrates the importance of program structures that promote success and completion. Many community colleges see the completion advantage of certificate programs exclusively in their relatively short length but that is not an adequate foundation for success for strong certificate programs with high labor market relevance and good earnings returns. Time to credential is important and usually one of the reasons that students enter certificate pathways – they see them as shorter and therefore less daunting than degree offerings. But good programs are often nearly as long as degree programs and merely limiting credit or clock hours will not always be feasible and by itself will not necessarily build success. There are several inter-related educational strategies and practices frequently associated with high completion rates in both certificate and degree programs. These strategies and practices should not be seen as a *menu* from which colleges might pick and choose. Rather, they should

be viewed as a flexible *recipe* for building new programs and rebuilding existing ones in ways that directly promote student success and credential completion.

- ***Integrated Program Design*** – The full set of competencies for each program would be prescribed up front and students would enroll in a single, coherent program – not individual, unconnected courses. Students would not be required to navigate through complex choices or worry about unnecessary detours. Instructors would share accountability for helping the students successfully complete the whole program.
- ***Compressed Classroom Instruction*** – Non-classroom-based, asynchronous instruction methods using contemporary technology would supplement traditional classroom instruction to compress seat-time requirements and strengthen the curriculum.
- ***Block Schedules*** – Programs would operate on a fixed classroom-meeting schedule, consistent from term to term. The students would know their full schedule before they begin, and they would know when they would be done.
- ***Cohort Enrollment*** – Students would be grouped as cohorts in the same prescribed sequence of classroom and non-classroom instruction. This would promote the emergence of in-person and online learning communities widely acknowledged as an effective strategy for improving student outcomes.
- ***Embedded Remediation*** – Most remediation would be embedded into the program curriculum, supplemented as necessary through instruction that is parallel and simultaneous to the program, rather preceding it. Students would develop stronger math and English skills as they build program competencies, using the program as

context. There would be clear basic skill outcome expectations with rigorous assessment.

- ***Transparency, Accountability, and Labor Market Relevance*** – The programs would be advertised, priced, and delivered as high-value programs tightly connected to regional employers and leading to clearly defined credentials and jobs. Clear and consistent information about tuition, duration, success rates, and job placement outcomes would enable students to assess costs and benefits, see the reasons for continued attendance, and make the sacrifices necessary to achieve program goals. Programs would be held accountable to rigorous and consistent national accreditation standards.
- ***Program-Based Student Support Services*** – Even as these changes in the fundamental structure of certificate programs accelerate persistence to completion, it also should be anticipated that many students will require support services to overcome problems of transportation, child care, and other personal, family, and economic pressures. Ideally, these supports would be embedded into the programs themselves, with faculty helping to identify student needs and supporting resources and using technology and partnerships with employers and community-based organizations to supplement traditional support services.

If community colleges expanded their certificate offerings to all high-demand, good wage jobs in their regional economy, and if they applied in those certificate offerings the strategies and practices associated with high rates of completion, certificate awards and attainment levels could increase much more rapidly than degrees. If we do them right, certificate programs can be a

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vitally important national strategy in boosting postsecondary attainment and maintaining the advances in labor force skills that have helped drive national economic growth.

¹ *Investment in Education: Private and Public Returns*, Joint Economic Committee, U.S. Congress (January 2000).

² See in particular “Sustaining U.S. Economic Growth” by J. Bradford DeLong, Claudia Goldin, and Lawrence F. Katz in *Agenda for the Nation*, eds Henry J. Aaron, James M. Lindsay, and Pietro S. Nivola. (Washington, DC: Brookings Institution Press, 2003).

³ These calculations do not include undergraduate certificates both because attainment data collected by the U.S. Census Bureau do not include certificates and because only certificates longer than two years in duration would count as “tertiary education” within international frameworks. Efforts are underway to include a new question on the Current Population Survey or American Community Survey that will capture the percentage of adults in the population that have earned certificates.

⁴ Sandy Baum, Jennifer Ma, and Kathleen Payes, *Education Pays 2010 The Benefits of Higher Education for Individuals and Society* (Washington, DC: The College Board, 2010).

⁵ Alexandria Walton Radford, Lutz Berkner, Sara C. Wheelless, Bryan Shepherd, *Persistence and Attainment of 2003–04 Beginning Postsecondary Students: After 6 Years*, NCES 2011-151 (Washington, DC: U.S. Department of Education, 2010).

⁶ Some colleges also observe that regional accrediting bodies tend to be driven by traditional academic practices in their limited oversight of occupational programming and often are seen as obstacles to effective certificate programming – failing for example to acknowledge applied learning practices.

⁷ The years of attainment measure counts two years for each associate’s degree and 2-4 year certificate, one year for each 1-2 year certificate, and .5 year for each less-than-one-year certificate.

⁸ U.S. Census Bureau, *Current Population Survey, 2009 Annual Social and Economic Supplement* (April 2010).

⁹ A more detailed review of national level research on labor market returns to certificates is available in *Certificates Count: An Analysis of Sub-Baccalaureate Certificates* published by Complete College America (December 2010). Available online at http://www.completecollege.org/resources_and_reports/.

¹⁰ A more detailed review of state level research on labor market returns to certificates is available in *Certificates Count: An Analysis of Sub-Baccalaureate Certificates* published by Complete College America in December 2010 and accessible at http://www.completecollege.org/resources_and_reports/.

¹¹ Anthony P. Carnevale, Nicole Smith, Jeff Strohl, *Help Wanted: Projections of Jobs and Education Requirements Through 2018* (Washington, DC: Georgetown University, 2010).

¹² Alexandria Walton Radford, Lutz Berkner, Sara C. Wheelless, Bryan Shepherd, *Persistence and Attainment of 2003–04 Beginning Postsecondary Students: After 6 Years*, NCES 2011-151 (Washington, DC: U.S. Department of Education, 2010).

¹³ Louis Jacobsen and Christine Mokher, 2008. *Pathways to Boosting the Earnings of Low-Income Students by Increasing Their Educational Attainment* (Washington, DC: The Hudson Institute and CAN, November 2008).

¹⁴ There are thirteen community colleges in Tennessee. They are comprehensive institutions offering pre-baccalaureate-oriented associate’s degrees that transfer directly to four-year colleges, as well as workforce-oriented associate’s degrees and some certificates for programs designed to prepare students for more immediate employment. Headcount enrollment for the community colleges was 92,226 in the fall term of 2009 and the FTE count was 59,993. In 2008-09, the community colleges awarded 6,760 associate’s degrees and 1,591 certificates. Nearly half of the associate’s degrees were “pre-baccalaureate” and designed specifically for transfer to four-year institutions. Some of the other degrees might transfer to some four-year institutions but they are designed primarily for occupational results.

¹⁵ Tennessee Higher Education Commission, *Wilder-Naifeh Technical Skills Grant Program Report* (2010).

¹⁶ The national average for public, two-year, degree-granting institutions was 20.8 percent.

¹⁷ John Hoops, *A Working Model for Student Success: The Tennessee Technology Centers* (unpublished report prepared for Complete College America, 2010).

¹⁸ An exception to this approach can be found in certain healthcare programs (mostly the LPN programs) where applicants are required to demonstrate baseline competencies in math and English. Statewide, the waiting list for technology center LPN programs exceeds three years.



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