SHEEO State Higher Education Executive Officers

Certificate Production and the Race toward Higher Degree Attainment

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Introduction

Since the current economic recession began, the national dialogue on degree production and accountability has accelerated. The conversation is fueled by a national imperative for robust postsecondary degree production in order to remain globally competitive. In order to track the progress made by states and their postsecondary institutions, the State Higher Education Executive Officers released the *Degree Production and Cost Trends* report, in August 2010, as the first part in a series examining degree and completion production and related education expenses.

Complete College America and FutureWorks conducted an analysis of certificate production, the value of the certificate program, and the economic benefit it provides to the region and nation. The conclusion, based on labor market demand and both personal and economic returns, is that certificates count and the policy and trends around certificates deserve closer examination.

The following report is a follow-up that focuses on certificate production across the states and serves to answer some of the important questions raised in the first iteration:

- What trends can we observe in certificate production?
- Are there different state factors driving results?
- What are the policy implications of a state's certificate production?

To answer these questions, this analysis presents an overview of certificate production in the United States, the types of certificates driving production, and a comparison to overall

completion production in the states. The overall goal of this report is to create a context for state policy discussion and stimulate challenging questions about completion data and certificate production.

Methodology

In the same fashion as the *Degree Production and Cost Trends* report, public postsecondary institutions were assembled into six groups based on their Carnegie 2005 classifications (Table 9). Non-profit private and for-profit institutions were not included in the analysis, which is important to note because for-profit certificate production is substantial in some states[1]. Only degree-granting public institutions were included in the analysis. In some instances, the IPEDS reporting procedures led to data for multiple institutions being grouped under a single institution name. These groupings were created by the Delta Cost Project and were maintained for this analysis. These six groups include:

1. Associates[2]
2. Baccalaureate/Masters[3]
3. Doctoral
4. Research, High Activity
5. Research, Very High Activity

Both this and the previous study included a change over-time analysis. In the previous study, states lacking data for a Carnegie group in both 1997 and 2007 were excluded from the analysis (Alaska, Connecticut, and Kentucky at the associates level and Nevada at the baccalaureate and masters level). These states are included in the most recent (2008) dataset released by the Delta Cost Project, and now they are reflected in this report. This analysis uses Delta Cost Project's: Total FTE, Associates Degrees, Total Completions, and multiple Award variables.

1. **Full-Time Equivalent Enrollment (FTE):** Full-time equivalent enrollments are derived from the enrollment by race/ethnicity section of the fall enrollment survey. The full-time equivalent of an institution's part-time enrollment is estimated by multiplying part-time enrollment by factors that vary by control and level of institution and level of student; the estimated full-time equivalent or part-time enrollment is then added to full-time enrollment of the institution. This formula is used by the U.S. Department of Education to produce the full-time equivalent enrollment data published annually in the Digest of Education Statistics.

[1] Source: *Certificates Count: An Analysis of Sub-baccalaureate Certificates.* Complete College America and FutureWorks.

[2] Includes institutions classified as baccalaureate institutions that predominantly award associates degrees. Associate institutions with a "special" Carnegie classification were omitted from the analysis as well.

[3] Any institution that had a baccalaureate classification (with the exception of those that were included as associates institutions) and any institution that had a masters classification.

2. **Total Associates Degrees:** The sum total of associates degrees conferred that normally require at least two years but less than four years of full-time college work.
3. **Total Completions:** The sum total degrees (associates degrees, baccalaureate degrees, masters degrees, doctoral degrees and first professional degrees as reported to IPEDS), plus certificates (post-baccalaureate, post-masters and first-professional) and total awards (awards less than one year, equal to one year but less than two, and equal to two years but less than four) as reported to IPEDS.
4. **Certificates:** Total awards below the baccalaureate degree level. Included are awards less than one year, equal to one year but less than two years, and equal to two years but less than four. While IPEDS classifies these completions as "Awards," past policy research and generally accepted terminology refer to these as "certificates." In order to remain consistent with broadly employed language, this report will use the term "certificates."

National Certificate Production

Nationally (all sectors), certificate production per 100 FTE and as a percent of total completions has increased over the last 10 years. The most substantial increase in certificates per 100 FTE and certificates as a percent of total completions occurred from 1998 to 2003. As total completions rose during the latter half of the decade, certificates as a percent of completions remained relatively level between 2003 and 2008.

Table 1

Certificates as a % of Total Completion Production by Carnegie Grouping (Public Institutions)

	1998	2003	2007	2008
Associates				
Certificates per 100 FTE	6.64	7.54	8.56	8.41
Certificates as % of Completions	32%	37%	38%	38%
Baccalaureate/Masters				
Certificates per 100 FTE	0.11	0.16	0.17	0.17
Certificates as % of Completions	0.5%	0.7%	0.7%	0.7%
Doctoral				
Certificates per 100 FTE	0.15	0.13	0.12	0.1
Certificates as % of Completions	0.7%	0.6%	0.5%	0.4%
Research, High Activity				
Certificates per 100 FTE	0.1	0.16	0.15	0.17
Certificates as % of Completions	0.4%	0.7%	0.6%	0.7%
Research, Very High Activity				
Certificates per 100 FTE	0.37	0.19	0.17	0.18
Certificates as % of Completions	1.5%	0.8%	0.7%	0.7%
All Sectors				
Certificates per 100 FTE	2.63	3.2	3.48	3.44
Certificates as % of Completions	11.8%	14.2%	14.6%	14.5%

Certificate production is minimal in each Carnegie classification except the associates-level institutions, which are the primary driver of national certificate production.

Certificate production in associates institutions increased significantly as a percent of total completions from 1998 to 2003, which helps explain the similar national increase during the same time period. While some baccalaureate degree production does exist in the associates institutions, total completions in this sector continue to be overwhelmingly represented (99.6 percent) by certificates and associates degrees.

National Certificate Production by Certificate Type

Table 2 examines national certificate production (all sectors) and certificate production within the associates sector. While all sectors offer certificates, approximately 96 percent of all certificate production in the United States occurred at an associates institution over the last ten years. As a result, four-year colleges and universities are omitted from the change-over-time analysis to avoid giving a false impression of greater certificate production (percent changes starting with a small base value can look greater than one starting with a larger base value). Thus, the remainder of this analysis will focus on the associates sector.

The analysis tracks the three major certificate groups tracked by IPEDS and conferred by postsecondary institutions. It is important to note that these certificates are not to be confused with certifications conferred by professional licensure entities:

- Certificates less than 1 year;
- Certificates equal to 1 year but less than 2 years;
- Certificates equal to 2 years but less than 4 years.

Nationally, certificates less than one year and certificates equal to one year but less than two years represent more than 90 percent of certificate production in all four years of the analysis. Total certificates awarded increased by 62.8 percent over the last decade, and certificates less than one year awarded increased the most (112.4 percent). Certificates equal to one year but less than two years increased, but due to the considerable increase in certificates less than one year, they declined as a proportion of total certificates awarded. Production of certificates equal to two years but less than four decreased overall and as a percentage of total certificates.

Similar trends exist at associates institutions, in that more than 90 percent of certificate production is represented by certificates less than one year and certificates equal to one year but less than two years. The same growth patterns existing across all sectors exist in the associates sector. However, changes at associates institutions have higher magnitudes when compared to the national averages. This result is likely due to the decline in production of certificates as a percentage of total awards conferred in the other Carnegie groupings (primarily doctoral and research, very high activity). As mentioned above, associates institutions are the primary conferrer of certificates, so this result is not surprising.

Table 2

Certificate Type as a % of Total Certificate Production by Carnegie Grouping (Public Institutions)

	1998		2003		2007		2008		1 Year % Change (2007-2008)	5 Year % Change (2003-2008)	10 Year % Change (1998-2008)
	# of Cert	% of Total Certificates	# of Cert	% of Total Certificates	# of Cert	% of Total Certificates	# of Cert	% of Total Certificates	# of Cert	# of Cert	# of Cert
Associates											
Certificates less than 1 year	89,835	46.8%	158,879	59.3%	189,916	60.4%	197,904	62.1%	4.2%	24.6%	120.3%
Certificates equal to 1 year less than 2 years	89,300	46.5%	101,140	37.7%	115,767	36.8%	113,289	35.6%	-2.1%	12.0%	26.9%
Certificates equal to 2 years less than 4 years	12,831	6.7%	8,082	3.0%	8,514	2.7%	7,285	2.3%	-14.4%	-9.9%	-43.2%
Total Certificates	**191,966**	**100%**	**268,101**	**100%**	**314,197**	**100%**	**318,478**	**100%**	1.4%	18.8%	65.9%
All Sectors											
Certificates less than 1 year	95,084	47.2%	162,285	58.6%	193,581	59.8%	201,911	61.5%	4.3%	24.4%	112.4%
Certificates equal to 1 year less than 2 years	93,239	46.2%	105,514	38.1%	120,266	37.2%	117,967	35.9%	-1.9%	11.8%	26.5%
Certificates equal to 2 years less than 4 years	13,333	6.6%	9,322	3.4%	9,643	3.0%	8,460	2.6%	-12.3%	-9.2%	-36.5%
Total Certificates	**201,656**	**100%**	**277,121**	**100%**	**323,490**	**100%**	**328,338**	**100%**	1.5%	18.5%	62.8%

Share of Certificate and Associates Degree Production

Table 3 compares certificate production to associates degree production in public associates institutions. In earlier years of the analysis, certificates comprised approximately one-third share of total production during the decade. This share increased to almost 40 percent by 2008. Figure 1 shows a similar production trend using the raw number of certificates and associates degrees conferred as opposed to the ratios to the right. Both completion types are increasing, but certificates increased as a share of total completions. Since our Carnegie groupings contain a small number of baccalaureate institutions that primarily offer associates degrees, the "other" category illustrates bachelors degrees conferred at those institutions.

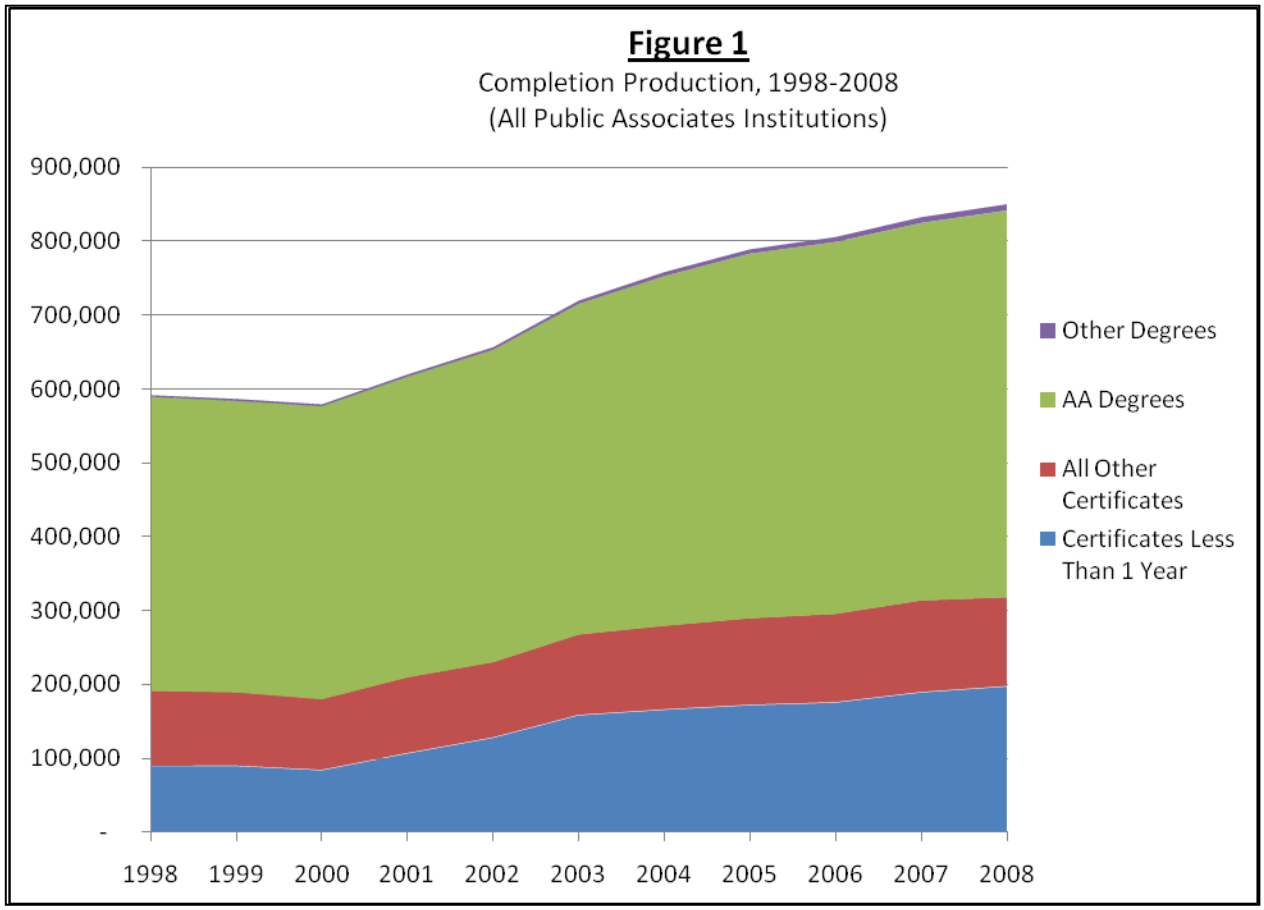
Table 3

Certificate and Associates Degree Levels, 1998-2008 (All U.S. Public Associates Institutions)

	Certificates as a Percent of Total Completions	Associates Degrees as a Percent of Total Completions
1998	32.4%	67.2%
1999	32.4%	67.2%
2000	31.2%	68.4%
2001	33.9%	65.6%
2002	35.1%	64.3%
2003	37.3%	62.1%
2004	36.9%	62.4%
2005	36.8%	62.5%
2006	36.8%	62.4%
2007	37.8%	61.3%
2008	37.5%	61.5%

Figure 1

Completion Production, 1998-2008
(All Public Associates Institutions)



Certificate and Associates Degree Production by Region

From 1998-2008, certificates grew faster than FTE enrollment in 31 states and the nation as a whole. Certificates grew fastest in Ohio[4] (349 percent) and Kentucky (309 percent), and, at the other extreme, certificates declined by 39 percent in Utah. In that time period, certificates grew faster than associate degrees in 34 states and the nation as a whole. The awarding of associate degrees grew fastest in Nevada and Arizona. Table 8 in the Appendix provides these results in greater detail.

Northeast

FTE growth in the Northeast (Table 4) region outpaced the national average over the ten-year period. In four states, associates degree growth outpaced or matched the United States average and one state outpaced the national average in certificate production. The prevalence of private non-profit institutions in many of the northeast states and a small community college sector is a likely contributing factor to smaller sub-baccalaureate completion growth.

Table 4

10 Year FTE, Certificate and Associates Degree Growth
Northeast Census Region (Public Associates Institutions)

States	10 Year % Change (1998-2008)		
	FTE	Certificates	Associates Degrees
Connecticut	42%	23%	14%
Maine	80%	-4%	42%
Massachusetts	28%	53%	17%
New Hampshire	48%	27%	28%
New Jersey	40%	9%	32%
New York	24%	39%	0%
Pennsylvania	43%	60%	40%
Rhode Island	18%	17%	-3%
Vermont	22%	77%	31%
Region	**32%**	**39%**	**15%**
United States	**31%**	**66%**	**31%**

Midwest

The Midwest (Table 5) saw slower enrollment growth compared to the Northeast and South; however, Indiana far outpaced the national average in FTE growth and saw strong increases in certificates and associates degrees. The development of a dedicated statewide community college system contributed to Indiana's growth. Illinois experienced slower FTE growth, but certificates grew substantially over the last decade. Kansas, North Dakota, and South Dakota have seen considerably less growth in all three areas. Certificates grew at triple digit rates in the rust belt states of Michigan, Ohio, and Illinois. This growth may signal a policy effort to re-educate unemployed blue-collar workers since unemployment

Table 5

10 Year FTE, Certificate and Associates Degree Growth
Midwest Census Region (Public Associates Institutions)

States	10 Year % Change (1998-2008)		
	FTE	Certificates	Associates Degrees
Indiana	108%	63%	62%
Illinois	13%	141%	10%
Iowa	34%	28%	25%
Kansas	10%	-7%	19%
Michigan	31%	122%	23%
Minnesota	30%	17%	46%
Missouri	34%	8%	35%
Nebraska	30%	50%	37%
North Dakota	10%	-22%	13%
Ohio	34%	349%	24%
South Dakota	14%	28%	17%
Wisconsin	16%	72%	23%
Region	**27%**	**68%**	**25%**
United States	**31%**	**66%**	**31%**

[4] Alaska saw the greatest percentage growth, but was excluded due to very small baseline certificate numbers and production levels.

in those states has been higher than the U.S. through most of the last five years of analysis[5].

Table 6

10 Year FTE, Certificate and Associates Degree Growth
South Census Region (Public Associates Institutions)

States	10 Year % Change (1998-2008)		
	FTE	Certificates	Associates Degrees
Alabama	8%	-19%	3%
Arkansas	63%	160%	77%
Delaware	33%	29%	25%
Florida	29%	84%	31%
Georgia	79%	144%	69%
Kentucky	59%	309%	80%
Louisiana	37%	13%	-5%
Maryland	55%	82%	73%
Mississippi	34%	16%	40%
North Carolina	39%	73%	33%
Oklahoma	27%	53%	28%
South Carolina	41%	79%	31%
Tennessee	18%	17%	41%
Texas	37%	38%	82%
Virginia	38%	42%	36%
West Virginia	18%	109%	22%
Region	**37%**	**78%**	**43%**
United States	**31%**	**66%**	**31%**

Table 7

10 Year FTE, Certificate and Associates Degree Growth
West Census Region (Public Associates Institutions)

States	10 Year % Change (1998-2008)		
	FTE	Certificates	Associates Degrees
Alaska	73%	571%	71%
Arizona	27%	88%	85%
California	33%	36%	37%
Colorado	7%	124%	16%
Hawaii	0%	-4%	-1%
Idaho	27%	31%	36%
Montana	26%	-22%	13%
Nevada	55%	228%	94%
New Mexico	33%	167%	63%
Oregon	10%	39%	28%
Utah	24%	-39%	14%
Washington	5%	86%	12%
Wyoming	10%	145%	24%
Region	**27%**	**49%**	**33%**
United States	**31%**	**66%**	**31%**

South

In the South (Table 6) growth in enrollments, certificates, and degrees outpaced the national average over the ten-year period. All but one state had positive growth in associates degree production and all but one saw positive growth in certificate production. Arkansas, Georgia, West Virginia and, most notably, Kentucky experienced substantial growth in certificates. Kentucky's high growth in certificates and associates degrees is likely related to a change in the community college structure with the creation of the Kentucky Community and Technical College System. Eleven states grew faster in associates degrees than the national average, which is further testament to a strong policy focus on growing sub-baccalaureate degree attainment in the South.

West

In the West (Table 7) enrollments and certificates grew slower than the national average, but some states in the region saw comparatively large growth in both areas. Colorado, Nevada, New Mexico, and Wyoming grew considerably in certificate production. However, the decline in certificates awarded in Montana, Utah and Hawaii held the region below the national average. While Alaska saw growth in all three areas, the growth rate of certificates is exaggerated due to low base numbers beginning in 1998.

[5] *Source:* U.S. Bureau of Labor Statistics.

Conclusion

National leaders continue to push for an increase in postsecondary degree attainment in order for the U.S. to remain an economic competitor and global innovator. Increasing attainment at all degree levels will be required to achieve this goal, but sub-baccalaureate degrees and certificates will clearly be an important credential for many jobs and a foundation for more advanced training in others. This report closely examined the certificate and associates degree attainment growth and found the following:

- Nationally, certificate and associates degree production grew over the last ten years; primarily fueled by strong growth in the first part of the decade.
- Public sector production of associates degree and certificates primarily occurs at associates institutions.
- Certificates less than one year and certificates equal to one year but less than two years represent the majority of certificates conferred by associates institutions.
- While certificates are growing as a percent of total completion production at associates institutions, the associates degrees are still the majority of completions conferred by associates institutions.
- Regionally, the South experienced the strongest growth in FTE, certificates, and associates degrees.
- Ohio, Kentucky, Arkansas, Nevada, and New Mexico saw the largest growth margin in certificates awarded.

Variation among regions in the growth of certificate and associates degree production may be driven by student demand, institutional market share, access to associates institutions, state higher education policy and finance, and/or labor market demand. While this report does not provide an analysis of the economic impact of certificate programs, the regional breakouts amplify the question of whether such production growth is tied to changes in state policy.

A recent study by leading economist Anthony Carnevale indicates that some low paying jobs lost during the recession will not return during economic recovery[6], but will be replaced by high wage jobs requiring postsecondary education. Considering the high certificate growth areas in the South and certain states in the Midwest, labor market demand for retrained, unemployed manufacturing workers may have a significant impact on this policy direction.

As businesses continue to recruit more highly-trained workers, certificate programs in multiple states serve an important role for retraining workers to be competitive in a new economy. Assuring state and national resources for additional production of these degrees is a key to securing a competitive position in the global market.

[6] *Source:* Anthony Carnevale, (June 2010). "Help Wanted: Projections of Jobs and Education Requirements through 2018".

Appendix

Table 8

2008 FTE, Certificates, and Associates Degrees and 10 Year Growth, 1998-2008 (Public Associates Institutions)

States	2008			10-Year Growth (1998-2008)		
	FTE	Certificates	Associates Degrees	FTE	Certificates	Associates Degrees
Connecticut	28,337	891	3,917	42%	23%	14%
Maine	7,295	322	1,289	80%	-4%	42%
Massachusetts	54,238	2,581	8,643	28%	53%	17%
New Hampshire	7,403	442	1,466	48%	27%	28%
New Jersey	106,933	718	15,207	40%	9%	32%
New York	174,091	1,906	29,937	24%	39%	0%
Pennsylvania	74,345	2,117	11,532	43%	60%	40%
Rhode Island	9,836	161	1,223	18%	17%	-3%
Vermont	8,708	179	850	22%	77%	31%
Northeast Region	**471,185**	**9,317**	**74,064**	**32%**	**39%**	**15%**
Indiana	48,366	2,730	6,578	108%	63%	62%
Illinois	169,842	19,956	23,316	13%	141%	10%
Iowa	56,604	4,524	10,262	34%	28%	25%
Kansas	44,573	6,175	7,099	10%	-7%	19%
Michigan	132,238	7,842	20,321	31%	122%	23%
Minnesota	77,227	10,238	12,237	30%	17%	46%
Missouri	56,136	1,937	8,521	34%	8%	35%
Nebraska	21,443	1,882	3,511	30%	50%	37%
North Dakota	5,520	367	1,444	10%	-22%	13%
Ohio	97,540	7,625	14,541	34%	349%	24%
South Dakota	4,466	731	1,047	14%	28%	17%
Wisconsin	65,202	14,953	10,529	16%	72%	23%
Midwest Region	**779,157**	**78,960**	**119,406**	**27%**	**68%**	**25%**
Alabama	51,007	3,864	7,256	8%	-19%	3%
Arkansas	37,012	6,019	4,426	63%	160%	77%
Delaware	9,248	883	1,126	33%	29%	25%
Florida	225,393	21,291	49,242	29%	84%	31%
Georgia	89,955	32,653	8,346	79%	144%	69%
Kentucky	53,243	16,297	6,483	59%	309%	80%
Louisiana	38,808	11,362	2,922	37%	13%	-5%
Maryland	69,275	2,394	9,884	55%	82%	73%
Mississippi	48,786	2,038	7,191	34%	16%	40%
North Carolina	117,614	15,527	17,546	39%	73%	33%
Oklahoma	45,755	569	7,986	27%	53%	28%
South Carolina	54,382	6,916	6,992	41%	79%	31%
Tennessee	50,671	1,509	6,741	18%	17%	41%
Texas	296,329	18,611	34,293	37%	38%	82%
Virginia	92,643	4,886	12,274	38%	42%	36%
West Virginia	10,393	366	1,279	18%	109%	22%
South Region	**1,290,514**	**145,185**	**183,987**	**37%**	**78%**	**43%**
Alaska	539	47	24	73%	571%	71%
Arizona	99,786	16,323	12,147	27%	88%	85%
California	796,202	41,289	81,257	33%	36%	37%
Colorado	43,436	6,653	5,798	7%	124%	16%
Hawaii	15,510	380	2,280	0%	-4%	-1%
Idaho	7,882	447	1,135	27%	31%	36%
Montana	4,680	193	846	26%	-22%	13%
Nevada	28,412	499	2,735	55%	228%	94%
New Mexico	26,427	2,160	3,075	33%	167%	63%
Oregon	48,069	1,807	6,795	10%	39%	28%
Utah	42,313	3,183	6,309	24%	-39%	14%
Washington	121,409	11,363	20,356	5%	86%	12%
Wyoming	12,486	672	2,147	10%	145%	24%
West Region	**1,247,150**	**85,016**	**144,904**	**27%**	**49%**	**33%**
United States	**3,788,007**	**318,478**	**522,361**	**31%**	**66%**	**31%**

Carnegie Groups

Table 9

Carnegie 2005 Classification and Groupings	
Carnegie 2005 Classification	Grouped Carnegie Classification
Associates--Public Rural-serving Small	Associates
Associates--Public Rural-serving Medium	Associates
Associates--Public Rural-serving Large	Associates
Associates--Public Suburban-serving Single Campus	Associates
Associates--Public Suburban-serving Multi-campus	Associates
Associates--Public Urban-serving Single Campus	Associates
Associates--Public Urban-serving Multi-campus	Associates
Associates--Public Special Use*	Special
Associates--Private Not-for-profit*	Associates
Associates--Private For-profit*	Associates
Associates--Public 2-year colleges under 4-year universities	Associates
Associates--Public 4-year Primarily Associates	Associates
Associates--Private Not-for-profit 4-year Primarily Associates*	Associates
Associates--Private For-profit 4-year Primarily Associates*	Associates
Research Universities (very high research activity)	Research, Very High Activity
Research Universities (high research activity)	Research, High Activity
Doctoral/Research Universities: Doctorate-granting Universities	Doctoral
Master's Colleges and Universities (larger programs)	Baccalaureate/Master's
Master's Colleges and Universities (medium programs)	Baccalaureate/Master's
Master's Colleges and Universities (smaller programs)	Baccalaureate/Master's
Baccalaureate Colleges--Arts & Sciences	Baccalaureate/Master's
Baccalaureate Colleges--Diverse Fields	Baccalaureate/Master's
Baccalaureate/Associates Colleges	Associates
Special Focus Institutions--Theological seminaries, Bible colleges, and other faith-related institutions*	Special
Special Focus Institutions--Medical schools and medical centers*	Special
Special Focus Institutions--Other health professions schools*	Special
Special Focus Institutions--Schools of engineering*	Special
Special Focus Institutions--Other technology-related schools*	Special
Special Focus Institutions--Schools of business and management*	Special
Special Focus Institutions--Schools of art, music, and design*	Special
Special Focus Institutions--Schools of law*	Special
Special Focus Institutions--Other special-focus institutions*	Special
Tribal Colleges*	Special
Not classified*	N/A
Not applicable, not in Carnegie universe (not accredited or non-degree-granting)*	N/A

Note: Classifications marked with an asterisk are not included in the report.