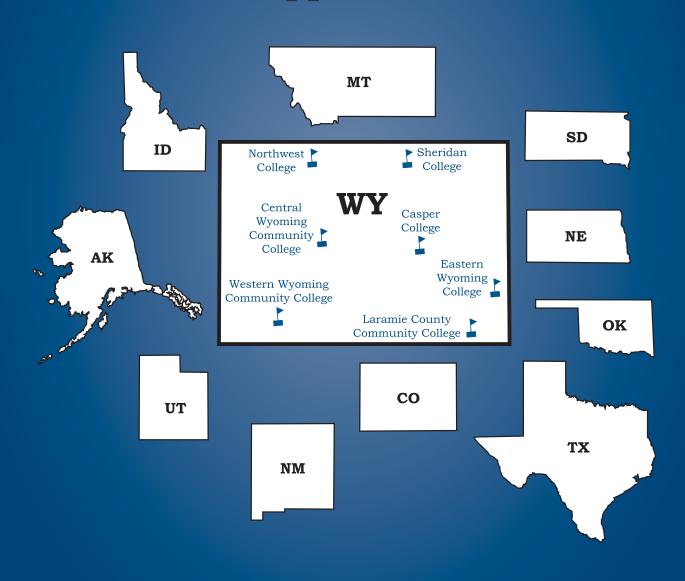
WYOMING DEPARTMENT OF EMPLOYMENT

Wyoming Community College Graduates' Labor Market Outcomes 2005: An Administrative Records Approach





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Wyoming Department of Employment

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Wyoming Community College Commission

EXECUTIVE SUMMARY

Wyoming Community College Graduates' Labor Market Outcomes 2005: An Administrative Records Approach

Wyoming's seven community colleges are one part of the state's workforce development system. Graduates of the colleges provide essential labor to the state's economy. This report presents a snapshot of the employment and enrollment outcomes of academic year 2002-2003 graduates one year after graduation.

Graduate Employment and Enrollment Totals

- > 2,027 students graduated from Wyoming community colleges in academic year 2002-03.
- > Of the total of 2,027 graduates, 1,416 (70%) were employed one year after graduation.
- > Of the total of 2,027 graduates, 1,127 (56%) were subsequently enrolled in college either at another college or re-enrolled at the same school.
- 56% of the graduates were between the ages of 17-24 years. There were graduates in all age groups, including 4.3% (85) who were 50 years or older.
- > Some graduates worked while continuing their education.

How Much Do Graduates Earn? (Table 2, page 6)

- Occupational graduates earned an average hourly wage of \$16.89.
- Academic graduates earned an average hourly wage of \$11.60.

In Which Industries Do Graduates Work? (Table 8, page 13)

- ➤ In Wyoming, the 1,416 employed graduates worked in these top four industries:
 - Health Care, 303 (21%)
 - o Retail Trade, 189 (13%)
 - o Educational Services, 181 (12%)
 - Leisure and Hospitality, 123 (9%)
- Only 67 college graduates (5%) were working in Natural Resources and Mining (including oil & gas).
- > Graduates were found working in all industry classifications.

In Which State Do Graduates Work? (Map, page 12)

- A majority of college students work in Wyoming after graduation:
 - 59% work in Wyoming
 - o 9% work in one of the six border states
 - 1% work in another partner research state with Wyoming

What Effect Does Transfer Status Have on Earnings? (Figure 1, page 4; Figure 2, page 5; Table 2, page 6)

- > 56% of Wyoming community college graduates transferred to another institution to continue their education.
- > Both categories of graduates continued their education: academic (74%) and occupational (37%).
- Occupational graduates, who worked and continued their college enrollment, earned an average hourly wage of \$13.26.
- Academic graduates, who worked and continued their college enrollment, earned an average hourly wage of \$6.97
- > It is expected that students who work while continuing their education will earn lower wages; usually these students work part time in predominantly low-skill jobs.

Findings

- > Many Wyoming community college students find well-paying employment after graduation and tend to stay in Wyoming.
- Two common beliefs are that academic students tend to continue their education and not enter the workforce, while occupational graduates tend to move into the workforce and not to continue their education. The results of this study follow this general pattern; however, a number of academic students do not continue their education while some occupational students re-enroll in college.
- Occupational graduates' skills are particularly being used in the Health Care industry and are earning the highest average hourly wages.

Casper College • Central Wyoming College • Eastern Wyoming College • Laramie County Community College
Northwest College • Sheridan College • Western Wyoming Community College

Foreword

Wyoming's seven community colleges are one part of the state's workforce development system. Graduates of these schools provide essential labor to the state's economy in industries such as Health Care, Mining, and Education. This report presents a snapshot of that system by examining graduates' employment and enrollment outcomes one year after graduation using administrative records exclusively. The report and tabulations were developed in response to a Memorandum of Understanding (MOU) with the Wyoming Community College Commission.

This report does not address larger or closely related questions: to what degree is the existing system effective at accomplishing its goals? Is the volume of workers being trained sufficient to meet the demand for labor? Over the long term, do graduates return to the community college system to upgrade their skills? Research & Planning (R&P) can address some of these questions with existing administrative databases, but more complex questions require more complex research strategies. These strategies include tracking groups of individuals over time and linking survey data from both employers and students to administrative data. By coordinating survey research and administrative data, R&P has the ability to comprehensively describe and explain Wyoming labor market activities.

Our goal with this study is to describe student outcomes at a single point in time. Many more questions remain about how the educational system functions within the workforce development system.

Abstract

This report examines the employment outcomes of academic year 2002-2003 graduates from Wyoming's seven community colleges. Particular emphasis was placed upon the outcomes of graduates with Occupational-Technical degrees as students in those programs likely completed their education. Results indicated that among all graduates, most worked one year after graduation in Wyoming or a bordering partner research state. The Health Care industry employed the largest share of graduates. Of those, over 80% held occupational degrees. The findings support the position that the Occupational-Technical degree programs provide the graduates with employable skills.

uring the period covered by this study, Wyoming's economy experienced substantial growth. From 2002 to 2003, employment grew in the state by 2,100 jobs (0.8%; Bullard, 2004). The increase in employment was much greater from 2003 to 2004 with a jump of 5,400 jobs (U.S. Department of Labor, Bureau of Labor Statistics, n.d.). Much of the growth was, and continues to be, a result of high energy prices (Wen, 2005). This was the environment in which academic year 2002-2003 graduates of Wyoming's seven community colleges (Casper College, Central Wyoming College, Eastern Wyoming College, Laramie County Community College, Northwest College, Sheridan College including the Gillette campus, Western Wyoming Community College) entered the labor market.

In past studies of graduates' outcomes, we focused our attention exclusively on labor market outcomes. This study also describes students who transfered to other schools, did not transfer, or re-enrolled at the same school upon graduation. National Student Clearinghouse (http://www.studentclearinghouse.org/default.asp) records were used to determine transfer status.

The use of data from the colleges matched with National Student Clearinghouse and Wage Records (Gosar, 1995) data allows for an improved accounting of students' transitions following graduation. Particular attention is paid to graduates with Occupational-Technical degrees and their ability to gain immediate employment.

Degrees were assigned a designation of either Occupational-Technical or Academic-Transfer (hereafter referred to as occupational or academic, respectively) by each college. Both degrees describe the intent of the degree program in which students graduated. An occupational degree program is complete upon graduation. It qualifies students to work in occupations requiring an associate's degree or other certification obtainable from a community college. The Registered Nurse program is an example of an occupational degree. An academic designation describes a program which prepares students for continuing education towards a higher degree. An example of an academic degree program is Accounting.

We focus on four main questions:

- •How much do graduates earn?
- •In which industries do they work?
- •In which state do they work?
- •What effect does transfer status have on earnings?

By addressing these questions, we can examine the employment status of community college graduates. Since occupational degree programs are designed to give students employable skills, studying the employment status of those graduates in particular helps determine the success of the programs. This report also establishes a baseline for future research incorporating National Student Clearinghouse data into research on the outcomes of community college graduates.

Methods

Third quarter 2002 (2002Q3), fourth quarter 2002 (2002Q4), and second

quarter 2003 (2003Q2) are the periods in which students graduated. These quarters correspond to the three semesters of the 2002-2003 academic year: summer 2002, fall 2002, and spring 2003, respectively.

Students usually earned a single degree, but some students earned multiple degrees either within or across semesters. The data set was narrowed to one record for each student. When a student earned multiple degrees over the three semesters, the record indicating the most current degree was chosen because it indicates the student's current educational direction. Academic was chosen over occupational when students earned multiple degrees of different types in a single semester.

Graduates' social security numbers (SSNs) were matched to Unemployment Insurance (UI) Wage Records from partner research states with which we have data sharing agreements (Alaska, Colorado, Idaho, Montana, Nebraska, New Mexico, South Dakota, Texas, and Utah) and from Wyoming one year after graduation. For example, records from 2003O3 were examined for students who graduated in 2002Q3 (summer 2002). Although broad in scope, the Wage Records database is not exhaustive of all employment outcomes. The employment experiences of graduates not working in Wyoming or a partner research state are not included in this study. Additionally, Wage Records do not capture employment information for many production agricultural workers, self-employed persons, railroad workers, and most federal employees (for a complete

description of employees not covered see Wyoming Employment Security Law, 1978). Future research will match graduates' SSNs to the Defense Manpower Data Center file, which includes U.S. military and civilian employment records.

The average hourly wage was calculated as the average quarterly wage divided by 416 hours (13 weeks in a quarter multiplied by 32 hours). The 32-hour, full-time equivalent was determined in previous survey research of Wyoming employers of community college graduates as the average fulltime/part-time break point (Saulcy, 2004). The conversion of quarterly wages to hourly rates using this strategy may or may not have reliably reflected true hourly wages for all subsets of graduates. We anticipate graduates enrolled (either transferred to another school or re-enrolled at the same school upon graduation) while working may have worked part-time and earned lower wages than those who were only working.

To protect individuals' identities, we used the confidentiality standard in the Wyoming Community College Commission MIS Handbook. Within each of the tables and figures, data are not reported unless they include five or more individuals (Wyoming Community College Commission, in press). Numbers less than five are shown on tables containing aggregated data from all seven colleges.

Results

In academic year 2002-2003, a total of 2,027 students graduated from

Wyoming community colleges (see Table 1). Of these, 1,127 (55.6%) were subsequently enrolled in college (either two- or four-year). Graduates from Laramie County Community College (LCCC) were much more likely than students at any other college to be subsequently enrolled (69.1%). In contrast, only 32.8% of graduates from Central Wyoming College (CWC) continued their college enrollment.

Figure 1 (see page 4) presents an aggregation of graduates' transfer status for all degree earners. A nearly equal percentage of graduates either

continued their education at another school (43.7%) or did not transfer or reenroll (43.5%). Re-enrollment at the same college occurred for 241 graduates (11.9%).

The designation as either an occupational or academic degree student is typically an indication of whether or not the student plans to continue his or her education following graduation. Figure 2 (see page 5) shows that, as expected, nearly three-fourths of those graduating with an academic degree continued their education: 68.2% at another school and 5.5% at

Table 1: College Enrollment Status of All Defined^a Graduates One Year After Graduation by College

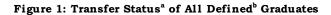
College	Continued College Enrollment ^b	No College Enrollment ^c	Total All
Casper College	304	212	516
Row %	58.9%	41.1%	100.0%
Central Wyoming College (CWC)	87	178	265
Row %	32.8%	67.2%	100.0%
Eastern Wyoming College (EWC)	55	51	106
Row %	51.9%	48.1%	100.0%
Laramie County Community College (LCCC)	273	122	395
Row %	69.1%	30.9%	100.0%
Northwest College	136	124	260
Row %	52.3%	47.7%	100.0%
Sheridan College ^d	149	100	249
Row %	59.8%	40.2%	100.0%
Western Wyoming Community College (WWCC)	123	113	236
Row %	52.1%	47.9%	100.0%
Total	1,127	900	2,027
Row %	55.6%	44.4%	100.0%

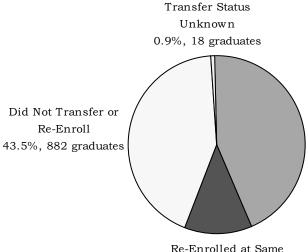
^aAcademic year 2002-2003 Wyoming community college graduates.

^bIncludes graduates who re-enrolled in the same institution and those who transferred to a new college or university.

^cIncludes 18 graduates whose transfer status is unknown.

^dIncludes Sheridan and Gillette campuses.





Total Graduates: 2,027

*Academic-Transfer: 1,040
*Occupational-Technical: 986
*Degree type unknown: 1
*Total graduates who continued their education at another school or re-enrolled: 1,127 (55.6%)

Continued Education at Another School^c 43.7%, 886 graduates

Re-Enrolled at Same College 11.9%, 241 graduates

the same school. A similarly large percentage (63.0%) of occupational graduates (Figure 3, see page 5) did not pursue further education. However, degree designation did not always determine a student's future transfer status. One-quarter of the graduates with academic degrees did not continue their education. A much larger percentage (36.7%) of those with occupational degrees diverged from their expected path and re-enrolled or transferred.

Among the 986 occupational graduates, three-quarters (731) worked in Wyoming or a partner research state and earned an average hourly wage of \$15.54 one year after graduation (see Table 2, first panel, page 6). For those not also enrolled in college, their

average hourly wage of \$16.89 was substantially higher (8.7%).

Out of the 1,040 academic graduates, 684 (65.8%) worked in Wyoming or a partner research state (see Table 2, second panel, page 6). Academic graduates' earnings patterns were similar to those of occupational graduates. Academic graduates who did not continue their education earned \$11.60 per hour, while their enrolled counterparts earned \$6.97 per hour.

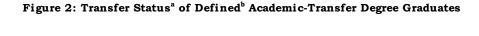
Women constituted 63.3% of the graduates (see Table 3, page 7). They had a higher percentage of continued college enrollment (56.9%) and were more likely to work after graduation

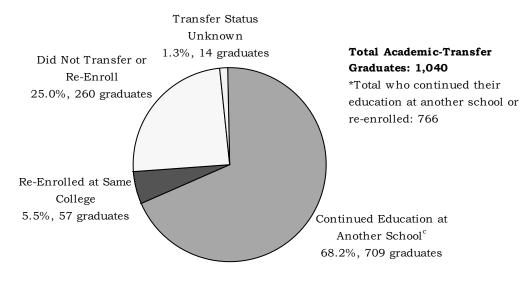
(Text continued on page 7)

^aFrom one to five semesters following graduation.

^bAcademic year 2002-2003 Wyoming community college graduates.

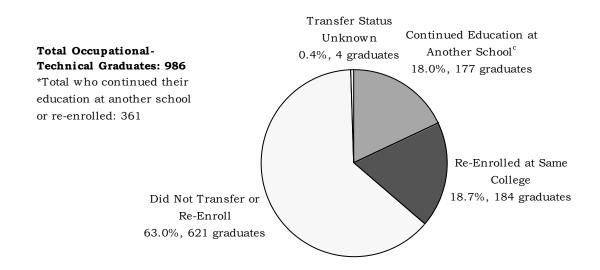
^cGraduates who transferred to a new college or university.





^aFrom one to five semesters following graduation.

Figure 3: Transfer Status^a of Defined^b Occupational-Technical Degree Graduates



^bAcademic year 2002-2003 Wyoming community college graduates.

^cGraduates who transferred to a new college or university.

^aFrom one to five semesters following graduation.

^bAcademic year 2002-2003 Wyoming community college graduates.

^cGraduates who transferred to a new college or university.

Table 2: Total Quarterly and Average Hourly Wage of Selected Defined^a Graduates With Wages in the Wage Records Database^b One Year After Graduation by College Enrollment Status

Interstate Wages for Occupational-Technical Graduates

Enrollment Status	Number of Graduates	Total Quarterly Wages Earned	Average Hourly Wage (based on 32 hrs.)
Did Not Enroll in College After Graduation ^c	458	\$3,218,897	\$16.89
Column %	62.7%	68.1%	
Continued College Enrollment ^d	273	\$1,505,536	\$13.26
Column %	37.3%	31.9%	
Total	731	\$4,724,433	\$15.54
Column %	100.0%	100.0%	

Interstate Wages for Academic-Transfer Graduates

Enrollment Status	Number of Graduates	Total Quarterly Wages Earned	Average Hourly Wage (based on 32 hrs.)
Did Not Enroll in College After Graduation c	181	\$873,793	\$11.60
Column %	26.5%	37.5%	
Continued College Enrollment ^d	503	\$1,458,965	\$6.97
Column %	73.5%	62.5%	
Total	684	\$2,332,758	\$8.20
Column %	100.0%	100.0%	

Wyoming Wages Only for Occupational-Technical Graduates

Enrollment Status	Number of Graduates	Total Quarterly Wages Earned	Average Hourly Wage (based on 32 hrs.)
Did Not Enroll in College After Graduation ^c	380	\$2,720,147	\$17.21
Column %	62.8%	69.5%	
Continued College Enrollment ^d	225	\$1,192,021	\$12.74
Column %	37.2%	30.5%	
Total	605	\$3,912,167	\$15.54
Column %	100.0%	100.0%	

Wyoming Wages Only for Academic-Transfer Graduates

Enrollment Status	Number of Graduates	Total Quarterly Wages Earned	Average Hourly Wage (based on 32 hrs.)
Did Not Enroll in College After Graduation ^c	153	\$756,403	\$11.88
Column %	25.8%	35.9%	
Continued College Enrollment ^d	439	\$1,351,714	\$7.40
Column %	74.2%	64.1%	
Total	592	\$2,108,117	\$8.56
Column %	100.0%	100.0%	

^aAcademic year 2002-2003 Wyoming community college graduates.

^bAn administrative database showing quarterly employment and wage information by social security number for individuals working in Unemployment Insurance (UI) covered jobs in Wyoming, border (Colorado, Idaho, Montana, Nebraska, South Dakota, Utah), and other (Alaska, New Mexico, Texas) states with which Research & Planning has a data sharing agreement.

^cIncludes 18 graduates whose transfer status is unknown.

^dIncludes graduates who re-enrolled in the same institution and those who transferred to a new college or university.

Table 3: Work and College Enrollment Status for All Defined Graduates One Year After Graduation by Gender

		Working			No Wage Record ^b		
Gender	Continued College Enrollment ^c	No College Enrollment ^d	Total Working	Continued College Enrollment	No College Enrollment	Total No Wage Record	Total All
Women	521	395	916	209	159	368	1,284
Row %	40.6%	30.8%	71.3%	16.3%	12.4%	28.7%	100.0%
Men	253	242	495	141	91	232	727
Row %	34.8%	33.3%	68.1%	19.4%	12.5%	31.9%	100.0%
Unknown	2	3	5	1	10	11	16
Row %	12.5%	18.8%	31.3%	6.3%	62.5%	68.8%	100.0%
Total	776	640	1,416.0	351	260	611	2,027
Row %	38.3%	31.6%	69.9%	17.3%	12.8%	30.1%	100.0%

(71.3%). Women were also more likely to continue their education while working (40.6%).

The majority of Wyoming community college graduates were in the 17-24 age group (56.0%; see Table 4, page 8). For all age groups, the percentage of graduates working ranged from 67.9% to 73.0%, with an average rate of 69.9%. Subsequent college enrollment occurred most frequently for graduates in the 17-24 age group (60.7%).

The industries with the largest percentage of graduates who worked while continuing their college enrollment were Educational Services (74.6%), followed by Leisure & Hospitality (68.3%) and Social Assistance (67.4%; see Table 5, page 9). On the whole, graduates employed in higher paying industries (e.g., Wholesale Trade, Transportation, & Utilities and Natural Resources & Mining [including oil & gas]) were less likely to continue their college enrollment.

The vast majority (88.0%) of graduates came from Wyoming (see Table 6, page 10). Another 7.7% originated from a border state, 2.1% came from a location other than a

^aAcademic year 2002-2003 Wyoming community college graduates.

^bWage Records is an administrative database showing quarterly employment and wage information by social security number for individuals working in Unemployment Insurance (UI) covered jobs in Wyoming, border (Colorado, Idaho, Montana, Nebraska, South Dakota, Utah), and other (Alaska, New Mexico, Texas) states with which Research & Planning has a data sharing agreement. No wage record indicates the individual was either not working in a covered job or was working in a state with which we do not share data.

^cIncludes graduates who re-enrolled in the same institution and those who transferred to a new college or university.

^dIncludes 18 graduates whose transfer status is unknown.

Table 4: Work and College Enrollment Status of All Defined^a Graduates One Year After Graduation by Age

		Working			No Wage Record ^b			tal
Age Group	Continued College Enrollment ^c	No College Enrollment ^d	Total Working	Continued College Enrollment	No College Enrollment	Total No Wage Record	n	Column %
17-24	475	317	792	214	130	344	1,136	56.0%
Row %	41.8%	27.9%	69.7%	18.8%	11.4%	30.3%	100.0%	
25-29	95	96	191	41	44	85	276	13.6%
Row %	34.4%	34.8%	69.2%	14.9%	15.9%	30.8%	100.0%	
30-34	70	65	135	32	18	50	185	9.1%
Row %	37.8%	35.1%	73.0%	17.3%	9.7%	27.0%	100.0%	
35-39	40	40	80	20	12	32	112	5.5%
Row %	35.7%	35.7%	71.4%	17.9%	10.7%	28.6%	100.0%	
40-49	77	81	158	33	38	71	229	11.3%
Row %	33.6%	35.4%	69.0%	14.4%	16.6%	31.0%	100.0%	
50-59	18	35	53	9	16	25	78	3.8%
Row %	23.1%	44.9%	67.9%	11.5%	20.5%	32.1%	100.0%	
60+	ND	ND	ND	ND	ND	ND	7	0.3%
Row %	ND	ND	ND	ND	ND	ND	100.0%	
Unknown	ND	ND	ND	ND	ND	ND	4	0.2%
Row %	ND	ND	ND	ND	ND	ND	100.0%	
Total Row %	776 38.3%	640 31.6%	1,416 69.9%	351 17.3%	260 12.8%	611 30.1%	2,027 100.0%	100.0%

border state, and 2.1% were from unspecified locations. Those originating from Wyoming were more likely to be working in Wyoming or a partner research state one year after graduation than those from outside of the state (72.0% compared to 59.0%). Additionally, graduates from Wyoming

were more likely than students who came from out of state to be subsequently enrolled in college.

Employment outcomes for individual colleges are shown in Table 7 (see page

(Text continued on page 10)

^aAcademic year 2002-2003 Wyoming community college graduates.

^bWage Records is an administrative database showing quarterly employment and wage information by social security number for individuals working in Unemployment Insurance (UI) covered jobs in Wyoming, border (Colorado, Idaho, Montana, Nebraska, South Dakota, Utah), and other (Alaska, New Mexico, Texas) states with which Research & Planning has a data sharing agreement. No wage record indicates the individual was either not working in a covered job or was working in a state with which we do not share data.

^cIncludes graduates who re-enrolled in the same institution and those who transferred to a new college or university.

^dIncludes 18 graduates whose transfer status is unknown.

ND - Not disclosable due to confidentiality of information.

Table 5: Employment and College Enrollment Status of Defined^a Graduates With Wages in the Wage Records Database^b One Year After Graduation by Industry^c

			Tota	al
	Continued			
	College	No College		${\bf Column}$
Industry by 2-digit NAICS ^d code	Enroll ment ^e	Enrollment ^f	n	%
Goods Producing	75	86	161	11.4%
Row %	46.6%	53.4%	100.0%	
Natural Res. & Mining (including oil & gas) (11, 21)	30	37	67	4.7%
Row %	44.8%	55.2%	100.0%	
Construction (23)	28	29	57	4.0%
Row %	49.1%	50.9%	100.0%	
Manufacturing (31-33)	17	20	37	2.6%
Row %	45.9%	54.1%	100.0%	
Service Providing	701	554	1,255	88.6%
Row%	55.9%	44.1%	100.0%	
Wholesale Trade, Trans., & Utilities (42, 48-49, 22)	23	46	69	4.9%
Row %	33.3%	66.7%	100.0%	
Retail Trade (44-45)	110	79	189	13.3%
Row %	58.2%	41.8%	100.0%	
Information (51)	17	15	32	2.3%
Row %	53.1%	46.9%	100.0%	
Financial Activities (52-53)	26	26	52	3.7%
Row %	50.0%	50.0%	100.0%	
Professional & Business Services (54-56)	66	52	118	8.3%
Row %	55.9%	44.1%	100.0%	
Educational Services (61)	135	46	181	12.8%
Row %	74.6%	25.4%	100.0%	
Health Care (621-3)	149	154	303	21.4%
Row %	49.2%	50.8%	100.0%	
Social Assistance (624)	31	15	46	3.2%
Row %	67.4%	32.6%	100.0%	
Leisure & Hospitality (71-72)	84	39	123	8.7%
Row %	68.3%	31.7%	100.0%	
Other Services (81)	15	21	36	2.5%
Row %	41.7%	58.3%	100.0%	
Public Administration (92)	45	53	98	6.9%
Row %	45.9%	54.1%	100.0%	
Unclassified	0	8	8	0.6%
Row %	0.0%	100.0%	100.0%	
Total ^g	776	640	1,416	100.0%
Row %	54.8%	45.2%	100.0%	

^aAcademic year 2002-2003 Wyoming community college graduates.

^bAn administrative database showing quarterly employment and wage information by social security number for individuals working in Unemployment Insurance (UI) covered jobs in Wyoming, border (Colorado, Idaho, Montana, Nebraska, South Dakota, Utah), and other (Alaska, New Mexico, Texas) states with which Research & Planning has a data sharing agreement.

^cPrimary industry is the industry in which the graduate had the highest earnings.

 $^{^{\}rm d}$ North American Industry Classification System.

^eIncludes graduates who re-enrolled in the same institution and those who transferred to a new college or university.

^fIncludes 18 graduates whose transfer status is unknown.

^gIndustry assignment can only be determined for the 1,416 graduates appearing in the Wage Records Database.

Table 6: Work and College Enrollment Status of All Defined^a Graduates One Year After Graduation by State of Origin

		Working			No Wage Record ^b			tal
State of Origin	Continued College Enrollment ^c	No College Enrollment ^d	Total Working	Continued College Enrollment	No College Enrollment	Total No Wage Record	n	Column %
Wyoming	707	577	1,284	301	199	500	1,784	88.0%
Row %	39.6%	32.3%	72.0%	16.9%	11.2%	28.0%	100.0%	
Border State Total	51	55	106	24	27	51	157	7.7%
Row %	32.5%	35.0%	67.5%	15.3%	17.2%	32.5%	100.0%	
Other Origin ^e	9	3	12	14	17	31	43	2.1%
Row %	20.9%	7.0%	27.9%	32.6%	39.5%	72.1%	100.0%	
All Non-Wyo Total ^f	60	58	118	38	44	82	200	9.9%
Row %	30.0%	29.0%	59.0%	19.0%	22.0%	41.0%	100.0%	
Unknown Origin	9	5	14	12	17	29	43	2.1%
Row %	20.9%	11.6%	32.6%	27.9%	39.5%	67.4%	100.0%	
Total Row %	776 38.3%		1,416 69.9%		260 12.8%	611 30.1%	.,	100.0%

11). Of the total 2,027 graduates, 1,416 (69.9%) were working in Wyoming or a partner research state one year after graduation. Higher percentages of Casper College, LCCC, and Sheridan College graduates were working in Wyoming (66.5%, 63.0%, and 62.7%, respectively) than students from other colleges. Northwest and EWC graduates more frequently worked in partner research states (21.2% and 17.9%, respectively) than those from other colleges. Among those who worked in a partner research state, 201 worked in a bordering state, while 17 worked in

Alaska, New Mexico, or Texas (see Map, page 12). Eastern Wyoming College and Central Wyoming College (CWC) had the most graduates with no wage record (39.6% and 37.7%, respectively). No wage record indicates the individual was either not working in a covered job or was working in a state with which we do not share data.

Among the 1,416 graduates working in Wyoming or a partner research state, there was substantial variation in average hourly wages depending upon the industry of primary employment

^aAcademic year 2002-2003 Wyoming community college graduates.

^bWage Records is an administrative database showing quarterly employment and wage information by social security number for individuals working in Unemployment Insurance (UI) covered jobs in Wyoming, border (Colorado, Idaho, Montana, Nebraska, South Dakota, Utah), and other (Alaska, New Mexico, Texas) states with which Research & Planning has a data sharing agreement. No wage record indicates the individual was either not working in a covered job or was working in a state with which we do not share data.

^cIncludes graduates who re-enrolled in the same institution and those who transferred to a new college or university.

^dIncludes 18 graduates whose transfer status is unknown.

^eMay include international origins.

^fBorder States and Other Origin.

Table 7: Work Location of All Defined Graduates One Year After Graduation by College

College	Working in Wyoming	Working in a Partner Research State ^c	Total Working	No Wage Record ^d	Total All
Casper College	343	29	372	144	516
Row %	66.5%	5.6%	72.1%	27.9%	100.0%
Central Wyoming College (CWC)	151	14	165	100	265
Row %	57.0%	5.3%	62.3%	37.7%	100.0%
Eastern Wyoming College (EWC)	45	19	64	42	106
Row %	42.5%	17.9%	60.4%	39.6%	100.0%
Laramie County Community College (LCCC)	249	42	291	104	395
Row %	63.0%	10.6%	73.7%	26.3%	100.0%
Northwest College	114	55	169	91	260
Row %	43.8%	21.2%	65.0%	35.0%	100.0%
Sheridan College ^e	156	36	192	57	249
Row %	62.7%	14.5%	77.1%	22.9%	100.0%
Western Wyoming Community College (WWCC)	140	23	163	73	236
Row %	59.3%	9.7%	69.1%	30.9%	100.0%
Total	1,198	218	1,416	611	2,027
Row %	59.1%	10.8%	69.9%	30.1%	100.0%

(see Table 8, page 13). Graduates worked mainly in Health Care (21.4%), Retail Trade (13.3%), Educational Services (12.8%), and Leisure & Hospitality (8.7%). The highest average hourly wage was found among graduates employed in Health Care (\$18.29) and Natural Resources & Mining (including oil & gas; \$18.25), with both industries paying more than

150% of the average for all graduates. The lowest paid graduates worked in Leisure & Hospitality (\$5.50) and Educational Services (\$7.07).

Figure 4 (see page 14) shows that the 1,218 graduates who worked in Wyoming one year after graduation held 1,522 different jobs. The most jobs were in Health Services (307; 20.2%),

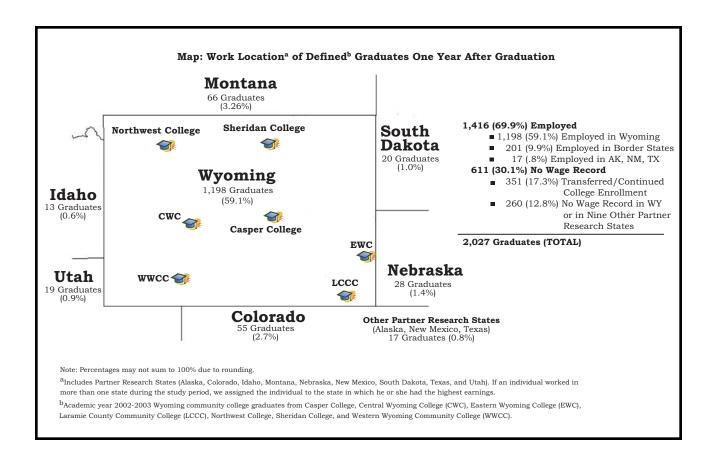
^aIf an individual worked in more than one state during the study period, we assigned the individual to the state in which he or she had the highest earnings.

^bAcademic year 2002-2003 Wyoming community college graduates.

^cBorder (Colorado, Idaho, Montana, Nebraska, South Dakota, Utah) and other (Alaska, New Mexico, Texas) states with which Research & Planning has a data sharing agreement.

^dWage Records is an administrative database showing quarterly employment and wage information by social security number for individuals working in Unemployment Insurance (UI) covered jobs in Wyoming, border (Colorado, Idaho, Montana, Nebraska, South Dakota, Utah), and other (Alaska, New Mexico, Texas) states with which Research & Planning has a data sharing agreement. No wage record indicates the individual was either not working in a covered job or was working in a state with which we do not share data.

^cIncludes Sheridan and Gillette campuses.



followed by Educational Services (201 jobs; 13.2%). These industries employed the most graduates in partner research states as well. Manufacturing and Information employed the fewest number of graduates with 2.1% and 2.3%, respectively.

Figures 5 and 6 (pages 15 and 16, respectively) show jobs worked by industry based on whether students earned an occupational or an academic degree. The figures show very different employment avenues for the two types of degree earners. Health Services employed the most occupational graduates (33.3%). Education, on the other hand, employed the most graduates with an academic degree (19.3%). The number of jobs worked in

Construction was identical for both degree types (3.7%).

Employing Firms

A total of 1,446 Wyoming firms employed graduates (see Table 9, page 17). The majority of firms were service-providing (82.2%), while 17.3% were goods-producing. The largest percentage of employers were in the Leisure & Hospitality industry (17.1%) followed by Retail Trade (14.6%), Professional & Business Services (11.2%) and Health Care (9.4%). Among goods-producing firms, the largest percentage of employers were in Construction (8.2%).

(Text continued on page 14)

Table 8: Total Quarterly and Average Hourly Wage of All Defined^a Graduates With Wages in the Wage Records Database^b One Year After Graduation by Industry

Industry by 2-digit NAICS ^c Code	Number of Graduates ^d	Total Quarterly Wages Earned	Average Hourly Wage (based on 32 hrs.)
Goods Producing	161	\$1,030,475	\$15.39
Column %	11.4%	14.5%	
Natural Res. & Mining (including oil & gas) (11, 21)	67	\$508,698	\$18.25
Column %	4.7%	7.2%	
Construction (23)	57	\$287,053	\$12.11
Column %	4.0%	4.0%	
Manufacturing (31-33)	37	\$234,724	\$15.25
Column %	2.6%	3.3%	
Service Providing	1,255	\$6,069,431	\$11.63
Column %	88.6%	85.5%	
Wholesale Trade, Trans., & Utilities (42, 48-49, 22)	69	\$449,668	\$15.67
Column %	4.9%	6.3%	
Retail Trade (44-45)	189	\$619,588	\$7.88
Column %	13.3%	8.7%	
Information (51)	32	\$163,134	\$12.25
Column %	2.3%	2.3%	
Financial Activities (52-53)	52	\$246,673	\$11.40
Column %	3.7%	3.5%	
Professional & Business Services (54-56)	118	\$514,273	\$10.48
Column %	8.3%	7.2%	
Educational Services (61)	181	\$532,491	\$7.07
Column %	12.8%	7.5%	
Health Care (621-3)	303	\$2,305,987	\$18.29
Column %	21.4%	32.5%	
Social Assistance (624)	46	\$181,246	\$9.47
Column %	3.2%	2.6%	
Leisure & Hospitality (71-72)	123	\$281,346	\$5.50
Column %	8.7%	4.0%	
Other Services (81)	36	\$167,337	\$11.17
Column %	2.5%	2.4%	
Public Administration (92)	98	\$546,645	\$13.41
Column %	6.9%	7.7%	
Unknown	8	\$61,043	\$18.34
Column %	0.6%	0.9%	
Total	1,416	\$7,099,906	\$12.05
Column %	100.0%	100.0%	

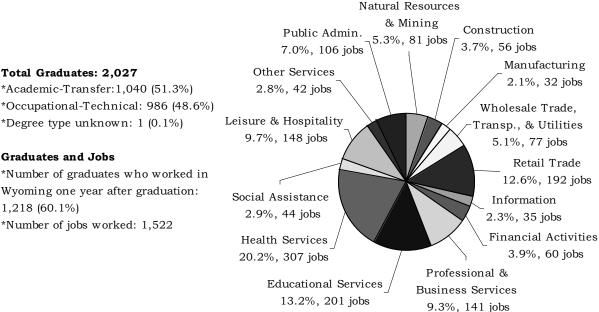
^aAcademic year 2002-2003 Wyoming community college graduates.

^bAn administrative database showing quarterly employment and wage information by social security number for individuals working in Unemployment Insurance (UI) covered jobs in Wyoming, border (Colorado, Idaho, Montana, Nebraska, South Dakota, Utah), and other (Alaska, New Mexico, Texas) states with which Research & Planning has a data sharing agreement.

^cNorth American Industry Classification System.

^dGraduates who worked in multiple industries were assigned to the industry in which they had the highest earnings.

Figure 4: Jobs Worked^a in Wyoming^b by All Defined^c Graduates One Year After Graduation by Industry



Graduates and Jobs

Total Graduates: 2,027

*Number of graduates who worked in Wyoming one year after graduation: 1,218 (60.1%)

*Academic-Transfer: 1,040 (51.3%)

*Degree type unknown: 1 (0.1%)

*Number of jobs worked: 1,522

Note: Percentages may not sum to 100% due to rounding.

^aMay include multiple counts for graduates who worked for one or more employers, or employers who employed one or more graduates.

^bShows all graduates who worked in Wyoming, including those employed in both Wyoming and other states, regardless of the location where they earned the highest wages.

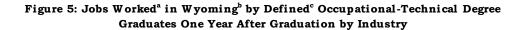
^cAcademic year 2002-2003 Wyoming community college graduates.

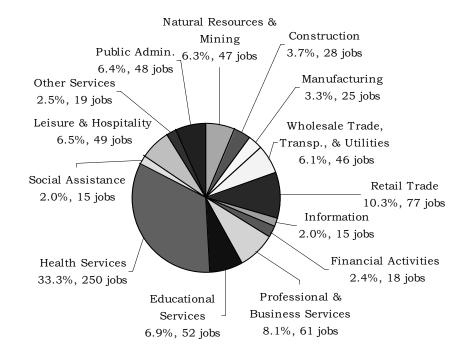
Firm size and average quarterly wages for Wyoming firms that either employed or did not employ community college graduates are shown in Table 10 (see page 18). All Wyoming firms employed an average of 16.7 workers who earned an average of \$5,990 per quarter. On average, firms that employed graduates were larger (98.3 workers) and paid higher wages (\$6,219 per quarter). In contrast, firms that did not hire graduates employed an average of 9.7 employees and paid \$418 less per quarter (\$5,801). Not only are firms that employed graduates larger, but they have a higher

proportion (66.5%) of continuously employed workers who worked three or more consecutive quarters compared to firms that did not hire graduates (58.8%; see Table 11, page 18).

Discussion

Not surprisingly, most students originated from Wyoming, more than half of whom continued their education. Wyoming students likely enroll in Wyoming community colleges to gain skills that will lead to immediate job placement upon graduation or to provide them with the





basic classes required as part of an advanced degree program. Students from other localities may be seeking specialized training or a more affordable education.

Total Occupational-

worked one year after

*Total jobs worked by

*Number of graduates who

Technical Degree

Graduates: 986

graduation: 613

graduates: 750

As a general rule, earning an academic degree signals a student's intent to transfer to another school, usually a university for a bachelor's degree. Earning an occupational degree typically means that a student intends to seek employment after graduation without acquiring additional formal education. In actuality, we found that

the academic/occupational designation does not fully predict the probability of future college enrollment. It could be that occupational graduates seek continuing education that complements their degree and enhances their skills and earnings potential.

Regardless of whether graduates work in Wyoming or a partner research state, a large proportion of graduates work in the lower paying industries of Leisure & Hospitality and Retail Trade while also acquiring additional education. These two industries

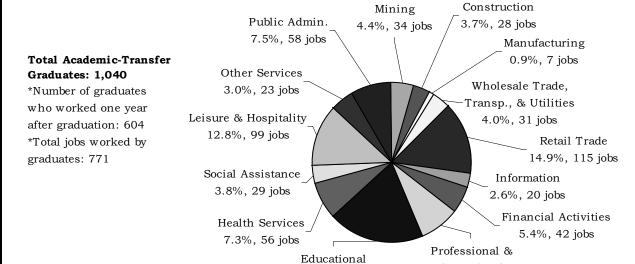
^aMay include multiple counts for graduates who worked for one or more employers, or employers who employed one or more graduates.

^bShows all graduates who worked in Wyoming, including those employed in both Wyoming and other states, regardless of the location where they earned the highest wages.

^cAcademic year 2002-2003 Wyoming community college graduates.

Figure 6: Jobs Worked^a in Wyoming^b by Defined^c Academic-Transfer Degree Graduates One Year After Graduation by Industry

Natural Resources &



Services

19.3%, 149 jobs

^aMay include multiple counts for graduates who worked for one or more employers, or employers who employed one or more graduates.

^bShows all graduates who worked in Wyoming, including those employed in both Wyoming and other states, regardless of the location where they earned the highest wages.

typically employ larger proportions of young workers than employers generally (Jones, 2004). It is likely these comparatively low paying industries may not be a final employment destination for graduates who continue their educational pursuits but instead serve as a means to finance additional education, a job search, or both.

That graduates work primarily in the Health Care and Education industries is consistent with previously conducted research on spring 2002 graduates (Saulcy, 2004). Working occupational

graduates noticeably make use of their skills in the Health Care industry. Occupations that directly use their skills are Registered Nurses, Radiology Technicians, and Dental Hygienists.

Business Services

10.4%, 80 jobs

For graduates working in higher paying industries (e.g., Wholesale Trade, Transportation, & Utilities; and Natural Resources & Mining [including oil & gas]), there appears to be less of a monetary incentive to pursue further education for purposes of improving their job prospects. This is especially

(Text continued on page 18)

^cAcademic year 2002-2003 Wyoming community college graduates.

Table 9: Number of Wyoming Firms Employing Defined^a Graduates One Year After Graduation by Industry and Firm Size

					f Employees Per Firm	
Industry		Under 10	10-19	20-49	50 or More	Total
	# of Employers	84	53	41	72	250
Goods Producing	Row %	33.6%	21.2%	16.4%	28.8%	100.0%
	Column %	21.9%	19.9%	13.9%	14.4%	17.3%
Agriculture, Forestry,	# of Employers	2	13	4	2	2
Fishing, & Hunting	Row %	9.5%	61.9%	19.0%	9.5%	100.0%
	Column %	0.5%	4.9%	1.4%	0.4%	1.5%
Mining	# of Employers	18	5	13	27	6
	Row %	28.6%	7.9%	20.6%	42.9%	100.09
	Column %	4.7%	1.9%	4.4%	5.4%	4.49
Construction	# of Employers	49	22	20	27	11
	Row %	41.5%	18.6%	16.9%	22.9%	100.09
	Column %	12.8%	8.2%	6.8%	5.4%	8.29
	# of Employers	15	13	4	16	4
Manufacturing	Row %	31.3%	27.1%	8.3%	33.3%	100.09
	Column %	3.9%	4.9%	1.4%	3.2%	3.39
Service Providing	# of Employers	298	212	254	424	1,18
	Row %	25.1%	17.8%	21.4%	35.7%	100.09
	Column %	77.6%	79.4%	86.1%	84.8%	82.29
Wholesale Trade, Trans.,	# of Employers	17	19	22	26	8
& Utilities	Row %	20.2%	22.6%	26.2%	31.0%	100.09
	Column %	4.4%	7.1%	7.5%	5.2%	5.89
	# of Employers	70	41	44	56	21
Retail Trade	Row %	33.2%	19.4%	20.9%	26.5%	100.09
	Column %	18.2%	15.4%	14.9%	11.2%	14.69
I f	# of Employers	3	5	13	14	3
Information	Row %	8.6%	14.3%	37.1%	40.0%	100.09
	Column %	0.8%	1.9%	4.4%	2.8%	2.49
Financial Activities	# of Employers	23	13	11	20	100.00
Financial Activities	Row %	34.3%	19.4%	16.4%	29.9%	100.09
	Column %	6.0% 70	4.9%	3.7%	4.0%	4.69
Professional & Business	# of Employers		25			
Services	Row %	43.2%	15.4%	22.8%	18.5%	100.09
	Column %	18.2%	9.4%	12.5%	6.0%	11.29
Educational Commissa	# of Employers	1 80/	5	1 00/	49	100.00
Educational Services	Row %	1.8%	8.9%	1.8%	87.5%	100.09
	Column %	0.3%	1.9%	0.3%	9.8% 54	3.99
Health Care	# of Employers	21.3%	21.3%	17.6%	39.7%	100.09
Health Care	Row %	7.6%	10.9%	8.1%	10.8%	9.49
	Column % # of Employers	3	7	20	20	5.47
Social Assistance	Row %	6.0%	14.0%	40.0%	40.0%	100.09
Social Hospitalice	Column %	0.8%	2.6%	6.8%	4.0%	3.59
	# of Employers	43	47	66	91	24
Leisure & Hospitality	Row %	17.4%	19.0%	26.7%	36.8%	100.09
Leisure & mospitality	Column %	11.2%	17.6%	22.4%	18.2%	17.19
	# of Employers	36	16	8	11	7
Other Services	Row %	50.7%	22.5%	11.3%		100.09
Outer Services	Column %	9.4%	6.0%	2.7%	2.2%	4.99
	# of Employers	3.170	5	8	53	6
Public Administration	Row %	4.3%	7.2%	11.6%	76.8%	100.09
i done administration	Column %	0.8%	1.9%	2.7%	10.6%	4.89
	# of Employers	2	2	0	4	1.07
Unclassified	Row %	25.0%	25.0%	0.0%	50.0%	100.09
	Column %	0.5%	0.7%	0.0%	0.8%	0.69
All Industries	# of Employers	384	267	295	500	1,44
	Row %	26.6%	18.5%	20.4%	34.6%	100.0%
	Column %	,		/ 0		, ,

^aAcademic year 2002-2003 Wyoming community college graduates.

Table 10: Summary Characteristics of Wyoming Firms That Either Employed or *Did Not* Employ Defined^a Graduates One Year After Graduation

	Firms That Employed Graduates	Firms That <i>Did Not</i> Employ Graduates	All Wyoming Firms
Number of Firms	1,446	18,771	20,217
Average Number of Employees ^b Average Quarterly Wage ^c	98.3 \$6,219	9.7 \$5,801	16.7 \$5,990

^aAcademic year 2002-2003 Wyoming community college graduates.

Table 11: Total Employment of Wyoming Firms That Either Employed or *Did Not* Employ Defined^a Graduates One Year After Graduation by Type of Transition

	Firms That Employed Graduates		Firms That <i>Did No</i> Graduates		All Wyoming Employers	
Type of Transaction	Average Number Employed at Any Time	Column %	Average Number Employed at Any Time	Column %	Average Number Employed at Any Time	Column %
Continuously Employed Transition ^a	91,252 45,988	66.5% 33.5%	92,609 64,947	58.8% 41.2%	183,860 110,935	62.4% 37.6%
Total	137,240	100.0%	157,555	100.0%	294,795	100.0%

^aEntered or exited a Wyoming job. Excludes employees who worked througout the year for one or more Wyoming employers.

true with renewed job prospects in Wyoming's current energy-driven boom.

On average, a smaller percentage of men than women continued their college education. One possibility is that in the state's labor market there are more job opportunities or high-paying positions in male-dominated occupations, particularly in the Mining industry. The structure of Wyoming's economy is such that Mining has a larger share of employment than the national average (Harris, 2002). The Mining industry pays higher than

average wages (Bullard, 2005) and the vast majority of workers are men (Jones, 2004). In the present economy, men may more easily be able to translate their 2-year degree into a high paying job, which creates a disincentive to further their education. A downturn in the state's economy could reverse the trend, creating incentives for further education. Results also indicate 21.4% of graduates are employed in Health Care and receive higher than average wages. Traditionally, this industry is female dominated (Jones, 2004).

^bWeighted by the number of quarters each firm operated over the 1-year period.

^cWeighted by transactions (e.g., entered employment, exited employment, or continuously employed).

Approximately 5% of all graduates were age 50+. These graduates may be acquiring a different set of skills to facilitate a career change. In addition, all colleges offer some sort of free or reduced tuition for most classes to people age 60 and older, which provides an incentive to continue their education.

The average firm size in which graduates work is much larger than Wyoming firms that did not employ graduates. The typical Wyoming firm during the periods examined employed 16.7 workers. In contrast, firms that employed graduates had nearly 100 workers. Staffing patterns demonstrate that larger firms have a more complex division of labor (Glover, 2004). With a greater division of labor comes the need for a higher degree of specialization. With the right set of specialized skills, graduates can capitalize on what large firms have to offer (e.g., career advancement). On average, firms with more workers are associated with higher wages, lower turnover, and greater access to benefits (Gallagher, T., Harris, M., Hiatt, M., Leonard, D., Saulcy, S., and Shinkle, K. R., 2005). Large firms may be more likely to enable graduates to get the most out of their education by providing career ladders that are generally unavailable in smaller firms. With those career ladders come higher entry-level wages in the short run and substantially higher wages for experienced workers in the long run. Tracking a group of graduates' outcomes over time would help determine the degree to which career paths in larger firms exist.

Additionally, a college degree appears

to increase the propensity for continuous employment relative to the average. For employers, this means a reduction in training costs. For workers, longer tenure with an employer increases the likelihood of earning higher wages, eligibility for benefits, and possible career advancement.

The tenure of graduates, particularly younger individuals, in Leisure & Hospitality and Retail Trade over the long run may be limited. A recent study conducted by R&P found that young workers in these industries were less likely than workers in other industries to be employed in Wyoming ten years later (Jones, 2005). Further study would help determine whether graduates' employment in these industries is a long-term destination.

Conclusion

Our research was driven in part to determine if community colleges were providing occupational degree earners with skills to move them directly into the labor market after graduation. The study finds that three-fourths of all occupational graduates worked in Wyoming or a partner research state. Occupational graduates' skills are particularly being used in the Health Care industry. Overall, firms and graduates are benefiting from the academic opportunities afforded by Wyoming's community colleges.

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