



# WE CONNECT, PART 2: OPPORTUNITY COST OF PURSUING A POSTSECONDARY EDUCATION IN WYOMING

RESEARCH & PLANNING • WYOMING DEPARTMENT OF WORKFORCE SERVICES  
[http://doe.state.wy.us/LMI/education\\_we\\_connect.htm](http://doe.state.wy.us/LMI/education_we_connect.htm)

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This publication is an introduction to the opportunity cost facing Wyoming high school students who choose to enroll in a Wyoming postsecondary school, and specifically examines students enrolled in the 2013-14 school year<sup>1</sup>. Opportunity cost in this situation refers to the amount of money an individual could have earned if he or she had not enrolled in college. For this publication, it is calculated as the statewide average earnings minus the average earnings while in college (see Box).

Past research indicates between 64.1% (Dundes & Marx, 2006) and 77.8% (ACE Center for Policy Analysis, 2006) of college students work during their undergraduate years. Students may choose to work for a variety of reasons: to gain career experience, pay for college costs, or fulfill financial aid package obligations (Perna, 2010). However, a thorough review of the literature shows there is little, if any, research on the industries in which students work and their respective earnings. Research of this kind could help improve financial aid decisions, inform students of potential income, and possibly identify origins of the gender wage gap.

For this assessment of opportunity cost, only traditionally-aged<sup>2</sup> undergraduate students who attended public high school

1 For the purposes of this publication, the 2013/14 school year is equivalent to the third and fourth quarters of 2013 and the first and second quarters of 2014, or 2013Q3-2014Q2.

2 For the purposes of this publication, R&P defines *traditionally-aged college students* as born between the years including 1989 and 1995, or of the ages 18-24 in 2013.

## Box: Opportunity Cost for One Year of College

Average Statewide Earnings - Average Earnings of College Students = Opportunity Cost.

### Example:

- Average Wyoming Wage for 18- to 24-year-old residents = \$10,194.
- Average wage of a student at the University of Wyoming during 2013/14 school year = \$4,302.
- \$10,194 - \$4,302 = \$5,892

**The opportunity cost of attending the University of Wyoming was \$5,892.**

in Wyoming at some point during their secondary education and were enrolled full-time in a Wyoming college for both the fall 2013 and spring 2014 semesters are considered. Individuals meeting these criteria were divided into students of the University of Wyoming and students of any community college in the state. Students were then grouped by whether or not they worked at any point in the school year. Unless otherwise noted, the figures and tables describe only the workers in each population, and do not address individuals without wages during the periods including 2013Q3-2014Q2. The student groups are compared to Wyoming residents of the same age and employment status (generally referred to in this publication as *statewide workers*), regardless of postsecondary

enrollment. A more detailed explanation of the data can be found in Chapter Four of WDQI #1, here: [https://doe.state.wy.us/lmi/education\\_we\\_connect/WDQI\\_Pub1.pdf](https://doe.state.wy.us/lmi/education_we_connect/WDQI_Pub1.pdf).

## Demographics

Table 1 lists the demographics of workers in each group. On average, working community college students in the 2013/14 school year were younger (19.4) than working University of Wyoming students (20.6), who were younger than all workers statewide for those ages 18-24 (21.1). The bar graph in Figure 1 (see page 3) shows the number of workers by

age for community colleges, the University of Wyoming, and statewide.

Although the statewide employment to population ratio for this age group is not available, Wyoming community college students had a higher rate of employment during the school year than students at the University of Wyoming, 87.9% and 82.5%, respectively (see Table 1). One explanation for the college and University employment rates may be that students who wish to work may choose to attend a community college near their place of employment, rather than leave their job

**Table 1: Average Ages and Employment Levels for Wyoming High School Students Enrolled in College and Working in Wyoming, 2013Q3-2014Q2**

Wyoming Community Colleges				
	N	%	Average Age	Employment Rate
Females	906	58.2%	19.3	89.2%
Males	651	41.8%	19.5	86.1%
<b>Total</b>	<b>1,557</b>	<b>100.0%</b>	<b>19.4</b>	<b>87.9%</b>
University of Wyoming				
	N	%	Average Age	Employment Rate
Females	1,367	52.2%	20.4	83.7%
Males	1,253	47.8%	20.8	81.4%
<b>Total</b>	<b>2,620</b>	<b>100.0%</b>	<b>20.6</b>	<b>82.5%</b>
Statewide				
	N	%	Average Age	Employment Rate
Females	20,404	47.3%	21.1	N/A
Males	22,750	52.7%	21.2	N/A
<b>Total</b>	<b>43,154</b>	<b>100%</b>	<b>21.1</b>	<b>N/A</b>

Source: Custom Extract from Workforce Data Quality Initiative (WDQI) Project.

## WE Connect, Part 2: Opportunity Cost of Pursuing a Postsecondary Education in Wyoming

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### Submitted for Preliminary Review October 2015.

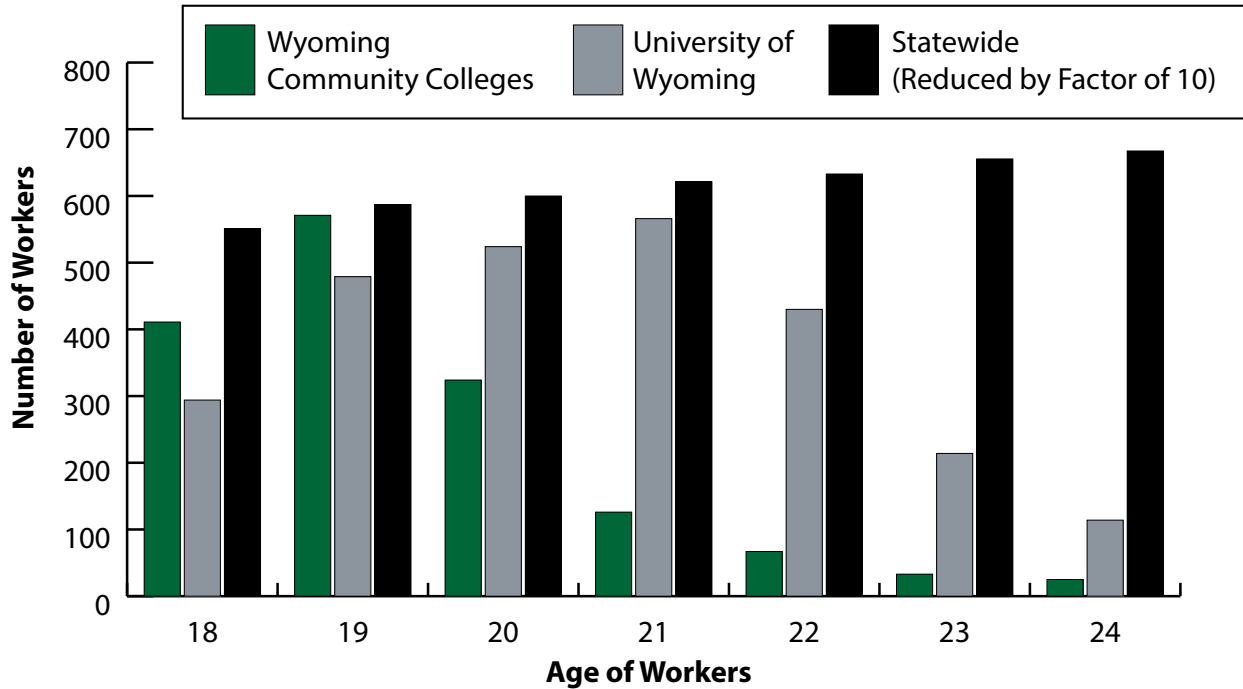
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### Funding of this Research

This workforce product was funded by a grant awarded by the U.S. Department of Labor's Employment and Training Administration (ETA). The product was created by the grantee and does not necessarily reflect the position of the ETA. ETA makes no guarantee or assurances of any kind with respect to such information; its accuracy, completeness, timeliness, usefulness, availability, or ownership. This product is copyrighted by the institution that created it. Internal use by an organization and/or personal use by an individual for non-commercial purposes is permissible. All other uses require the prior authorization of the copyright owner.

**Figure 1: Age Distribution and Number of Wyoming Workers by Postsecondary Enrollment, 2013Q3-2014Q2**

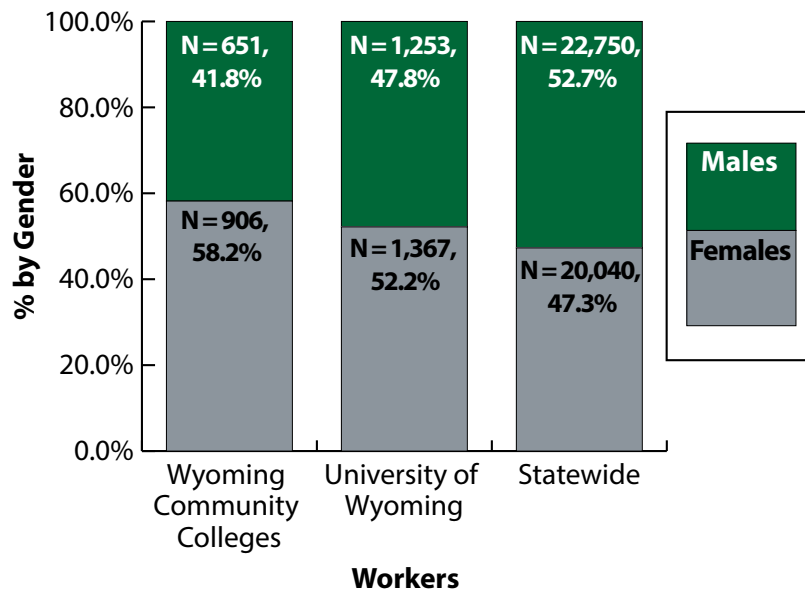


Source: Custom Extract from Workforce Data Quality Initiative (WDQI) Project.

to attend the University.

Females made up more than 50% of postsecondary student workers (see Figure 2), but only 47.3% of the statewide working population ages 18-24. A hypothesis explaining this trend may be that females drop out of school and the labor market to care for children (Harris, 2015). As shown in Table 1, females were also generally younger than their male counterparts, which may be a function of the age at which parents choose to enroll their children in elementary school, among other factors.

**Figure 2: Gender Distribution of Workers Ages 18-24 in Wyoming, 2013Q3 to 2014Q2**



Source: Custom Extract from Workforce Data Quality Initiative (WDQI) Project.

## Earnings

Across all industries, student workers forgo higher earnings to obtain a postsecondary education. The median wage between 2013Q3 and 2014Q4 for working community college students is \$6,917 (see Table 2), compared to \$4,302 for University students, and \$10,194 for statewide workers ages 18–24. In every industry except financial activities and mining, community college students earned higher wages on average

than students attending the University of Wyoming. Females earned less than males; for each dollar earned by a male, females in community college made \$0.85, females at the University of Wyoming made \$0.89, and females statewide made \$0.61.

Statewide, average earnings by primary industry,<sup>3</sup> shown in Table 3, were greatest

<sup>3</sup> The primary industry of an individual is the industry in which they have the highest earnings.

**Table 2: Summary of Wages for 18- to 24-Year-Old Workers in Wyoming by Postsecondary Enrollment and Gender, 2013Q3-2014Q2**

	Wyoming Community Colleges			University of Wyoming			Statewide		
	Total	Females	Males	Total	Females	Males	Total	Females	Males
Mean	\$8,280	\$7,699	\$9,089	\$5,908	\$5,590	\$6,255	\$15,718	\$11,784	\$19,246
Median	\$6,917	\$6,546	\$7,633	\$4,302	\$4,033	\$4,767	\$10,194	\$8,344	\$12,301
25th Percentile	\$3,476	\$2,937	\$3,935	\$2,081	\$1,956	\$2,312	\$3,736	\$3,086	\$4,537
75th Percentile	\$11,734	\$11,170	\$12,741	\$8,068	\$7,660	\$8,425	\$21,472	\$17,254	\$26,610

Source: Custom Extract from Workforce Data Quality Initiative (WDQI) Project.

**Table 3: Number of Workers, Average Wages, and Opportunity Cost of Postsecondary Education by Primary Industry of Employment in Wyoming**

Primary Industry of Employment	Wyoming Community Colleges				University of Wyoming				Statewide		
	N	%	Average Wages	Opportunity Cost	N	%	Average Wages	Opportunity Cost	N	%	Average Wages
Ag. Forestry, Fishing, & Hunting	6	0.4%	\$9,158	\$2,776	20	0.8%	\$5,355	\$6,579	290	0.7%	\$11,934
Mining	15	1.0%	\$11,585	\$34,614	45	1.7%	\$11,690	\$34,509	1,664	3.9%	\$46,199
Construction	48	3.1%	\$8,095	\$13,821	93	3.5%	\$6,997	\$14,919	2,526	5.9%	\$21,915
Manufacturing	20	1.3%	\$11,755	\$16,083	46	1.8%	\$8,248	\$19,590	872	2.0%	\$27,838
Wholesale Trade, Trans., Utilities, & Warehousing	40	2.6%	\$10,912	\$18,155	37	1.4%	\$7,645	\$21,422	1,567	3.6%	\$29,067
Retail Trade	216	13.9%	\$8,669	\$3,837	266	10.2%	\$5,814	\$6,692	5,862	13.6%	\$12,506
Information	14	0.9%	\$6,556	\$6,898	23	0.9%	\$5,568	\$7,887	353	0.8%	\$13,455
Financial Activities	24	1.5%	\$5,796	\$15,415	53	2.0%	\$6,553	\$14,658	1,111	2.6%	\$21,211
Professional & Business Services	101	6.5%	\$9,142	\$7,608	181	6.9%	\$6,037	\$10,713	3,033	7.0%	\$16,750
Educational Services	124	8.0%	\$5,254	\$7,005	324	12.4%	\$3,431	\$8,828	1,921	4.5%	\$12,258
Health Services	127	8.2%	\$9,652	\$5,217	256	9.8%	\$7,788	\$7,082	3,885	9.0%	\$14,870
Leisure & Hospitality	517	33.2%	\$8,382	\$1,504	756	28.9%	\$5,611	\$4,276	13,561	31.4%	\$9,886
Other Services	91	5.8%	\$8,141	\$8,764	73	2.8%	\$6,295	\$10,611	2,004	4.6%	\$16,905
Public Admin.	214	13.7%	\$7,594	\$8,183	447	17.1%	\$5,842	\$9,936	4,505	10.4%	\$15,778
<b>All Industries</b>	<b>1,557</b>	<b>100.0%</b>	<b>\$8,280</b>	<b>\$7,437</b>	<b>2,620</b>	<b>100.0%</b>	<b>\$5,908</b>	<b>\$9,810</b>	<b>43,154</b>	<b>100.0%</b>	<b>\$15,718</b>

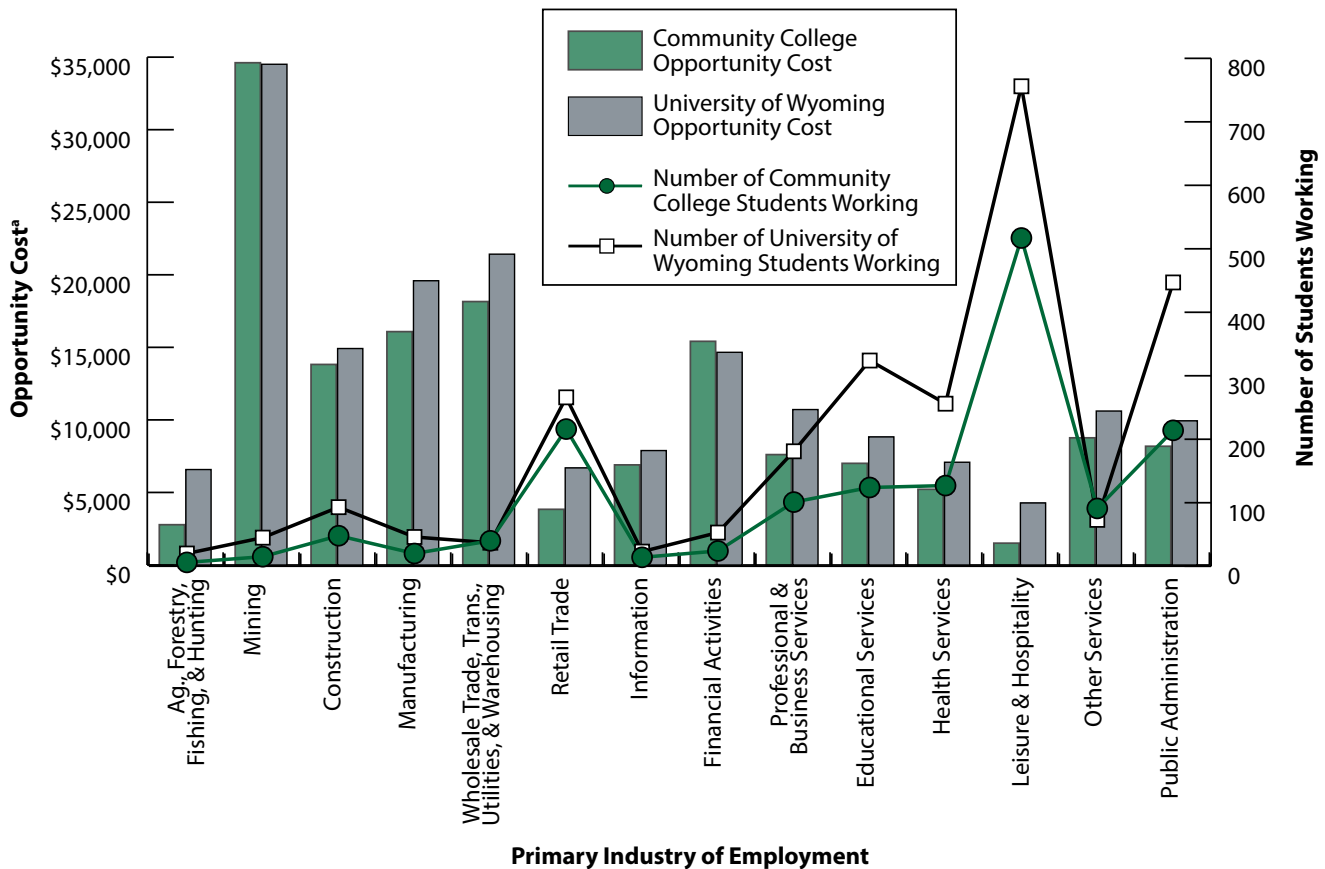
Source: Custom Extract from Workforce Data Quality Initiative (WDQI) Project.

in mining (\$46,199), wholesale trade, transportation, utilities, & warehousing (\$29,067), manufacturing (\$27,838), construction (\$21,915), and financial activities (\$21,211), but the highest percentage of individuals work primarily in leisure & hospitality (31.4%), retail trade (13.6%), and public administration (10.4%).

For community college students, the highest average wages during the school year were paid to students working primarily in manufacturing (\$11,755), mining (\$11,585), wholesale trade, transportation, utilities, & warehousing

(\$10,912), health services (\$9,652), and agriculture, forestry, fishing, & hunting (\$9,158). Leisure & hospitality, retail trade, and public administration had the greatest percentage of student workers, with 33.2%, 13.9%, and 13.7%, respectively. As shown in Table 3, working community college students had the greatest opportunity cost in mining; wholesale trade, transportation, utilities, & warehousing; manufacturing; financial activities; and construction, where the forgone earnings range from an average of \$34,614 to \$13,821. Figure 3 displays the opportunity cost for students, by primary industry, in a bar graph.

**Figure 3: Opportunity Cost of College and Number of Workers by Postsecondary Enrollment Type for 18- to 24-year-olds, 2013Q3-2014Q3 in Wyoming**



Source: Custom Extract from Workforce Data Quality Initiative (WDQI) Project.  
 \*Average Statewide Earnings - Average Earnings of College Students = Opportunity Cost.

Table 3 also shows that student workers at the University of Wyoming earned the most in mining (\$11,690), manufacturing (\$8,248), health services (\$7,788), wholesale trade, transportation, utilities, & warehousing (\$7,645), and construction (\$6,997). The greatest percentage of students worked in leisure & hospitality (28.9%), public administration (17.1%), and educational services (12.4%). As with students attending community college, students at the University also had the highest opportunity cost in mining (\$34,509); wholesale trade, transportation, utilities, & warehousing (\$21,422); manufacturing (\$19,590); construction (\$14,919); and financial activities (\$14,658; see Figure 3).

cost for students. On average, females earned less than males in every group, but students at the University of Wyoming had the smallest gender-wage gap. The data indicate a high employment to population ratio for college students in the state during the 2013-14 school year, which corresponds to the comparatively low unemployment rate in the state of Wyoming during this time (see Figure 4).

Future research could assess enrollment in higher education and employment by hours worked, as well as earnings and graduation outcomes. Furthermore, new reports could estimate the opportunity cost of individuals who choose not to attend college.

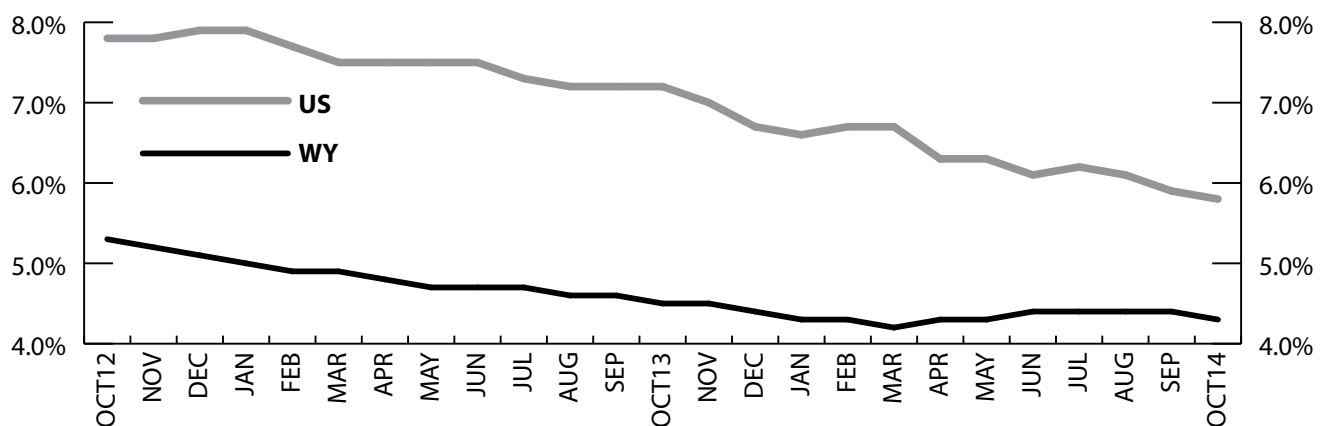
### Summary and Future Research

In all, leisure & hospitality, retail trade, and public administration employ the most individuals, but mining; wholesale trade, transportation, utilities, & warehousing; and manufacturing have the highest wages as well as the highest opportunity

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**Figure 4: Seasonally Adjusted Unemployment Rate for Wyoming and the U.S., October 2012 to October 2014**



Source: Local Area Unemployment Statistics.

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