



LANDMARKS IN LABOR MARKET INFORMATION

PRESENTED BY TOM GALLAGHER, TONY GLOVER, AND MICHELE HOLMES
TO THE WYOMING WORKFORCE & SAFETY SUMMIT
JUNE 24, 2015
CHEYENNE, WYO



RESEARCH & PLANNING

[HTTP://DOE.STATE.WY.US/LMI](http://DOE.STATE.WY.US/LMI)

OUR ORGANIZATION:

R&P is a separate, exclusively statistical entity.

WHAT WE DO:

R&P collects, analyzes, and publishes timely and accurate labor market information (LMI) meeting established statistical standards.

OUR CUSTOMERS:

LMI makes the labor market more efficient by providing the public and the public's representatives with the basis for informed decision making.



Research & Planning
Wyoming DWS

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Wyoming Labor Market Information

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About Research & Planning
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About Research & Planning

Acronyms

WHO WE ARE

Research & Planning (R&P) is a separate, exclusively statistical entity that collects, analyzes, and publishes timely and accurate labor market information (LMI) meeting established statistical standards.

Labor market information is "an applied science; it is the systematic collection and analysis of data which describes and predicts the relationship between labor demand and supply."
 — *The States' Labor Market Information Review, ICESA, 1995, p. 7.*

Staff consists of 13 full-time researchers, most holding graduate degrees, with backgrounds in economics, demography, sociology, psychology, statistics, and engineering. R&P also has two editors with backgrounds in journalism and two administrative support staff.

HOW WE ARE FUNDED

Bureau of Labor Statistics	57.7%
Employment & Training Administration	17.8%
Unemployment Insurance - Federal Funds	8.5%
Benefits Survey	4.1%
Employment Support Fund	7.0%
Other	4.9%

As of Aug. 2011.

WHAT WE DO

U.S. Bureau of Labor Statistics

- Unemployment rate (household survey and administrative records)
- Wyoming Wage Survey (survey of 1,200 firms)
- Unemployment Insurance payroll (administrative)

NEW!

Labor Market Information — on — Wyoming at Work



- Dynamic data
- Industries
- Occupations
- Area Profiles

Go to Site

More Info

Wyoming Department of Workforce Services

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Research & Planning
 Wyoming LWS



http://doe.state.wy.us/lmi/LMIInfo.htm[8/19/2014 1:28:13 PM]



AGENDA

- Advances in Labor Market Information
- New Hires Survey Reveals In-Demand Skills
- Distribution of STEM Jobs in Wyoming and the Region
- Linking Education and Workforce Data WE Connect
- Future Research
- Questions



WYOMING: LEADING LABOR MARKET INFORMATION FOR 20 YEARS AND UNDERSTANDING EDUCATION SUPPLY AND EMPLOYER DEMAND

- Tracking University of Wyoming Graduates Into the Wyoming Work-force, September 1995
- Under the Lamppost: Report to Workforce Development Council on Wyoming Institutions of Higher Education Program Completers, November 1998
- When Does Training Pay Off? , Wyoming Labor Force Trends, July 2001
- Cooking Up a Career: Examining the Outcomes of a High School Training Program in the Culinary Arts and Hospitality Management, August 2005
- Wyoming Community College Graduates' Labor Market Outcomes 2005: An Administrative Records Approach, April 2006
- Retention of Nurses in Wyoming: Part II, August 2008
- Job Attainment and Wages of Wyoming Vocational Rehabilitation Participants, Wyoming Labor Force Trends, February 2010
- Health Care Workforce Needs in Wyoming: Advancing the Study, Fall 2011
- Effects of decline in teen drivers, Wyoming Labor Force Trends, September 2014
- Nurses Returning to School, Wyoming Nurse Reporter, Fall 2014



LANDMARK #1

DEMAND ANALYSIS

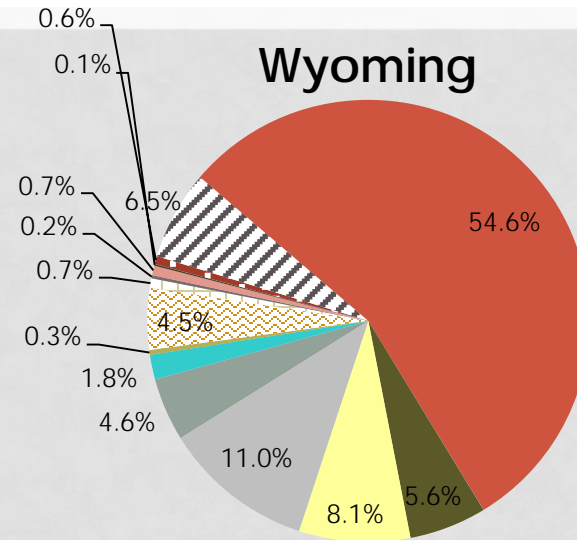
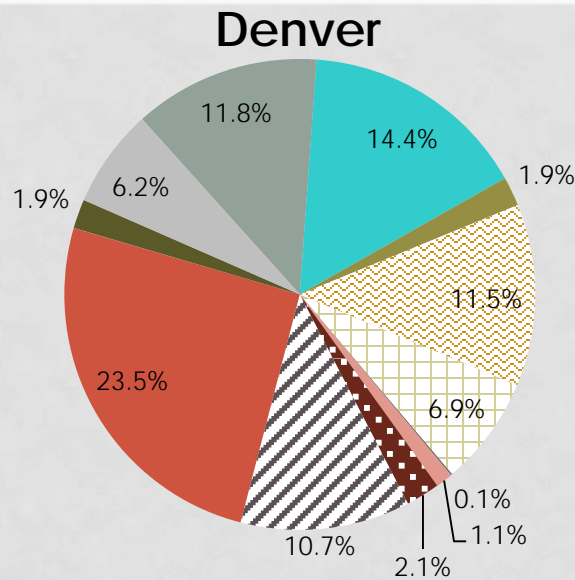


SCIENCE, TECHNOLOGY, ENGINEERING AND MATH: PROJECTIONS IN 2012 GLOBAL COMPETITIVENESS

- STEM jobs make up an estimated 5.3% of jobs in the U.S., and an estimated 4.8% of jobs in Wyoming.
- Between 2010-2020, STEM jobs will grow at roughly the same rate for the U.S. and Wyoming: 17.4%
- We can expect to add an estimated 226 STEM jobs in Wyoming per year.
- Although STEM occupations make up a small percentage of the total jobs worked in Wyoming and the U.S., there are skills associated with STEM that are required in many non-STEM occupations.

STEM Estimates in 2015: Occupational Staffing Patterns in the Oil & Gas Industry for Wyoming and Denver

Standard Occupational Classification Occupations as a Percent of Oil & Gas Extraction (NAICS 211) & Support Activities for Mining (NAICS 213) Employment

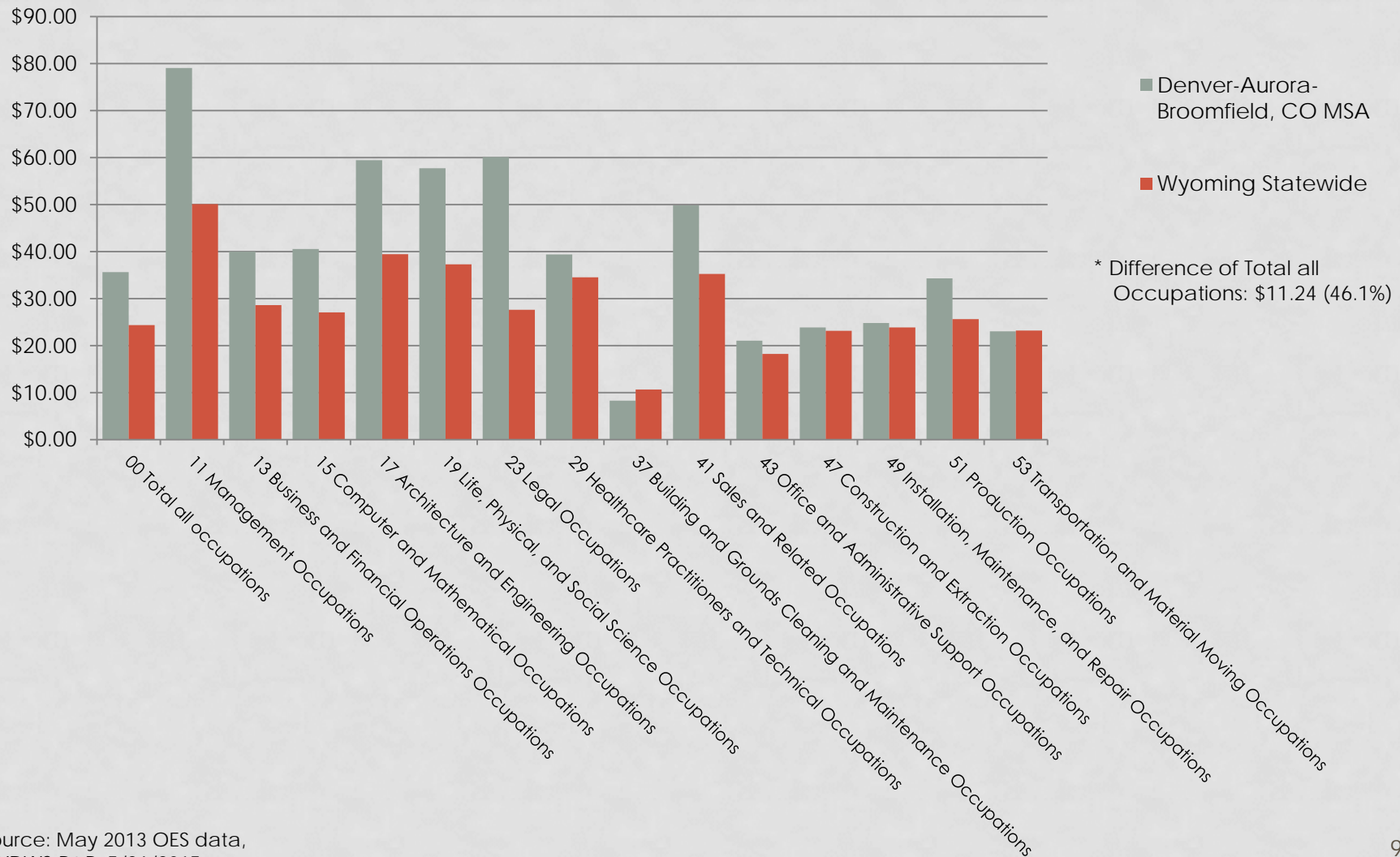


Occupation	WY	DEN
11- Management	4.6%	11.8%
15- Computer and Mathematical	0.3%	1.9%
19- Life, Physical, and Social Science	0.7%	6.9%
29- Healthcare and Technical	0.7%	1.1%
41- Sales and Related	0.6%	2.1%
47- Construction and Extraction	54.6%	23.5%
51- Production	8.1%	0%

Occupation	WY	DEN
13- Business and Financial	1.8%	14.4%
17- Architecture and Engineering	4.5%	11.5%
23- Legal	0.2%	0.1%
37- Building & Grounds Cleaning and Maintenance	0.1%	0%
43- Office and Administrative Support	6.5%	10.7%
49- Installation, Maintenance, and Repair	5.6%	1.9%
53- Transportation and Material Moving	11.0%	6.2%

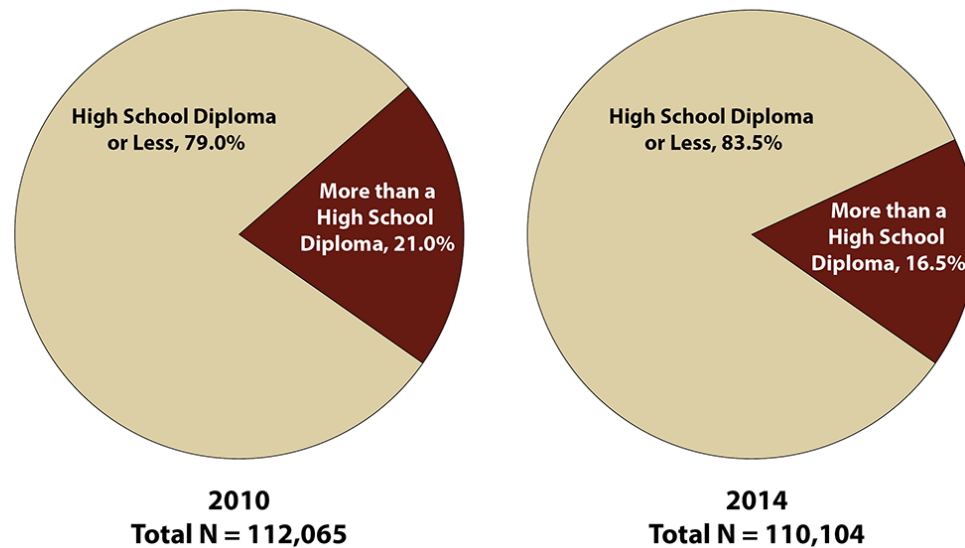
Average Hourly Wage, Oil and Gas Industry by Occupation for Wyoming and Denver: 2015

NAICS 211 & 213



HAS THE NUMBER OF JOBS IN THE PRIVATE SECTOR REQUIRING MORE THAN A HIGH SCHOOL DIPLOMA INCREASED? RESULTS FROM THE NEW HIRES SURVEY

Percentage of Wyoming New Hires Occupations by Educational Requirement*



Source: New Hires Job Skills Survey, Research & Planning, Wyoming Department of Workforce Services.
*Typical level of education that most workers need to enter the occupation. Source: U.S. Bureau of Labor Statistics.
Prepared by M Moore, Research & Planning, WY DWS, 6/18/15.

NEW HIRES SURVEY: PRIVATE SECTOR OCCUPATIONS REQUIRING MORE THAN A HIGH SCHOOL DIPLOMA IN 2014

Top 15 Wyoming New Hires Occupations Requiring More than a High School Diploma with a Median Hourly Wage of at Least \$14.00, 2014

SOC ^a Code	Occupation	Education ^b	N	Wage
53-3032	Truck Drivers, Heavy & Tractor-Trailer	Postsecondary Non-Degree Award	4,482	\$19.00
11-1021	General & Operations Managers	Bachelors	1,168	\$31.21
29-1141	Registered Nurses	Associates	1,023	\$27.21
11-9081	Lodging Managers	Bachelors	296	\$15.00
19-4041	Geological & Petroleum Technicians	Associates	197	\$22.55
25-2021	Elementary School Teachers, Exc. Special Ed.	Bachelors	191	\$21.48
11-3031	Financial Managers	Bachelors	178	\$20.23
13-2011	Accountants & Auditors	Bachelors	175	\$23.08
29-2021	Dental Hygienists	Associates	172	\$30.00
29-9011	Occupational Health & Safety Specialists	Bachelors	161	\$26.00
25-2031	Secondary School Teachers, Exc. Special & Voc	Bachelors	152	\$20.95
17-2171	Petroleum Engineers	Bachelors	147	\$39.00
15-1151	Computer User Support Specialists	Some College, No Degree	142	\$18.00
11-9021	Construction Managers	Bachelors	137	\$48.25
29-2041	Emergency Medical Technicians & Paramedics	Postsecondary Non-Degree Award	137	\$18.07
Subtotal, All New Hires Occupations Requiring More than a High School Diploma			18,111	
Total, All New Hires Occupations			110,104	\$12.00

Occupations requiring more than a high school diploma made up 16.5% of all new hires occupations.

New hires are defined as workers who had not previously worked for a particular employer since 1992, the first year for which wage records are available for analyses

Occupations in which at least 20% of all new hires were nonresidents. Nonresidents are defined as individuals without a Wyoming-issued driver's license or at least four quarters of work history in Wyoming.

Source: New Hires Job Skills Survey, Research & Planning, Wyoming Department of Workforce Services.

^aSOC = Standard Occupational Classification System.

^bTypical level of education that most workers need to enter the occupation. Source: U.S. Bureau of Labor Statistics.

Prepared by M Moore, Research & Planning, WY DWS, 6/18/15.

NEW HIRES SURVEY: SELECTED PRIVATE SECTOR OCCUPATIONS PAYING MORE THAN \$14 PER HOUR IN 2014

Characteristics of Selected Wyoming New Hires Occupations, 2010 and 2014

Job Characteristics	Geological & Petroleum Technicians (19-4041)		Occupational Health & Safety Specialists (29-9011)		Petroleum Engineers (17-2171)		Construction Managers (11-9021)		
	2010	2014	2010	2014	2010	2014	2010	2014	
Typical Education ^a	Associate's Degree		Bachelor's Degree		Bachelor's Degree		Bachelor's Degree		
N	290	197	108	161	81	147	40	137	
Average Hourly Wage (\$)	\$19.65	\$22.55	\$33.66	\$26.00	\$62.62	\$39.00	\$36.13	\$48.25	
% Paid Piece Rate	4.4	10.1	0.0	0.0	100.0	34.3	0.0	0.0	
% Offered Selected Benefits	Health Insurance	48.9	71.4	72.7	96.9	83.3	79.4	66.7	79.5
	Retirement	37.8	56.1	50.0	20.8	83.3	86.3	66.7	63.6
	Paid Leave	33.3	71.4	50.0	100.0	100.0	82.9	100.0	64.6
Skills Selected as "Important" (%)	Service Orientation	64.4	61.1	77.3	100.0	83.3	89.8	83.3	51.3
	Critical Thinking	97.8	94.9	81.8	100.0	100.0	100.0	100.0	84.1
	Reading Comprehension	88.9	72.1	81.8	100.0	100.0	86.6	100.0	84.1
	Technology Design	82.2	55.9	36.4	78.1	100.0	79.8	83.3	68.2
	Operation and Control	93.3	82.2	63.6	91.7	100.0	72.9	83.3	84.1
Average Weekly Hours Worked	20 or Less	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	21-35	13.3	0.0	4.5	0.0	0.0	35.5	0.0	0.0
	36 or More	86.7	100.0	95.5	100.0	100.0	64.5	100.0	100.0
Gender	Female	15.6	5.0	13.7	1.1	0.0	4.5	0.0	0.0
	Male	62.2	68.7	54.5	76.2	75.0	75.2	33.3	35.4
	Nonresident	22.2	26.3	31.8	22.7	25.0	20.3	66.7	64.6
Age Group	19 and Younger	8.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	20-24	11.2	20.4	0.0	27.1	8.3	20.6	0.0	0.0
	25-34	33.3	7.6	13.6	8.5	33.3	38.7	16.7	0.0
	35-44	17.8	40.7	27.3	17.8	0.0	3.3	0.0	31.8
	45-54	4.4	2.5	27.3	17.7	16.7	13.7	16.7	0.0
	55-64	2.2	2.5	0.0	6.3	16.7	3.3	0.0	3.6
	65 and Older	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nonresident	22.2	26.3	31.8	22.7	25.0	20.3	66.7	64.6	
Turnover	% Still Working 1 Quarter After Hire	82.2	84.7	95.5	96.9	100.0	100.0	83.3	84.1

Source: New Hires Job Skills Survey, Research & Planning, Wyoming Department of Workforce Services.

^aTypical level of education that most workers need to enter the occupation. Source: U.S. Bureau of Labor Statistics.

Prepared by M Moore, Research & Planning, WY DWS, 6/18/15.



LANDMARK #2

LINKING EDUCATION AND WORKFORCE DATA:
SUPPLY ANALYSIS



WHY LINK EDUCATION AND WORKFORCE DATA

“Labor Market Information (LMI) is an applied science; it is the systematic collection and analysis of data which describes and predicts the relationship between labor demand and supply.”

~ *The States' Labor Market Information Review*, ICESA, 1995, p. 7.

- The point of LMI analysis is to move from description to prediction



LMI AND THE CAREER ACT

- The CAREER Act mandates that job training providers will only be reimbursed for their services *if they deliver outcomes such as job placement and retention*. This will ensure greater accountability and produce *measurable results*.
- Requires state and local workforce areas to give priority consideration to training programs that provide workers with credentials that are *in-demand by industry, relevant regionally* and recognized on a national scale.
- Source: Opportunity Nation, 2015



WE CONNECT: R&P'S NATIONWIDE AND LOCAL PARTNERS

Memorandum of Understanding with the Wyoming
Department of Education

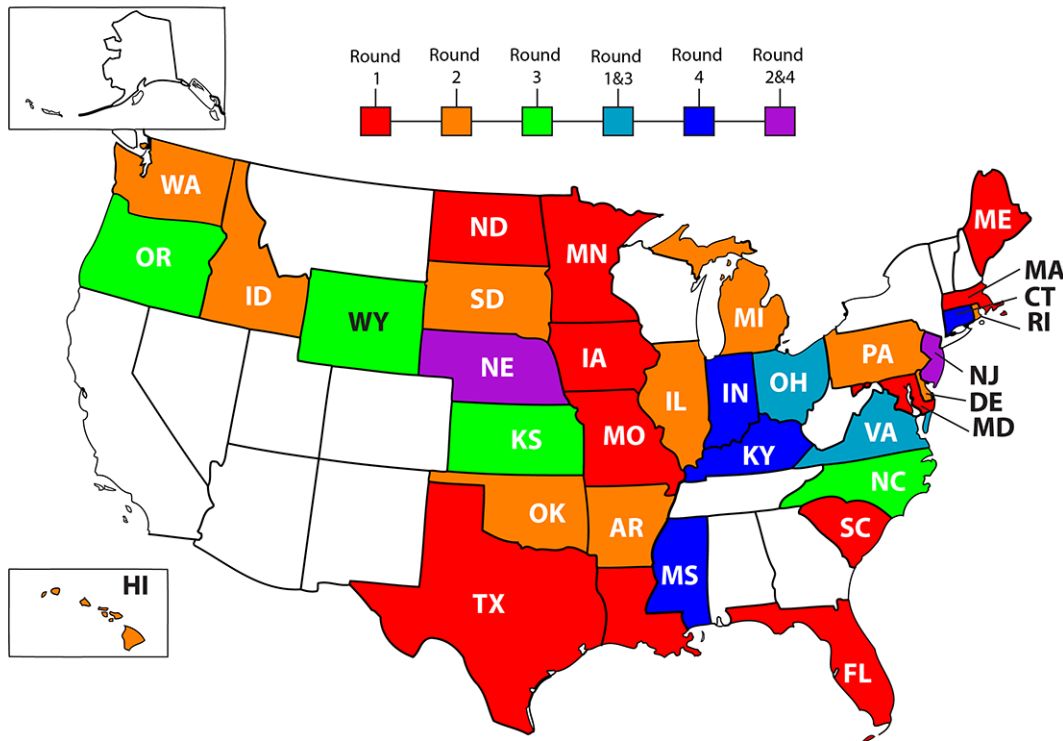
Memorandum of Understanding with the Wyoming
Community College Commission and all Community
Colleges

Memorandum of Understanding with the University of
Wyoming

LANDMARK #2

WE CONNECT: COMPETITIVE GRANTS

States that Have Received Workforce Data Quality Initiative (WDQI) Grants as of June 2015



Source: U.S. Department of Labor, Employment and Training Administration
<http://www.doleta.gov/performance/workforcedatagrants09.cfm>.

WE Connect[®]

Workforce-Education Connection
 Wyoming • South Dakota • Nebraska

http://doe.state.wy.us/LMI/education_we_connect.htm

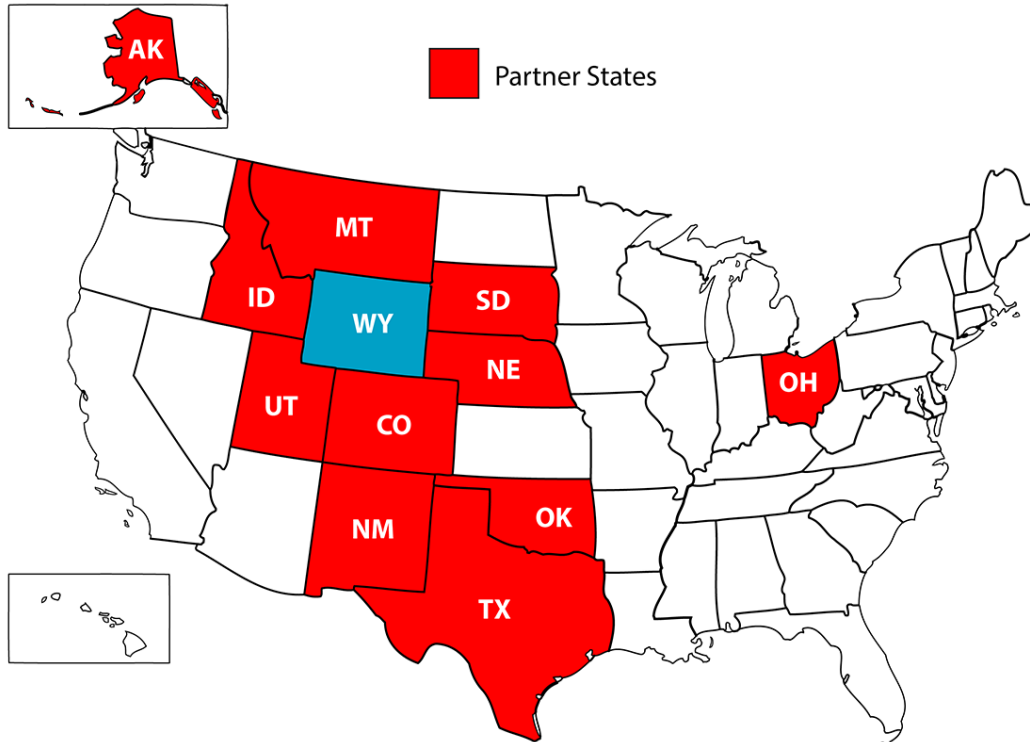
Informing school-to-work policy and personal choice in the Northern Plains and Rocky Mountain region.

A state coordination of the Workforce Data Quality Initiative.



WE CONNECT: PARTNER STATES

Labor Market Information (LMI) Offices in States with Which Wyoming Has Data-Sharing Agreements



Partner states are those states with Labor Market Information (LMI) offices with which Research & Planning (R&P) has data-sharing agreements.

WE Connect[®]

Workforce-Education Connection
Wyoming • South Dakota • Nebraska

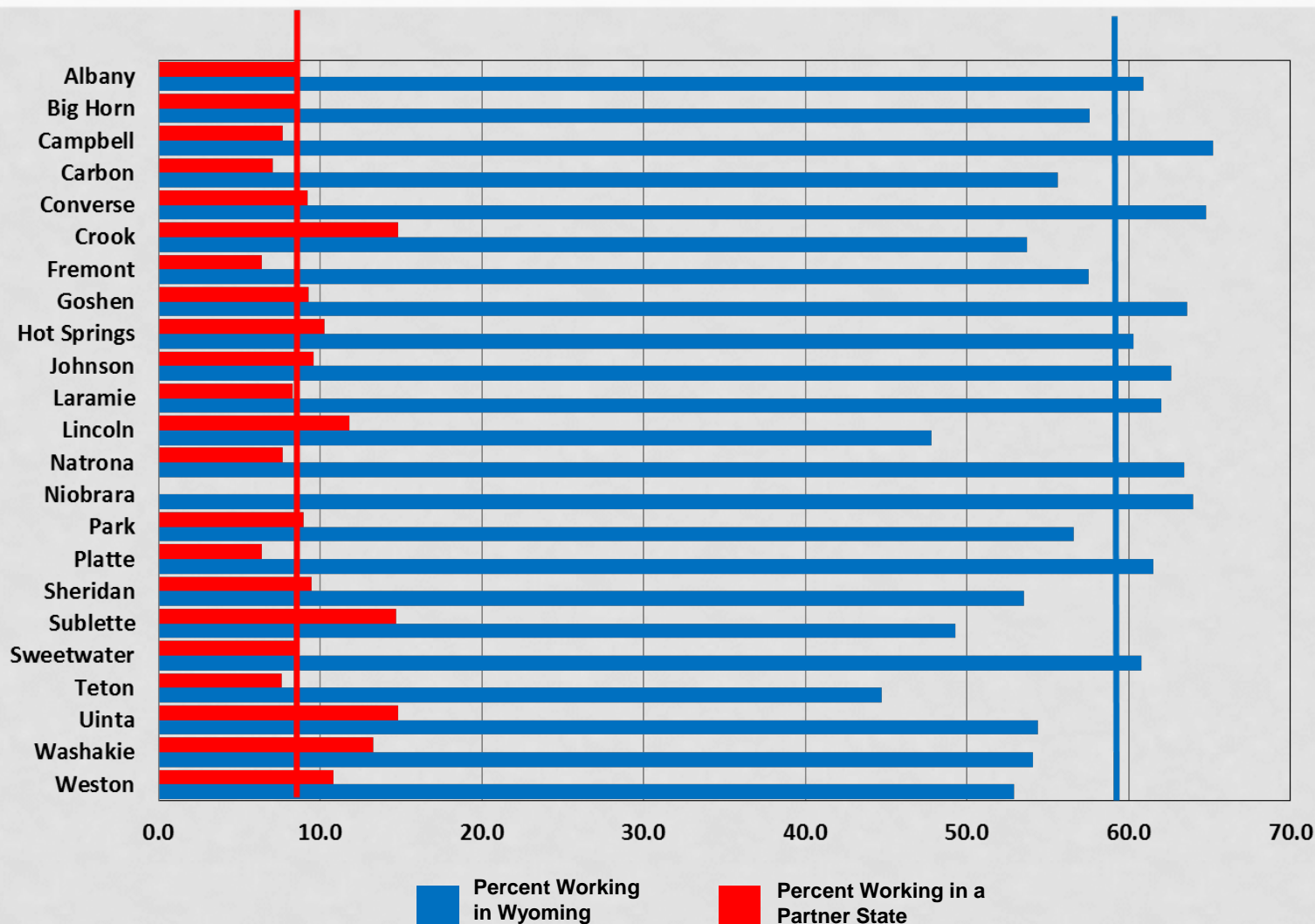
http://doe.state.wy.us/LMI/education_we_connect.htm

Informing school-to-work policy and personal choice in the Northern Plains and Rocky Mountain region.

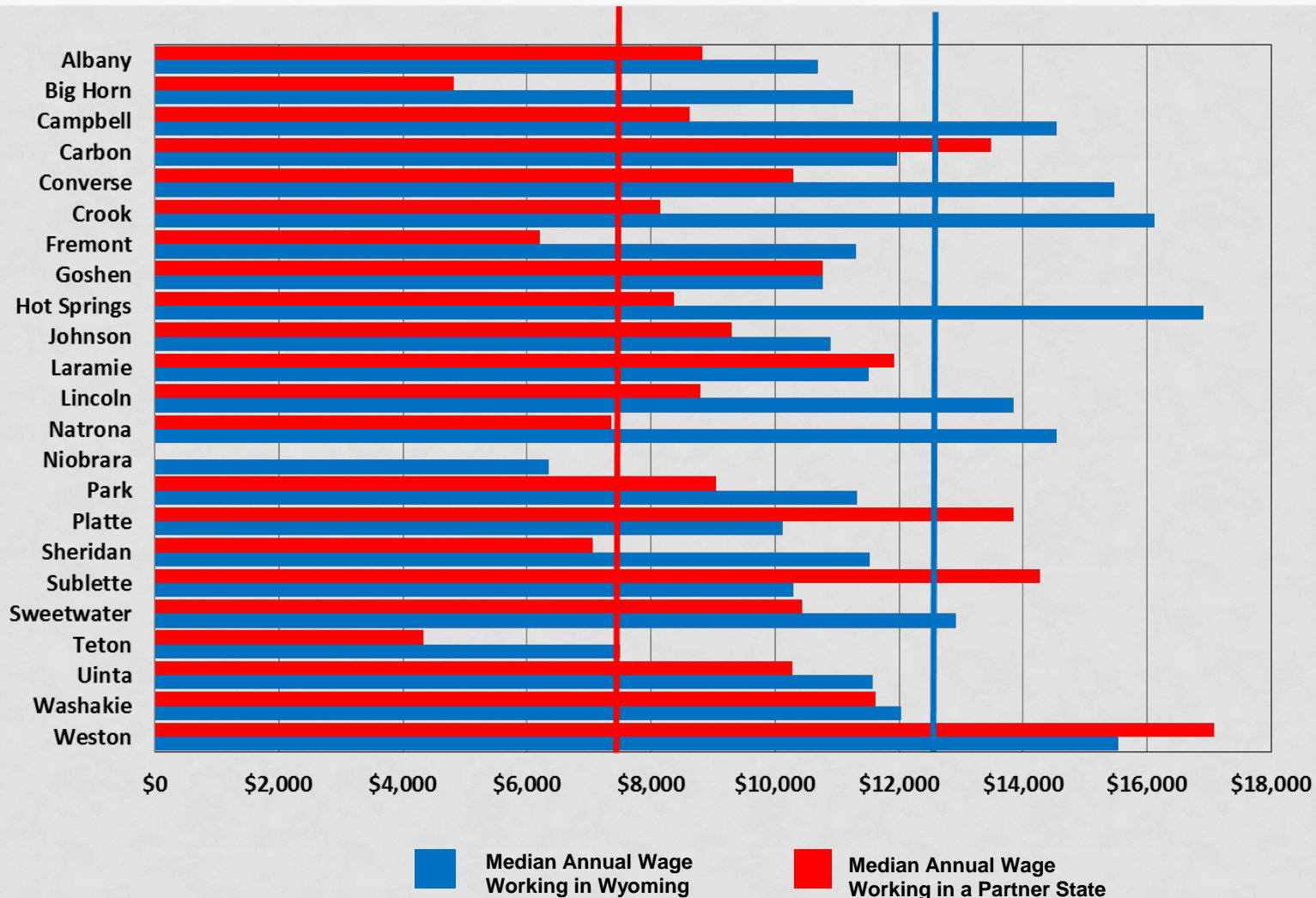
A state coordination of the Workforce Data Quality Initiative.



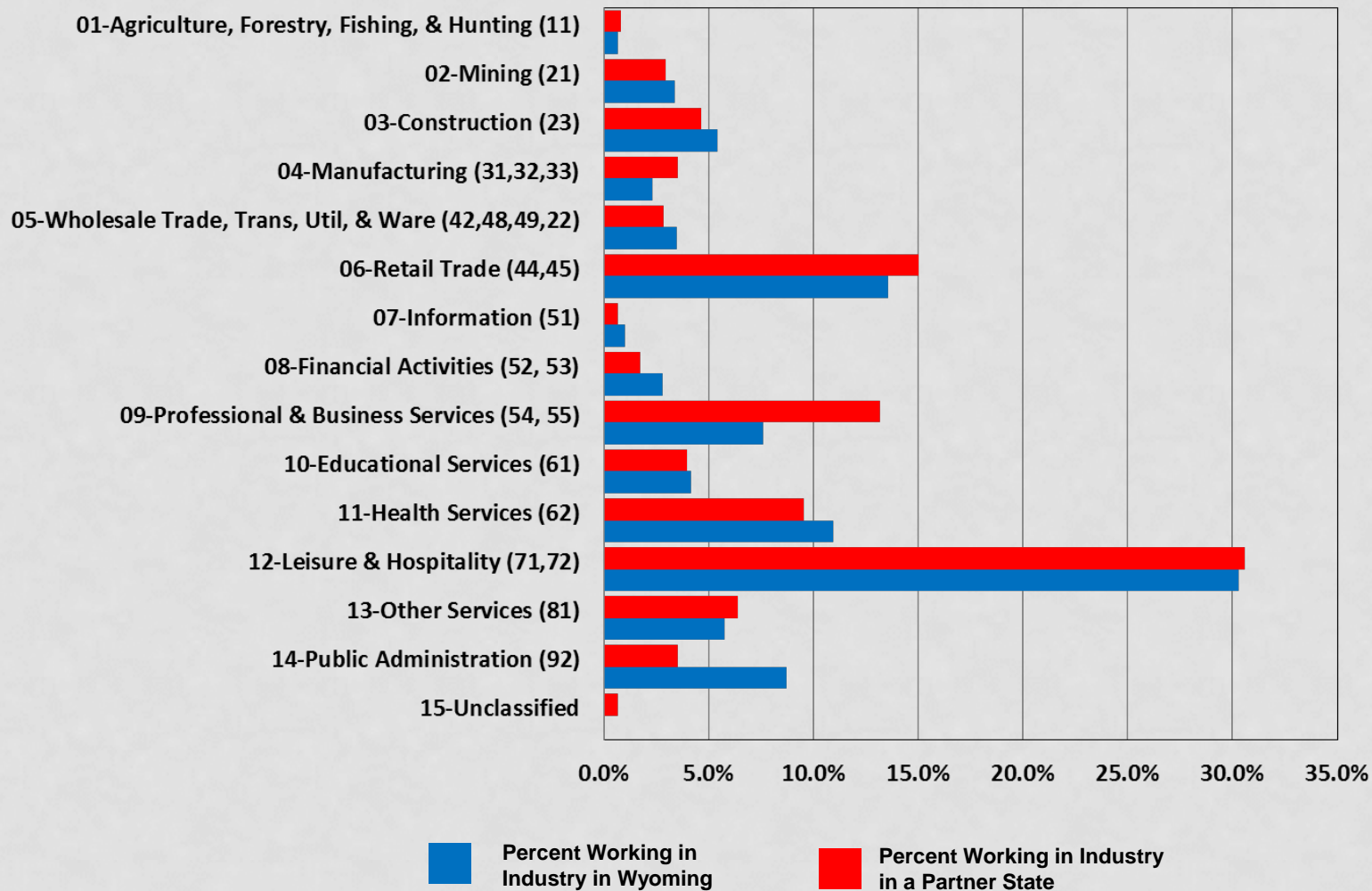
Wyoming High School 2009/10 Senior Cohort Working in Wyoming or in a Partner State in 2013 (Four year follow-up)



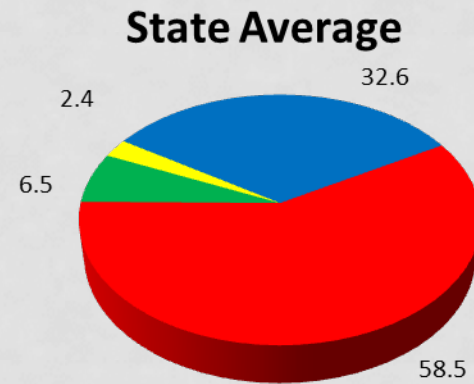
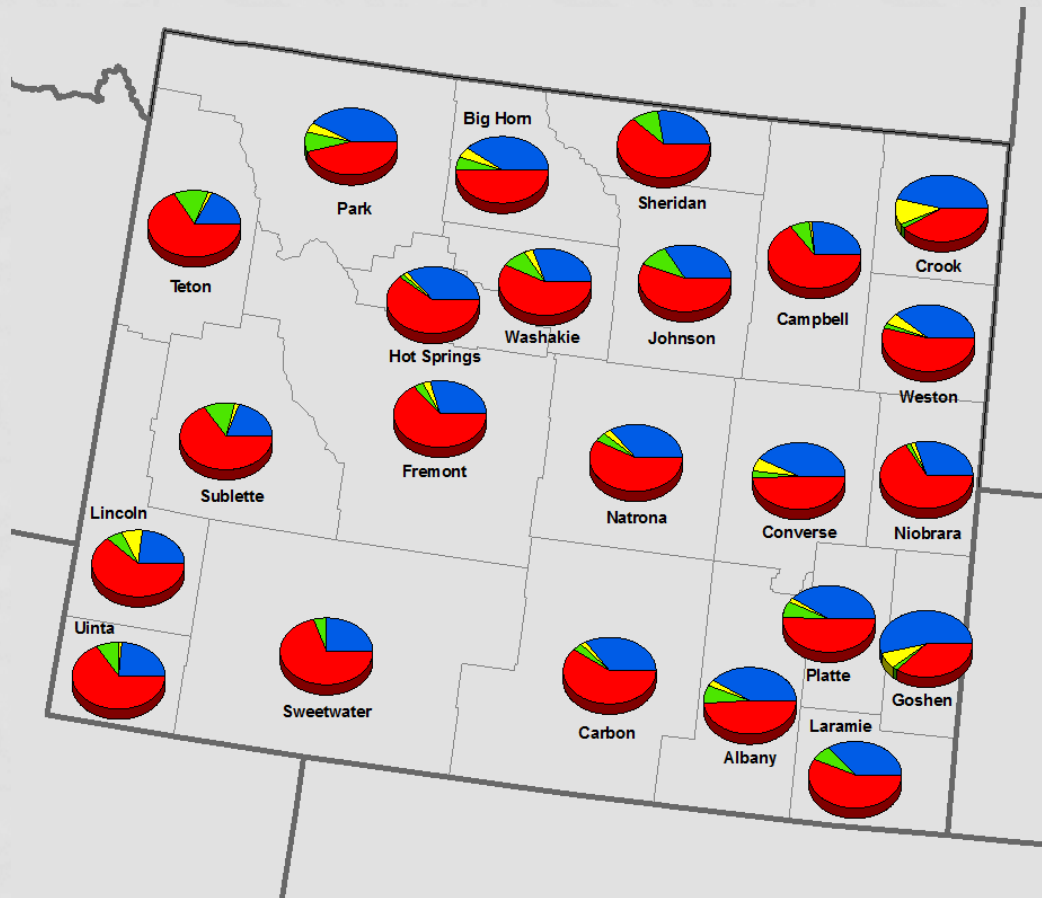
Average Median Wage of Wyoming High School 2009/10 Senior Cohort Working in Wyoming or a Partner State in 2013 (four year follow-up)



Wyoming High School 2009/10 Senior Cohort Working in Wyoming or a Partner State by Primary Industry in 2013 (four year follow-up)

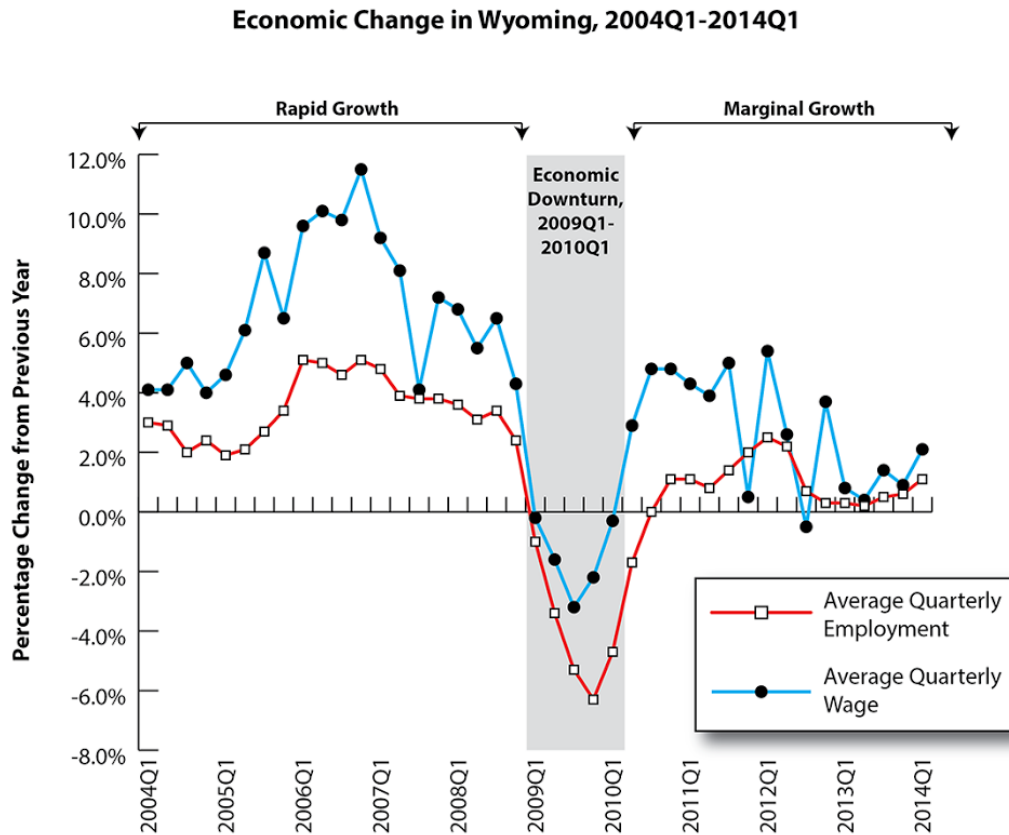


Wyoming's 2009/10 Senior Cohort by Post-Secondary Enrollment: Fall 2010



■ Not Enrolled in Post-Secondary
 ■ Enrolled in Wyoming Post-Secondary
 ■ Enrolled in Wyoming & Other State Post-Secondary
 ■ Enrolled in Other State Post-Secondary

GROWTH, DECLINE, AND MARGINAL ECONOMIC GROWTH IN WYOMING



Source: Quarterly Census of Employment & Wages (QCEW).
 Prepared by M Moore, Research & Planning, WY DWS, 2/23/15.
http://doe.state.wy.us/LMI/education_we_connect/WDQI_Pub1.pdf

Workforce Data Quality Initiative Report No. 1 for Wyoming

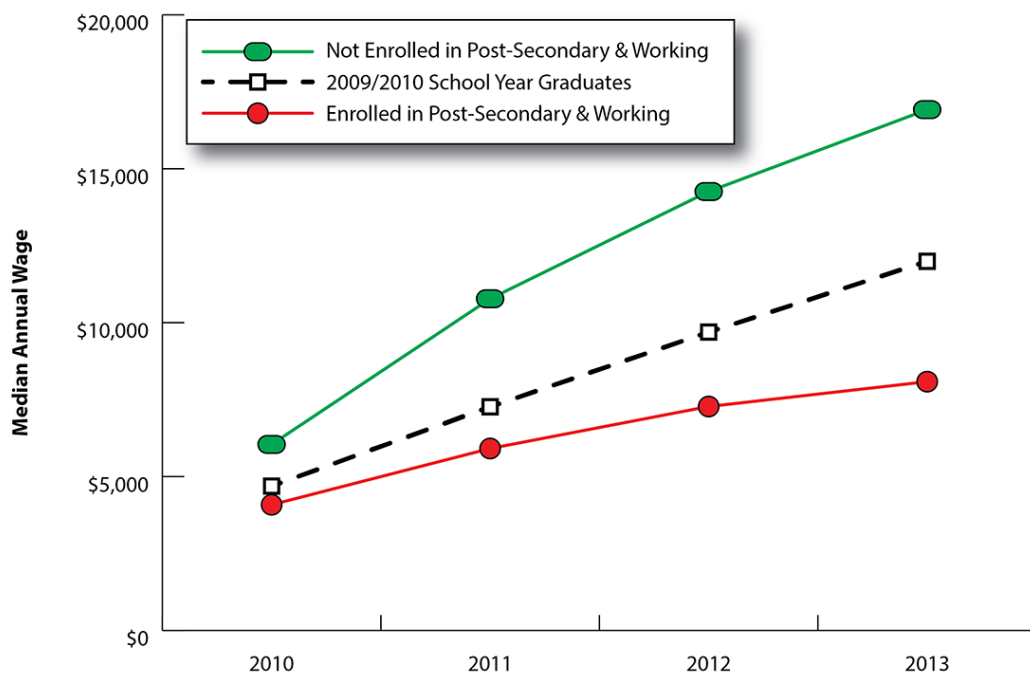
School Attendance and Employment, 2006 to 2013



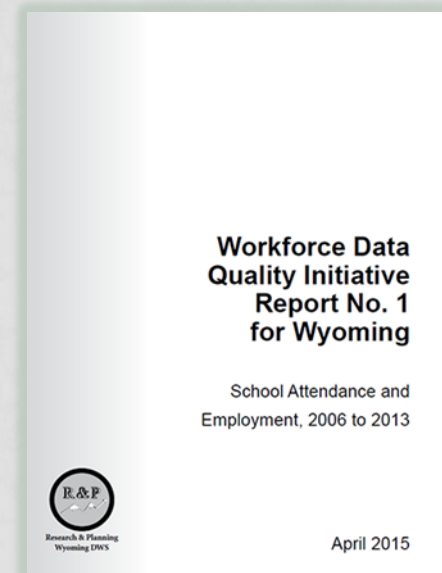
April 2015

WYOMING HIGH SCHOOL STUDENT EARNINGS BY POST HIGH SCHOOL ENROLLMENT STATUS 2010-2013

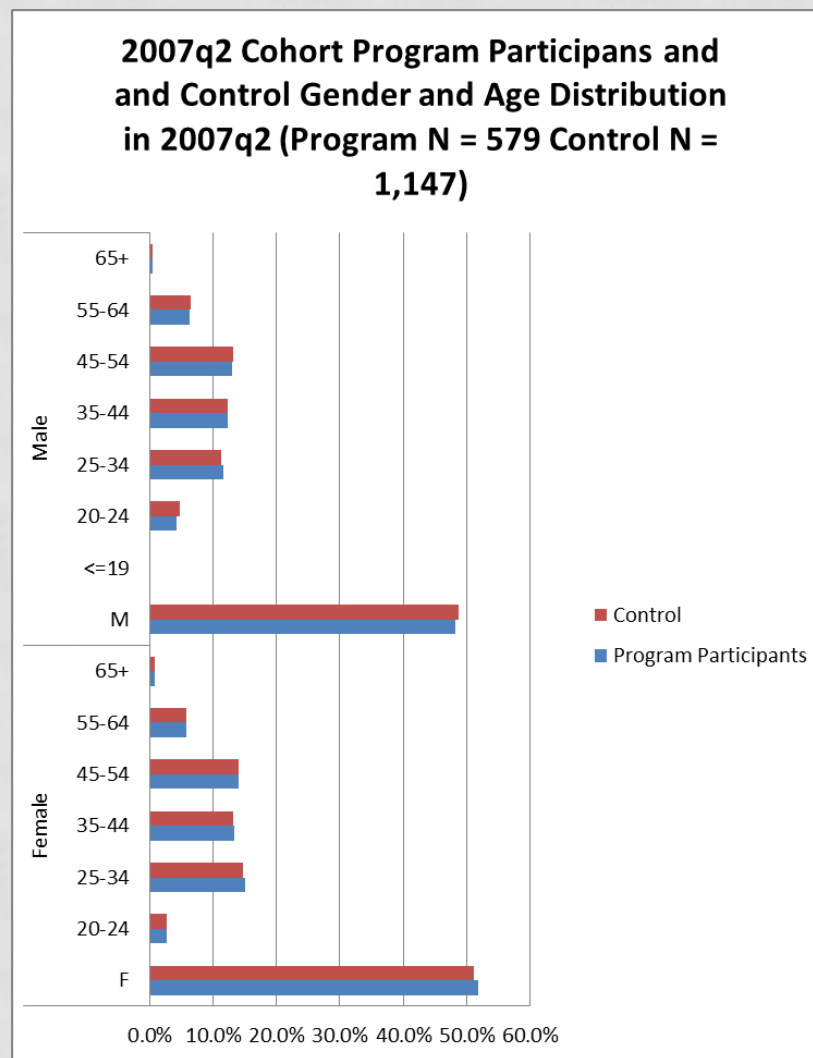
Figure: Median Annual Earnings for Wyoming High School 2009/10 Graduates (N = 5,481) by Post-Secondary Enrollment Status, 2010-2013



Source: Custom Extracts from Workforce Data Quality Initiative (WDQI) Project.
Prepared by L Hammer, Research & Planning, WY DWS, 3/27/15.

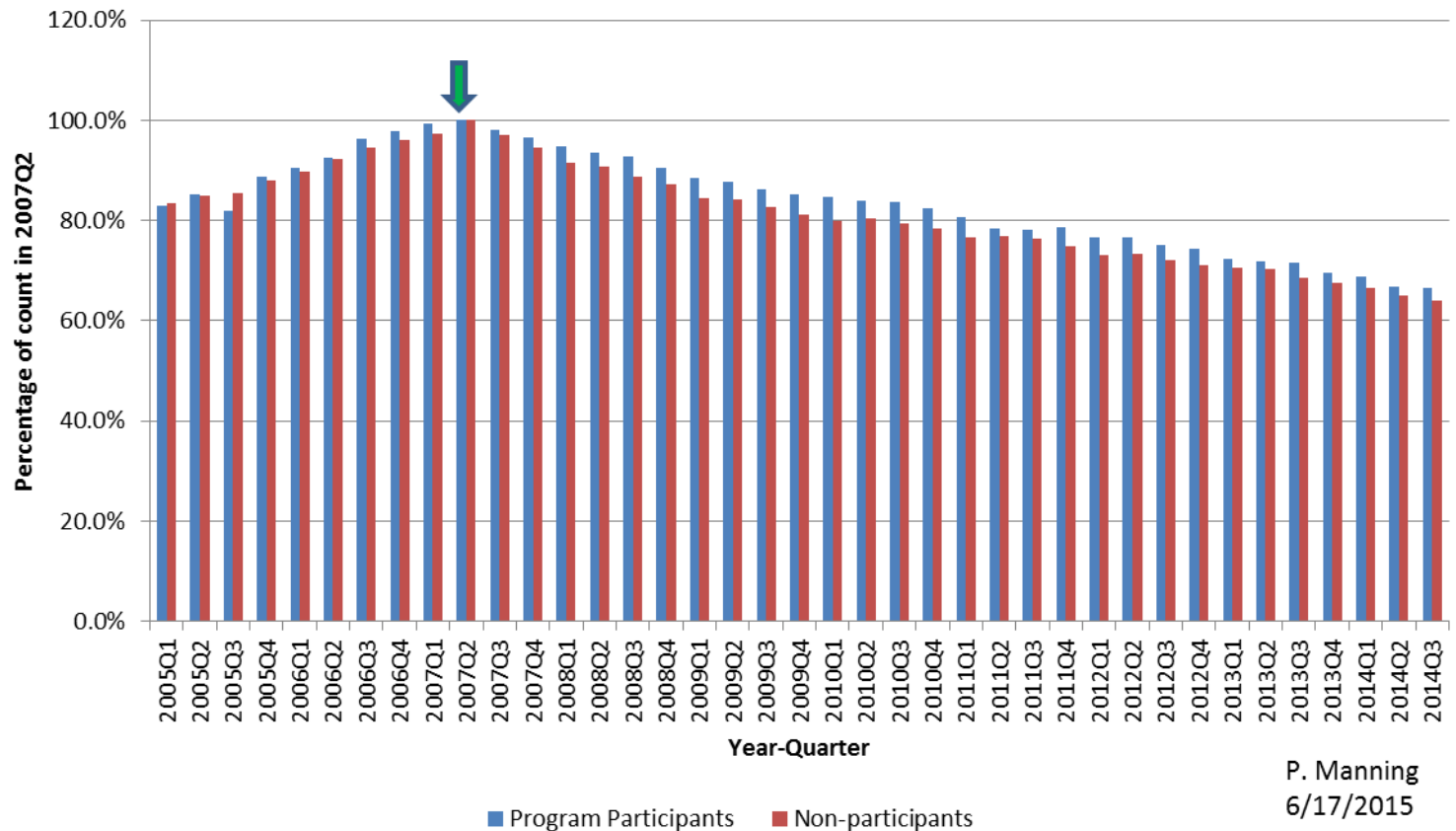


ACCOUNTABILITY AND TRANSPARENCY: CONTROL GROUPS



ACCOUNTABILITY AND TRANSPARENCY: LONGITUDINAL ANALYSIS AND TEST OF RETENTION

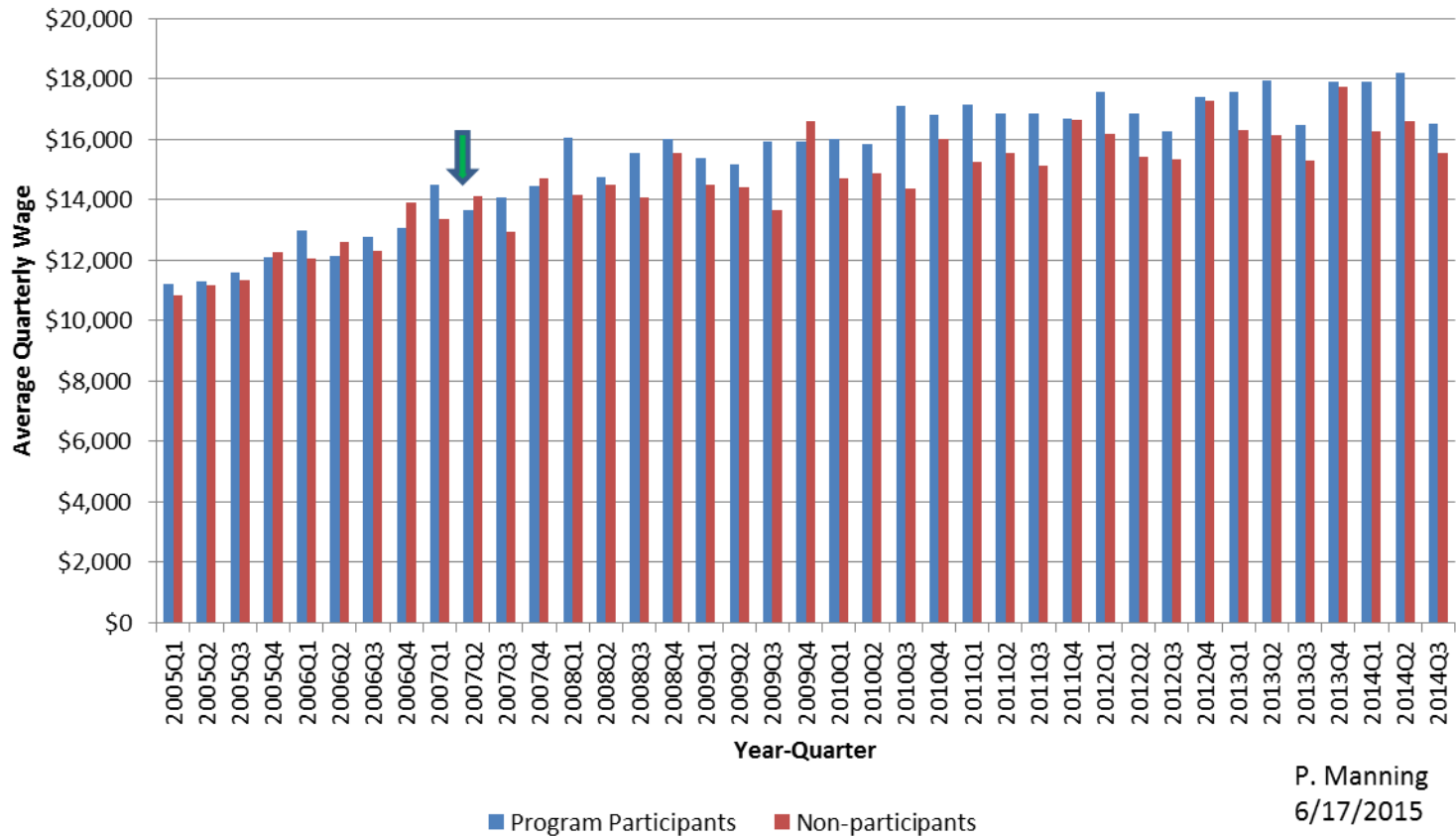
Percentage of the 2007Q2 Cohort Found in Wage Records



P. Manning
6/17/2015

ACCOUNTABILITY AND TRANSPARENCY: LONGITUDINAL ANALYSIS AND TEST OF IMPACT ON EARNINGS

Average Wages of the 2007Q2 Cohort



P. Manning
6/17/2015



INCLUSIVE DATA

EXPANDING OUR CAPACITY TO UNDERSTAND SUPPLY AND DEMAND ECONOMICS
FOR IMPORTANT SEGMENTS OF THE STUDENT POPULATION

Population	Required field WY Dept. Ed. Student Record	Population Included in 2015 WE Connect Analysis	Number & Percentage Enrolled in WY Public Schools 2010/11
General Education	YES	YES	75,836; 85%
Children With Disabilities: IEP 504 Plan	YES	YES	13,173; 14.8%
504 Eligible	NO	NO	Unknown
Gifted/Talented	YES	YES	293; 3.3%
Total Enrollment			89,302

EQUAL OPPORTUNITY TO INFORM POLICY

*Source: U.S. Department of Education, 2012. *EDFacts State Profile: Wyoming.*



2010 SENIOR COHORT: EQUAL OPPORTUNITY TO WORK

- All Senior Cohort Completers – 72.2% had wages in Wyoming in 2010
- Ever on a 504 Plan - 75.8% had wages in Wyoming in 2010
- Ever on an IEP – 63.6% had wages in Wyoming in 2010

• Source: Custom data pull R&P's WDE-684 data holdings and wage records. T. Glover, WYDWS, 1/19/2015



EQUAL OPPORTUNITY FOR SELF-SUFFICIENCY

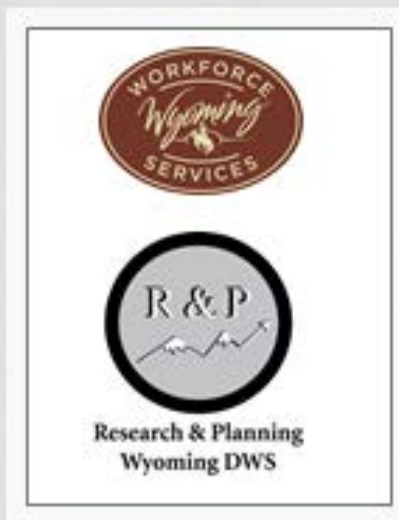
- In 2013, the unemployment rate for persons with a disability was 13.2%
- In the same year, the unemployment rate for persons without a disability was 7.1%.

* Source: U.S. Bureau of Labor Statistics, 2015

FUTURE RESEARCH

- Shift from Individual to the Household as the unit of analysis
- Nursing Study
- Hours worked
- Incorporate features of Experimental Design by adding the use of control groups

QUESTIONS?



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