Monitoring School District Human Resource Cost Pressures

A Report to
the Wyoming
Joint Appropriations
Interim Committee and
the Joint Education
Interim Committee

Research & Planning
Wyoming DWS

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Wyoming Department of Workforce Services
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"Your Source for Wyoming Labor Market Information"

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Detail Tables

Tables 1 through 5 referenced in this article are available online at http://doe.state.wy.us/LMI/education_costs.htm. Because of the size of these tables, they were not included in this publication but are available online as references.

Introduction

by: Tom Gallagher, Research & Planning Manager

The Cost Pressures Project

This report represents a response to legislative directive to "conduct data collection and analysis necessary for the education resource block grant model monitoring" (General Government Appropriations, Chapter 26, Section 326[d], March 2012). Our work was carried out in consultation with the Legislative Service Office and was complemented by access to data available only to state employees working under contract to the Bureau of Labor Statistics (U.S. Department of Labor) and administrative records not publicly available.

The purpose of this report is to present information on teacher and non-teacher cost pressures and to make recommendations on the future monitoring of educational needs. In this report, the term "cost pressures" is interpreted to mean a level of direct compensation that leads to the recruitment and retention of staff capable of producing a superior work product in the public school setting.

This report makes available a great deal of data for 10 teaching specialties and supporting staff for Wyoming, six surrounding states, the nation, and Wyoming's 23 counties. While focusing on teachers, we also provide links to a large body of tabular data, source documents, definitions, and methodologies used in this report at http://doe.state.wy.us/LMI/education_costs.htm.

Building on past reports, this analysis expands on the issue of cost pressures to include the demographics of labor and the structure of supply. Workforce demographics and supply issues are destined to become an increasingly important part of monitoring cost pressures.

This is the second annual report designed to monitor the competitiveness of staff compensation, and especially the compensation of teachers, enabled by the Wyoming school district block grant.

Government is generally slower to respond to market events than the private sector. It is not surprising, then, that the major finding of this report is that the compensation relationship between Wyoming, surrounding states, and the nation has remained relatively stable since the last report. The average wage for teachers in Wyoming remains well ahead of compensation in surrounding states, moreover, turnover remains relatively stable compared to the historic norm.

National and regional employment growth opportunities affecting Wyoming's market have been slow in developing since the end of the recession. At the same time, as can be seen in **Figure 1** and as discussed in **Box 1** (see pages 7-9), employment in the region is growing more rapidly and consistently than in Wyoming. And, as

importantly, the growth is led by two larger surrounding states, Colorado and Utah, with more complex and generally higher wage markets.

Architect is included among the "Comparable Occupations" to teaching (see Appendix A in *Current Status of Cost Pressures*). At $78,400, the compensation of Architects (SOC 17-1011, see page 11 of Table 1 at http://doe.state.wy.us/LMI/education_costs/LSO_OES_Tables_2010_2012.pdf) in Colorado is substantially higher than average compensation of architects in Wyoming at $68,400. Architects in Utah are paid an average wage 4.1% greater than in Wyoming. Given the slowness with which governments tend to act in response to market changes, it is essential that we monitor private sector employment change or risk reacting after the fact to private sector competition for labor that would otherwise flow into public schools within Wyoming. Wage competition must be considered in the context of migration decisions made by households rather than individuals, and it is not without historic precedent for more stable and diversified labor markets to prove attractive to more highly educated residents of Wyoming.

Other Key Findings

- During the 2010/11 school year, the average annual wage for all primary, secondary, and special education teachers in public schools in Wyoming was $59,314, an increase of $2,245 over the 2009/10 school year. This salary is higher than in surrounding states and in the U.S. as a whole (Chapter 1).

- Teacher wages in Wyoming on average are competitive with surrounding states and the nation, but this is not the case in all counties (Chapter 2).

- The replacement rate of individuals leaving public schools ranges from 11% in 2008/09 to 13.2% in 2010/11, those leaving represent a recruitment cost (Chapter 3).

- Wyoming may become increasingly dependent on importing teachers as the boom generation retires. More than one-quarter of special education teachers are approaching retirement age, and represent the most immediate replacement need (Chapter 4).

- Given the rapid aging of the workforce in industries requiring post-high school degrees, school districts may encounter significant competition for qualified employees (Chapter 5).

- A significant portion of individuals (33.5%) can teach in at least two content areas, allowing districts to employ teachers in varying content areas during a given school year (Staff Reports, Appendix A).

- At each age group, males' contract wages were generally greater. It is therefore of interest that the largest earnings gains from 2011/12 to 2012/13 were found among younger females who remained in the same district but changed occupations (Staff Reports, Appendix B).

Box 1: Wyoming Lags Behind Surrounding States in Job Growth

by: David Bullard, Senior Economist, and Michael Moore, Research Analyst

Based on the most recent Unemployment Insurance (UI) covered wage and salary employment estimates, job growth in surrounding states like Colorado and Utah is outpacing job growth in Wyoming.

During the second half of 2012, the over-the-year percentage change in employment in Wyoming was lower than that of all surrounding states (Colorado, Idaho, Montana, Nebraska, South Dakota, and Utah) and the U.S. (see **Map**). In December 2012, Utah (3.7%) and Colorado (2.7%) experienced the greatest increase in UI covered wage and salary employment compared to December 2011. States with large urban areas – such as Colorado and Utah – experienced the most growth, while more rural states experienced a slow, steady increase in employment.

Job growth in Wyoming, its surrounding states, and the U.S. from 2005 to 2012 is shown in **Figure 1**. The Great Recession lasted from December 2007 to June 2009 (NBER, 2010), and most states entered the recession several months before Wyoming. Before the Great Recession, Wyoming's job growth was generally higher than its surrounding states. During 2008, high oil and natural gas prices spurred energy development in Wyoming, while holding back economic growth in the nation as a whole.

During the recession, a sharp drop in energy prices caused larger job losses in Wyoming than were seen in most surrounding states. Wyoming added jobs at a healthy pace early in the recovery, but in the second half of 2012 job growth slowed to very low levels. It is clear that Wyoming's job growth has been lagging behind other states in the region.

Map: Over-the-Year Percentage Change in Total Unemployment Insurance Covered Employment for Wyoming and Surrounding States, December 2012

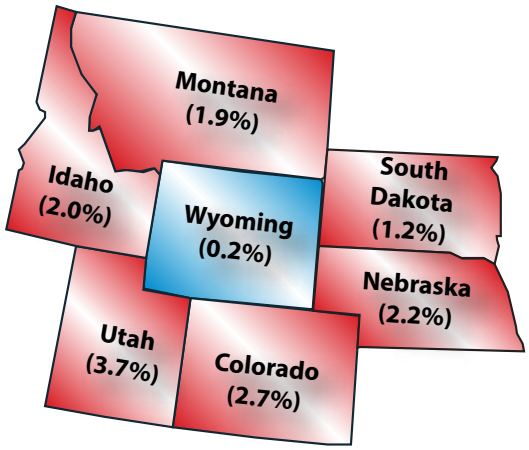
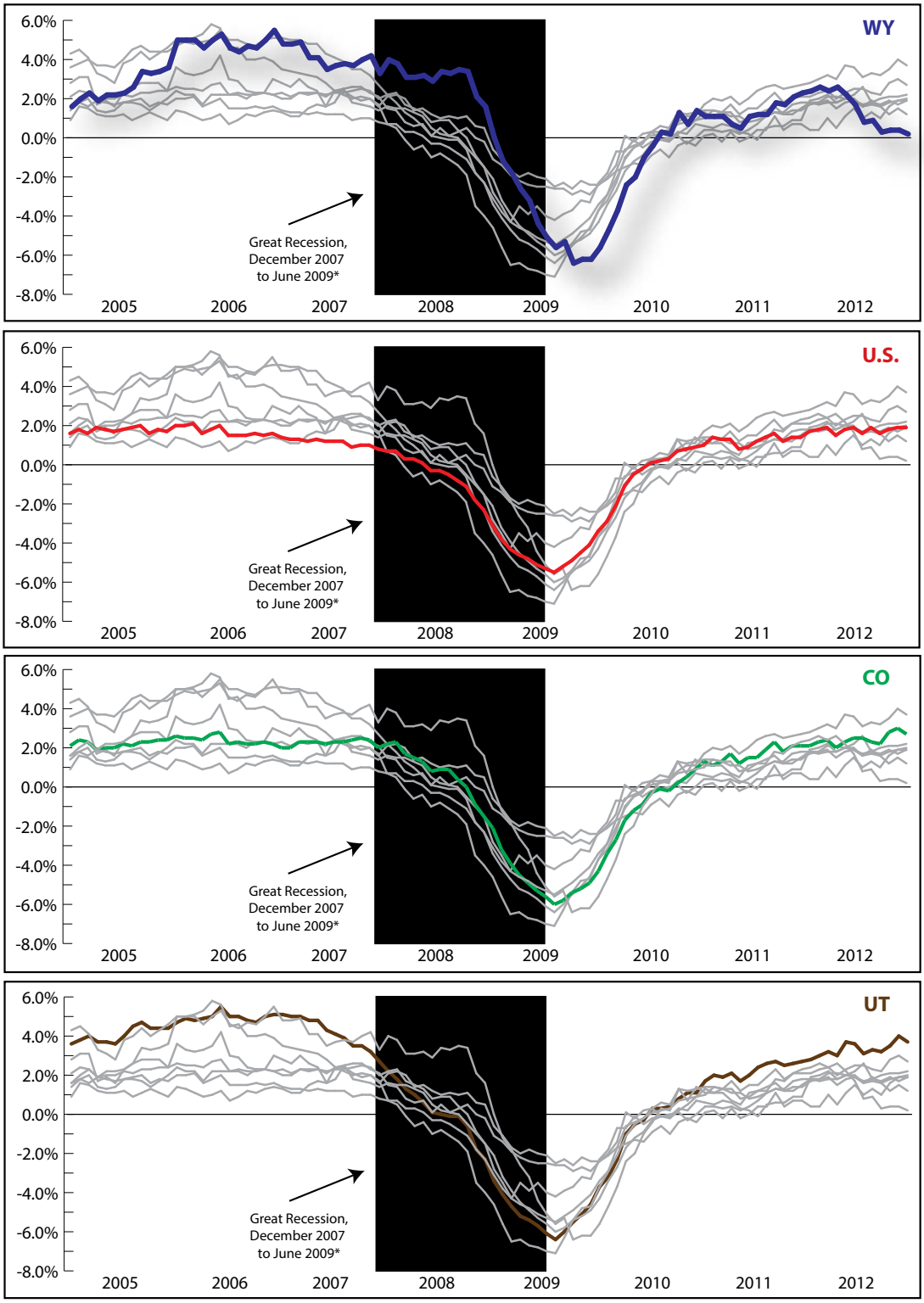


Figure 2 shows Wyoming's average annual unemployment rate and its employment-to-population ratio from 2005 to present. Before the recession, as employment was increasing, the unemployment rate fell to 2.8% in 2007. Then, as workers lost their jobs during the recession, the employment to population ratio fell (down from 70% to 65%) and the unemployment rate rose, hitting 7.0% in 2010.

In the recent recovery the unemployment rate has steadily decreased, while the employment to population ratio has remained largely flat. It seems that a large part of the decrease in the unemployment rate is related to people dropping out of the labor force, rather than returning to work.

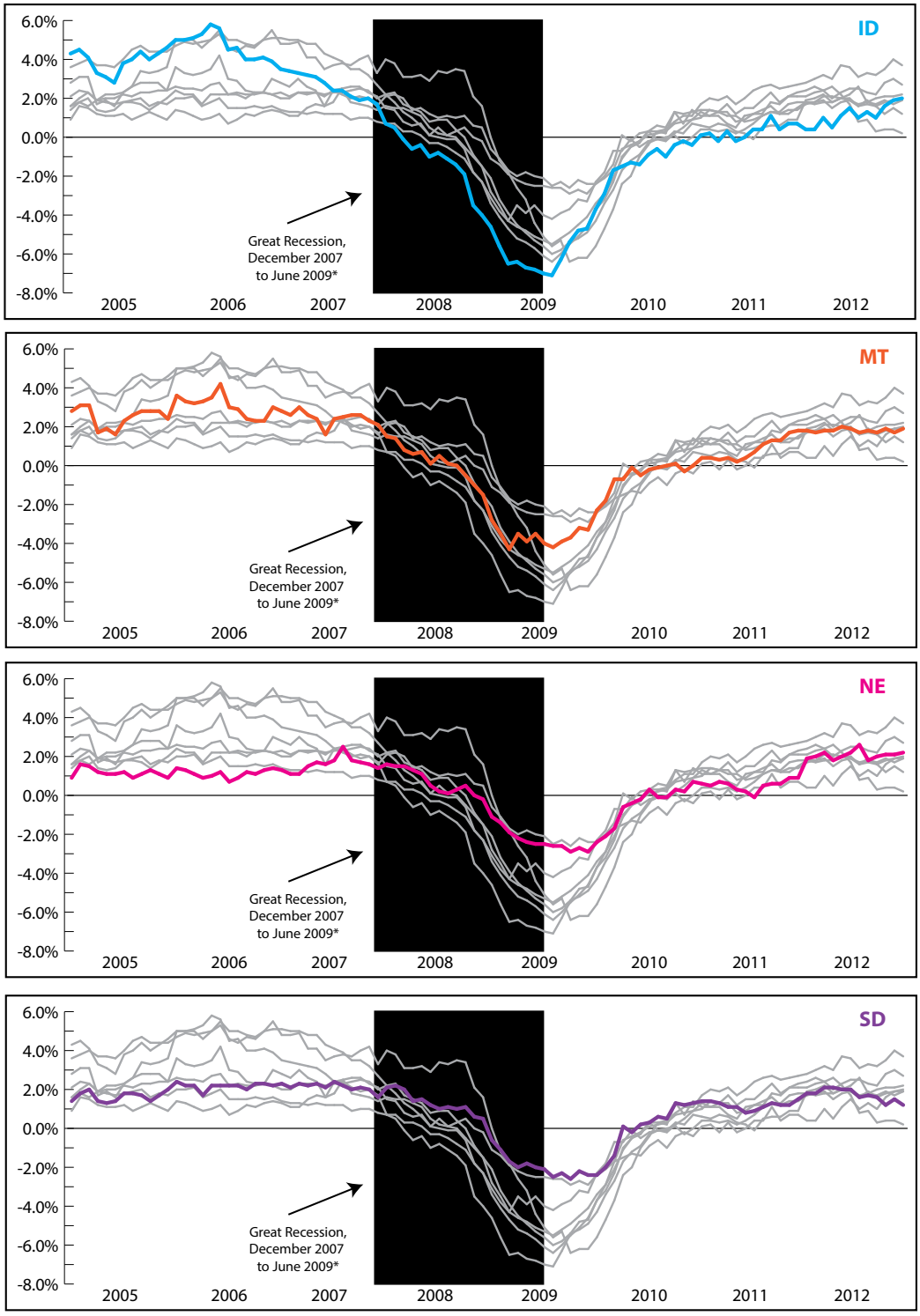
(Text continued on page 10)

Figure 1: Over-the-Year Percentage Change in Total Unemployment Insurance Covered Employment for Wyoming, Surrounding States, and the U.S., 2005-2012



Source: Quarterly Census of Employment and Wages (QCEW).
* Source: National Bureau of Economic Research (2010).

Figure 1: Over-the-Year Percentage Change in Total Unemployment Insurance Covered Employment for Wyoming, Surrounding States, and the U.S., 2005-2012 (continued)



Source: Quarterly Census of Employment and Wages (QCEW).
* Source: National Bureau of Economic Research (2010).

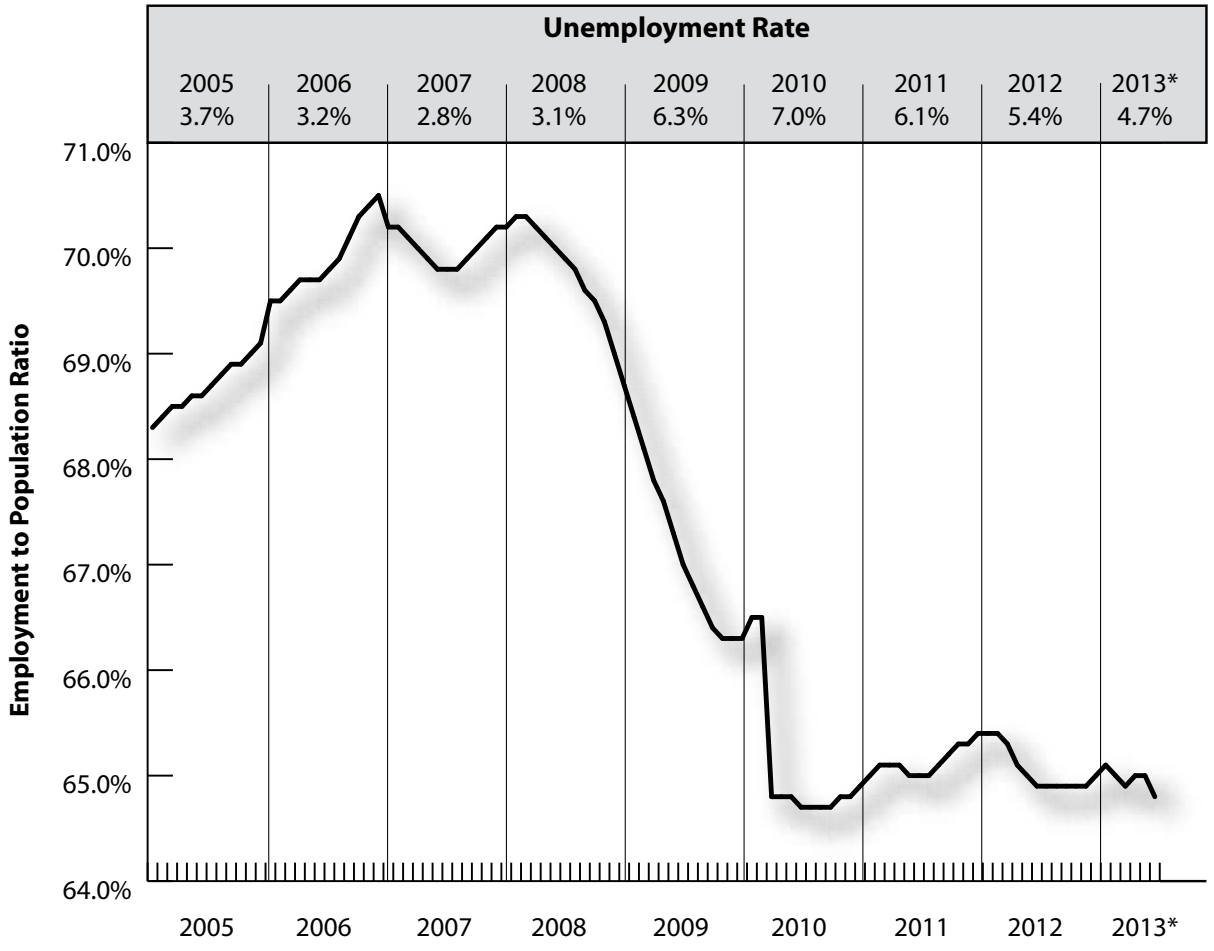
(Text continued from page 7)

One way to interpret the stagnant employment-to-population ratio is that employment and population are increasing at roughly the same rate, and therefore the ratio between the two is fairly constant. This is in direct contrast to the situation in 2005 and 2006, when employment increased faster than population, raising the employment-to-population ratio and driving the unemployment rate down.

References

National Bureau of Economic Research. (2010). Retrieved September 17, 2013, from http://www.nber.org/cycles/sept2010.html

Figure 2: Seasonally Adjusted Employment to Population Ratio and Annual Unemployment Rate for Wyoming, 2005-2013



Series break in April 2010 is related to the introduction of new population estimates.
*2013 = January-July.
Employment to Population Ration = Employment/Population.
Source: Local Area Unemployment Statistics.

Prepared by Bullard, D., and Moore, M. Research & Planning, WY DWS, 9/17/2013.

Methodological Note: How Do We Know What We Know?

by: Tom Gallagher, Research & Planning Manager

Research & Planning (R&P) uses two types of data in the analysis conducted for this report, an establishment survey and administrative records. Our objective is to understand and describe the relative competitiveness of compensation for employment in Wyoming school districts in the context of regional (surrounding States) and the nationwide market, especially for teaching positions. The central, nationwide program used to analyze market competitiveness is the product of a State-Federal partnership.

The Occupational Employment Statistics (OES) survey of establishments is conducted in two panels (with May and November reference periods) by State Research offices under contract to the U.S. Department of Labor's Bureau of Labor Statistics (BLS). Under this State-Federal statistical program, R&Ps staff serve as sworn agents of the Commissioner of the BLS and are subject to the requirements of Title V – Confidential Information Protection and Statistical Efficiency Act, Public Law 107-347 when carrying out BLS-funded activities.

The OES program is the only source of reliable occupation-based staffing and wage estimates in the country. Annually, 400,000 establishments are sampled nationwide for State collection of occupation and wage information in the OES program. Establishments are organized by industrial sector using the North American Industrial Classification System (NAICS) and their ownership status. (North American Industrial Classification System, Executive Office of the President, Office of Management and Budget, United States, 2012) A firm can be said to be "owned" by a private entity, or an entity of local, state, or federal government. (This background is useful in reading the tabular data underlying the analysis in this report.)

While BLS produces occupational staffing and wage estimates for local government schools (local government ownership, NAICS code 611100) for the nation, it does not do so at the state level. In order to produce wage rates and occupational distributions corresponding to the political jurisdictions for which Wyoming provides education block grant funding, it is necessary for R&P to produce school district estimates using confidential OES files for Wyoming and surrounding states. With permission from the six surrounding states, and with the assistance of the BLS Dallas Regional Office, staffing and wage estimates were produced using the methodology documented in "Methodological Documentation for Occupational Employment Statistics (OES) Employment and Wage Summary Tables for Wyoming's Teacher Compensation Study." This BLS funded documentation can be found at http://doe.state.wy.us/LMI/education_costs.htm.

Excerpts of occupational staffing and wage estimates based on state OES files correspond to the 2011/12 (November/May) period can be found throughout this report. The entire tabular report, for all occupations found in school districts is located at http://doe.state.wy.us/LMI/education_costs/LSO_OES_Tables_2010_2012.pdf. The tables for all surrounding states and the nation are limited to those occupations found in Wyoming school districts.

For Wyoming counties, the analysis of employment shifts from the use of sample survey data (OES) to the use of administrative records, the second source of

information used in this report.

The Wyoming Department of Education provides the following three types of files to R&P, based on their collection of information from school districts:

- WDE 602/652 – WISE School District Staff Member Staffing files: The WDE 602 represents a point in time during the fall which records staff on contract for the beginning school year. Consequently, as the reader will soon learn, not all contract staff actually show up for work. The WDE 652 represents a collection from the districts the following spring which retrospectively records changes in staffing and assignment based on the WDE 602 record. The WDE 652 report modifies the WDE 602 record.

  Notes and references in the tables to "contract compensation" refer to the WDE 602 record. Contract compensation amounts represent district plans. OES wage estimates represent actual compensation averaged for two points in time (November and May). As a result, there will always be some difference in the level of compensation between the two. (It is noted that R&P appreciates the opportunity to participate in WDE 602 training provided by the Department of Education to the school districts.)

- WDE 633 – Certified Staff Vacancy Application Information: As its name implies, this collection of information from the districts represents an attempt to develop information about vacancies and recruitment difficulties. However, establishing a clear audit trail between a vacancy and a district position is hampered by the fact that there are no position numbers at the district level.

  The most recent WDE 633 file was provided to R&P on October 4, 2013. In contrast to past files, the current file includes a vacated and replacement staff identification number and name. The additional identification information on the 633, in addition to complete assignment information from the 602/652 is needed to determine precisely for what functions (or job) districts have been recruiting.

Other administrative records include licensing information records from the Professional Teaching Standards Board (PTSB), discussed later in this report, Unemployment Insurance quarterly payroll tax and employee compensation information, and drivers' license addresses. These databases begin as regulatory records with legal sanctions attached to them and are therefore presumed to be administered with greater rigor. These databases are used to validate key attributes of WDE data collections from the school districts, and permit the measurement of other market factors including earnings of district employees in the private sector and commuting distances to define the industrial geographic scope of the labor market in which district staff are active.

A guiding research principle for this work is continuity in coding, especially occupational coding. WDE district staffing files are coded to the Standard Occupational Classification (SOC) system ("Standard Occupational Classification Manual 2010," Executive Office of the President, Office Of Management and Budget) which is the same system used in the OES program. To the extent possible, R&P codes teacher assignments to SOCs, that the compensation of district staff is measured in a manner comparable to the estimates of occupational compensation from the OES program at the

multi-state regional and national level.

A second research principle is an attempt to be comprehensive and exhaustive. Given the iterative nature of research, this goal can never be attained. However, Appendix A, "Teacher Supply in Wyoming: The Professional Teaching Standards Board (PTSB) and School District Recruitment Needs" represents an attempt to move in this direction. A basic building block of the teacher licensing function carried out by the Board is the endorsement by an institution of higher education to teach in a particular domain (e.g. language arts, math, science etc.) at a particular level of instructions (elementary, middle, high school). A goal of this appendix report is to develop a method of distilling this large amount of data into a manageable set of categories that can assist in understanding and quantifying the labor supply in a way that matches district demand for labor. R&P plans to use the endorsement classification system to improve our understanding of the types of human resources districts recruit, and are likely in the future to need to recruit, in order to inform the higher education system and their students about the types of endorsements most likely to lead to a job teaching in Wyoming.

By codifying supply and demand issues, never before attempted, as part of cost model pressures analysis the results can facilitate minimizing future labor costs for districts provided that supply and demand information is available to the system of labor supply in a timely and useful manner.

"School District Exit: Teacher Wage Progression and Assignment Status by Age and Gender," Appendix B, represents another attempt at comprehensive analysis. Even though the report only covers the components of change from the 2011/12 to 2012/13 school years, the analysis suggests useful directions for future research, and implications for labor policy development. For example, the largest earnings gains were found among younger females who remained in the same district but who changed occupations (see Table 1a, Appendix B). In general, earnings gains were more prevalent among younger teachers than more mature teachers, but only when the teacher remained within the same district. Changing districts, and in many cases losing tenure, was associated with earnings loss. Earnings loss was most likely among the teaching pool of those 55 and up. This phenomenon appears to be a function of a change in the pool of older workers whose membership selectively retire at their peak earnings leaving the remaining pool of less well paid workers in the 55 and up age category behind. However, a definitive understanding of teacher retirement behavior depends upon analyst access to Retirement Board files.

The literature on retirement suggests that as the level of worker education increases, so does the likelihood of working more years until retirement. With the teacher compensation system driven in part by attaining increasing amounts of education, a standard model for the prediction of teacher retirement based on general patterns of retirement in the population as a whole may not be applicable to understanding replacement need due to retirement from school districts. However, effectively exploring this possibility is dependent upon researcher access to Retirement Board files. Barriers to comprehensive analysis extend beyond the issue of access to resources.

Appendix A and B represent a beginning in the establishment of baselines in two new areas and suggest a direction to the establishment of additional trend analysis. Extrapolation from these reports must be limited, but they open the possibilities for future analysis.

Recommendations and Future Direction

by: Tom Gallagher, Research & Planning Manager

A. WDE 602 files should contain position numbers and related job descriptions. Job descriptions should include major assignment codes, related FTE information, and the required endorsements (and potentially years of experience and education) needed to perform the duties of the job. At this point, it is impractical to determine with certainty what districts require as basic minimums to perform necessary tasks, nor can it be established how position responsibilities evolve over time.

B. Further, there is no direct mechanism to link WDE 633 evaluations of vacancy recruitment difficulties to a particular job function (proposed in Recommendation A). In addition, unless the WDE 633 (and related instructions to the districts) is modified to collect the PTSB licensing number from job applicants, it cannot be empirically determined whether or not applicants constitute a large or small pool of job seekers with the requisite set of endorsements required by the job, to what extent the same set of job seekers is pursuing a limited set of openings, or to what extent applicants are tied to a particular location or appear willing to re-locate.

C. The WDE 633 data collection process lacks a desired level of rigor. The "reason for vacancy" categories are not mutually exclusive, nor are there any instructions regarding the documentation needed to define a vacancy and record it in auditable form. Given the lack of mutual exclusiveness in the reason for vacancy categories and the lack of criteria to select one vacancy reason over another, it is highly unlikely that responses are consistent over time or from one district to the next. Nor are there directives regarding which authority within the district is charged with making such determinations and maintaining the documentation. There appears to be no standards for the definition of what constitutes a vacancy (the day the person left work, the date a job announcement was posted to the internet, to the newspaper) and therefore no mechanism to measure the duration of job openings as an objective estimate of recruitment difficulty. There appears to be no requirement for documentation to be recorded as vacancy and recruitment events unfold subjecting district reporting to recall bias and non-comparability. In sum, given the lack of rigor in the WDE 633 collection and the difficulty of linking it to an existing job function, it is not clear exactly what the output of the WDE 633 represents in terms of the market, or that the value of the collection exceeds its cost. The WDE 633 data collection process should be standardized across school districts.

Synopsis of Recommendations from the 2012 Monitoring Report

A. "(T)he Legislature should enact legislation requiring that the Retirement Board provide historic and current individually identifiable files to R&P. – Unresolved. " Professional Teaching Standards Board files are viewed as important to understanding supply issues (Appendix A of the 2013 Monitoring report)."

B. R&P will elaborate "…on the

analysis presented in this report with a goal of establishing a system of dashboard indicators for retention, turnover, wage progression (Appendix B of the 2013 Monitoring)." – In progress.

C. "We recommend continued use of the Occupational Employment Statistics (OES) as the standard for measuring cost pressures." – Implemented.

D. Given the maturing of the population of teachers "…there is a need for succession planning" in education. – Unresolved.

E. The Department of Education should consider establishing a statistical unit staffed with individuals possessing appropriate advanced social science research backgrounds." – While the Wyoming Department of Education currently advertises for such positions as Statistician and Data Architect, as well as others, whether or not these positions will be staffed with individuals having the most relevant academic credentials remains to be seen.

F. "A more thorough documentation of Department of Education data collection efforts and purposes is necessary in order to facilitate intelligent participation in decisions about the future of …[the]… education system by all interested parties." – Unresolved.

G. "…(T)he Department of Education should consider adding a Standard Occupational Classification (SOC) system code to occupations for staffing and vacancy collections." -- Unresolved.

Future Reporting

"Monitoring School District Human Resource Cost Pressures" and "Current Status of Cost Pressures" are produced and published by R&P. In 2014, we plan on combining the two reports and eliminating redundant components.

Table 1-1: Total, All Primary, Secondary, & Special Education School Teachers (25-2000) in Public Schools in Wyoming and Surrounding States, 2009/10 and 2011/12

This group is a composite of all teachers involved in direct instruction in the classroom.

Wyoming

Employment

2009/10	2011/12	Change	%
8,320	7,527	-793	-9.5%

Average Annual Wage

2009/10	2011/12	Change	%
$57,069	$59,314	$2,245	3.9%

Wyoming teachers in public schools continued to earn more on average than teachers in all surrounding states in 2011/12. Only Montana and Utah narrowed the wage gap from 2009/10 to 2011/12. Teachers in Montana earned $15,256 (-26.7%) less than teachers in Wyoming on average in 2009/10, and then $13,266 (-22.4%) less in 2011/12.

U.S.

Employment

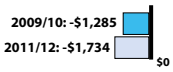
2009/10	2011/12	Change	%
3,598,130	3,334,130	-264,000	-7.3%

Average Annual Wage

2009/10	2011/12	Change	%
$55,784	$57,580	$1,796	3.2%

Comparison to Wyoming Wage

2009/10	%	2011/12	%
-$1,285	-2.3%	-$1,734	-2.9%



Colorado

Employment

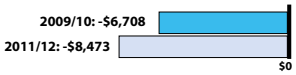
2009/10	2011/12	Change	%
61,668	62,864	1,196	1.9%

Average Annual Wage

2009/10	2011/12	Change	%
$50,361	$50,841	$480	1.0%

Comparison to Wyoming Wage

2009/10	%	2011/12	%
-$6,708	-11.8%	-$8,473	-14.3%



Idaho

Employment

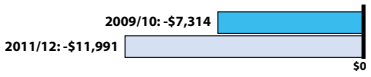
2009/10	2011/12	Change	%
16,853	14,610	-2,243	-13.3%

Average Annual Wage

2009/10	2011/12	Change	%
$49,755	$47,323	-$2,432	-4.9%

Comparison to Wyoming Wage

2009/10	%	2011/12	%
-$7,314	-12.8%	-$11,991	-20.2%



Montana

Employment

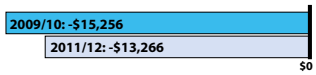
2009/10	2011/12	Change	%
12,400	11,779	-621	-5.0%

Average Annual Wage

2009/10	2011/12	Change	%
$41,813	$46,048	$4,235	10.1%

Comparison to Wyoming Wage

2009/10	%	2011/12	%
-$15,256	-26.7%	-$13,266	-22.4%



Nebraska

Employment

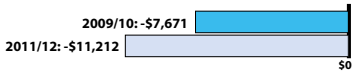
2009/10	2011/12	Change	%
24,654	24,145	-509	-2.1%

Average Annual Wage

2009/10	2011/12	Change	%
$49,398	$48,102	-$1,296	-2.6%

Comparison to Wyoming Wage

2009/10	%	2011/12	%
-$7,671	-13.4%	-$11,212	-18.9%



South Dakota

Employment

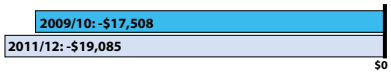
2009/10	2011/12	Change	%
11,647	11,399	-248	-2.1%

Average Annual Wage

2009/10	2011/12	Change	%
$39,561	$40,229	$668	1.7%

Comparison to Wyoming Wage

2009/10	%	2011/12	%
-$17,508	-30.7%	-$19,085	-32.2%



Utah

Employment

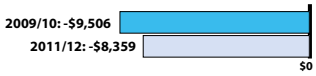
2009/10	2011/12	Change	%
26,453	25,696	-757	-2.9%

Average Annual Wage

2009/10	2011/12	Change	%
$47,563	$50,955	$3,392	7.1%

Comparison to Wyoming Wage

2009/10	%	2011/12	%
-$9,506	-16.7%	-$8,359	-14.1%



Source: Occupational Employment Statistics.

Chapter 1: Regional and National Wage Trends

by: Patrick Manning, Principal Economist

The primary focus of this chapter is to compare wages for teachers in Wyoming to those in the U.S. as a whole and in surrounding states to determine if Wyoming salaries are cost competitive. These relative wages may prove instrumental in recruiting and retaining quality teachers in Wyoming. Other factors that will affect the demand for teachers are the exit rate of individuals leaving the profession, changes in pupil-teacher ratios, and changes in projected student enrollment, thereby increasing (or decreasing) the need for teachers.

Teachers' wages are not the only sources of cost pressures on school districts. This chapter also compares selected non-teaching occupations in public schools in Wyoming to those found in private industry, state government, and federal government in Wyoming, the U.S., and the surrounding states.

As can be seen in **Table 1-1** (see previous page), teacher employment decreased from the 2009/10 school year to the 2011/12 school year in Wyoming, the U.S., and the surrounding states, with the exception of Colorado. Projections indicate (by varying degrees) that student enrollment and the population of those

Understanding Table 1-1

Table 1-1 (see previous page) uses data collected from the Occupational Employment Statistics (OES) survey to show the employment level and average annual wage for all primary, secondary, and special education teachers (25-2000) in public schools in Wyoming and surrounding states for the 2009/10 and 2011/12 school years. This table also allows for a quick comparison of the average annual wage for surrounding states and the U.S. to that of Wyoming.

The first column in Table 1-1 provides information regarding the employment and average wage within each surrounding state and the U.S. In many cases, employment decreased while the average annual wage increased. For example, Wyoming had an estimated 8,320 jobs worked by teachers in public education in 2009/10; in 2011/12, that number decreased to 7,527, a change of -793 (-9.5%). During this period, the average annual wage increased in Wyoming from $57,069 to $59,314, a change of $2,245 (3.9%). Idaho had the largest decrease in employment with 13.3%, while Colorado saw the only increase.

The second column compares the average annual wage for the U.S. and surrounding states to that of Wyoming. In 2009/10, the U.S. average annual wage for teaching jobs was $55,784, compared to Wyoming's $57,069, a difference of -$1,285 (-2.3%). In 2011 the gap between Wyoming and the U.S. average wage widened slightly with a difference of -2.9%. The states that narrowed the average wage gap compared to Wyoming were Montana and Utah while the gap widened in all other surrounding states.

ages 6-18 are expected to increase, (see **Figure 1-1**) which should spur teacher demand.

Figure 1-2 (see page 19) shows that nationally, total public school enrollment is projected to grow at the rate of 0.6% per year through 2021 and the number of full-time equivalent (FTE) teachers is projected to increase from 3,209,637 in 2010 to 3,694,080 in 2021 (NCES, 2012b).

Teacher Classification and Wages

Teachers are classified as "primary, secondary, and special education school teachers" by the Standard Occupational Classification (SOC) system, and given an SOC code of 25-2000 (Office of Management and Budget, 2010). Specialized teaching occupations are then defined and provided a six-digit SOC code, such as kindergarten teachers, except special education, which is classified as SOC 25-2012. The SOC classification structure is presented in **Box 1-1** (see page 19). The other key element in the discussion is whether the firm in which the position is found is privately or publically (federal, state, or local government) owned.

This chapter examines the average annual wage for all teachers (SOC 25-2000), and then examines the wages

(Text continued on page 20)

Figure 1-1: Wyoming Student Enrollment, Population (Ages 6-18), and Projections, 1975-2030

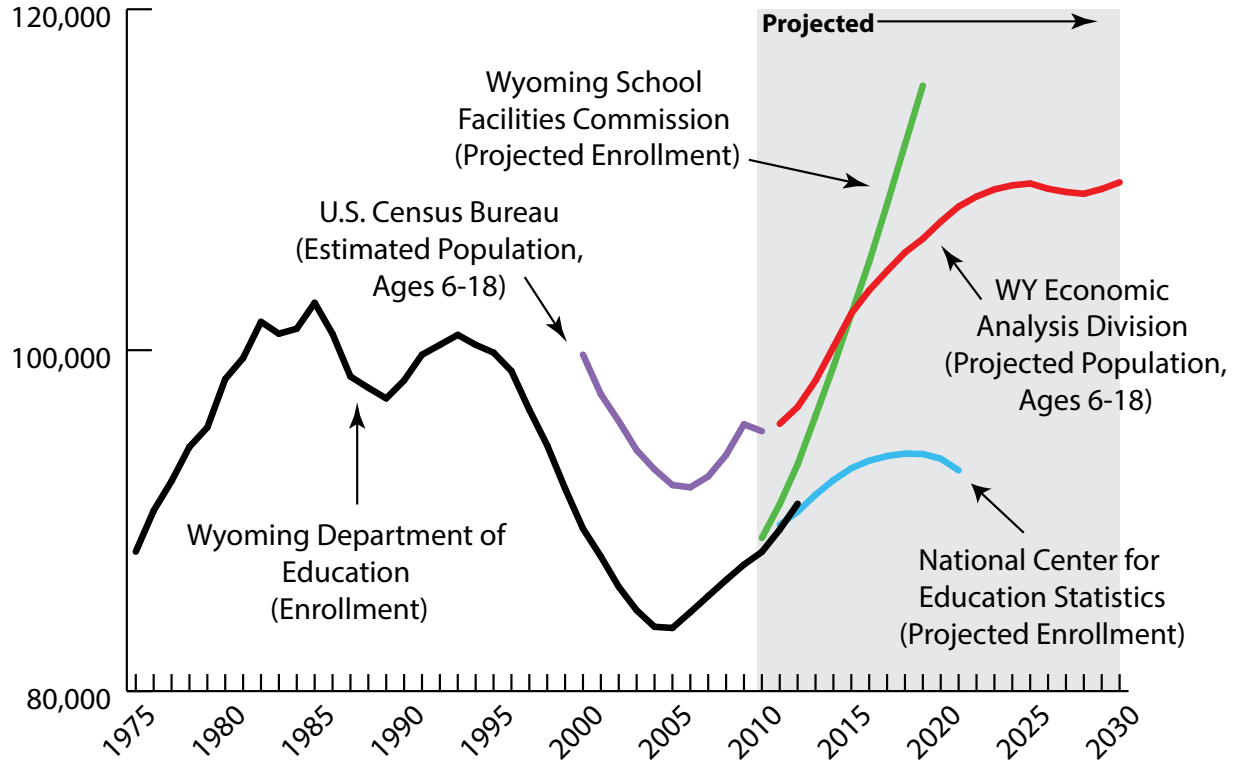
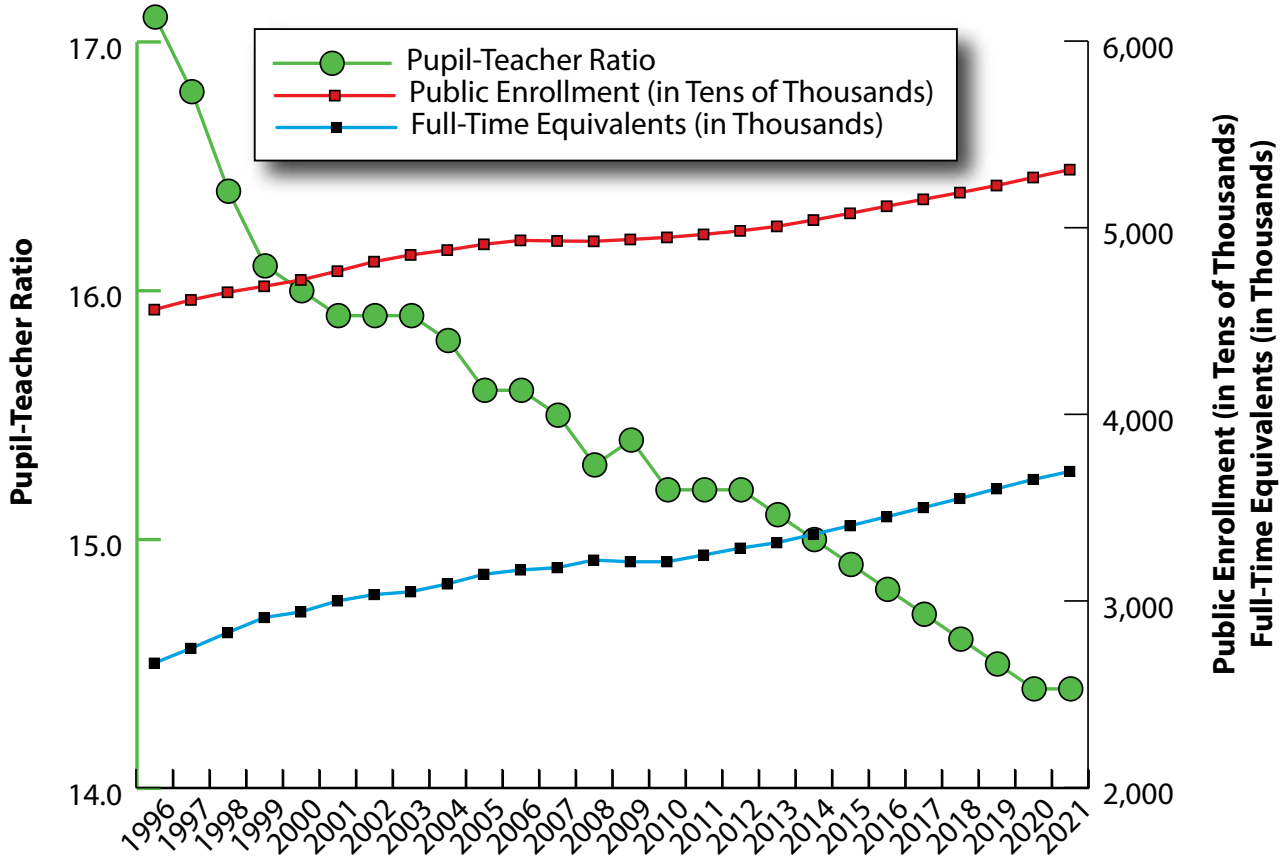
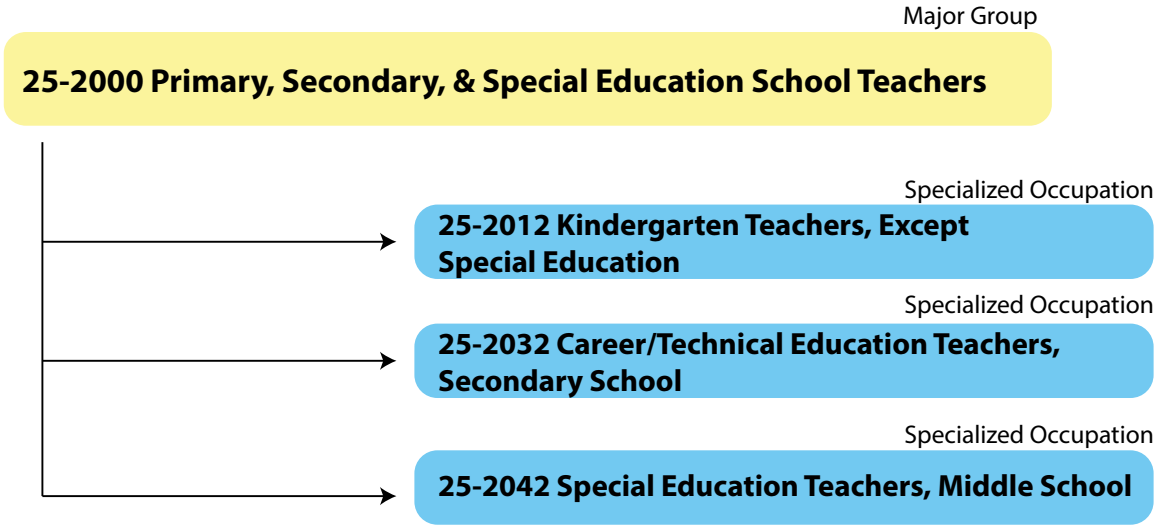


Figure 1-2: U.S. Public School Pupil-Teacher Ratio and Student Enrollment, 1996-2021



Box 1-1: Standard Occupational Classification (SOC) System Structure



(Text continued from page 18)

for specialized teaching occupations. The source of employment and wage estimates presented in this chapter is the State-Federal Occupational Employment Statistics (OES) program, described in the Methodological Note in this publication. A detailed overview of the OES program is available online at http://doe.state.wy.us/LMI/education_costs/oes_ed_overview.htm.

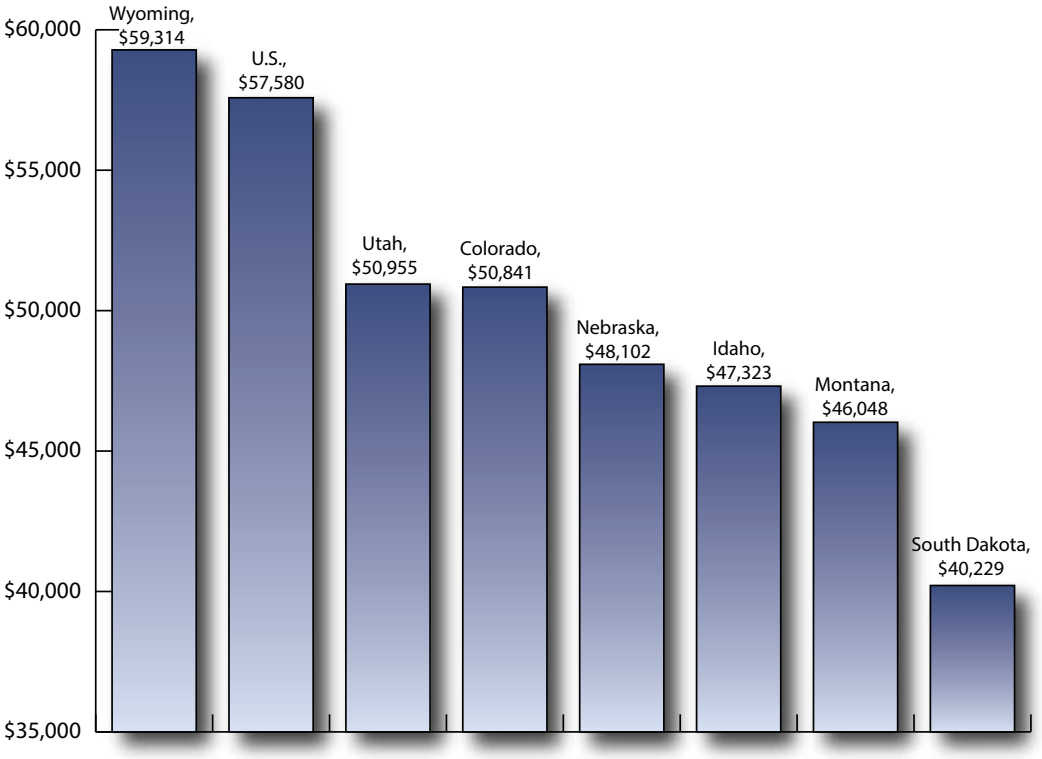
Ten specialized teaching occupations comprise all preschool, primary, secondary, and special education teachers (SOC 25-2000). Of these 10 specialized occupations, nine are discussed in this narrative, while one specialized occupation (career/technical education teachers, middle school, SOC 25-2023) is not discussed due to the non-discloseable nature of the data. Data are non-discloseable when they do not meet reliability standards, or there is a confidentiality issue.

Of these nine specialized teaching occupations, Wyoming wages exceed the national average in six.

Wage Trends for Wyoming and Surrounding States

During the 2011/12 school year, the average annual wage for all primary, secondary, and special education teachers (SOC 25-2000) in public schools in Wyoming was $59,314. This was an increase of $2,245 from the 2009/10 school year. In 2011/12, the average annual wage for teachers in Wyoming was higher than in all surrounding

Figure 1-3: Average Annual Wage for Primary, Secondary, and Special Education School Teachers (SOC 25-2000) in Local Government Schools (NAICS 611100), 2011/12



Source: Occupational Employment Statistics (OES) Survey Files.

states and the U.S. (see **Figure 1-3**).

During the 2011/12 school year, the wage for all teachers in public schools in the U.S. was $57,580, 2.9% lower than the Wyoming wage.

The difference in average wage between Wyoming and the surrounding states was substantial. Of all surrounding states, Utah had the highest average annual wage for teachers ($50,955). This was $8,359 less than the average annual wage for teachers in Wyoming. South Dakota had the lowest average annual wage of all surrounding states at $40,229, or 32.2% less than Wyoming.

These results have not changed markedly since last year's report. Given that these relationships have remained steady in recent years, cost pressure to attract and retain high quality teachers remains low.

Table 1-1 shows the change in employment and average annual wage for all primary, secondary, and special education teachers (SOC 25-2000) in Wyoming, surrounding states, and the U.S. from the 2009/10 to 2011/12 school years. This summary table also shows the average annual wage for teachers in each state compared to Wyoming.

From the 2009/10 to 2011/12 school years, employment among all primary, secondary, and special education teachers (SOC 25-2000) decreased nationally and in Wyoming. Employment decreased in all surrounding states except Colorado, which experienced a 1.9% increase.

In contrast, the average annual wage for teachers increased during this period in Wyoming, the U.S., and all surrounding states, with the exceptions of Idaho (-4.9%) and Nebraska (-2.6%). The average annual wage for teachers in Wyoming increased by 3.9% ($2,245), compared to 3.2% ($1,796) nationally. The largest percentage increase in wages in surrounding states occurred in Montana (10.1%, or $4,235). Montana also exhibited the highest rate of increase from 2008/09 to 2010/11 (see the 2012 version of this report at http://doe.state.wy.us/LMI/education_costs/education_costs.pdf).

Despite this rate of gain relative to Wyoming, the average annual wage for teachers in Montana was still 22.4% lower than in Wyoming.

Specialized Occupations

This section examines the relationship among specialized teaching categories in Wyoming (i.e. six-digit SOC codes) to ascertain if results at the detailed level vary markedly from the overall findings.

The wage and employment data discussed in this section reference "Table 1: Employment and Mean Wage by State, Region, US, and Ownership for Occupations in Public Schools in Wyoming or Bordering State in 2011/12." Comparisons between Wyoming, the U.S., and surrounding states are presented in and "Table 3: Employment and Mean Wage Change by State, Region, U.S., and Ownership for Occupations in Public Schools in Wyoming or Bordering State from 2009/10 to 2011/12." For example, "Table 1, page 22" refers to page 22 of the aforementioned table, which is available online at http://doe.state.

wy.us/LMI/education_costs/LSO_OES_Tables_2010_2012.pdf.

Preschool Teachers, Except Special Education (SOC 25-2011)

Table 1, page 19-20

The average annual wage for Wyoming preschool teachers ($44,420) trailed those of the U.S. ($48,860) and Colorado ($46,950). Montana trailed all the surrounding states, with an average annual wage that was 41% lower than Wyoming. These results should be taken with caution as there were a relatively low number of preschool teachers (27) in public schools in Wyoming in 2011/12.

Kindergarten Teachers, Except Special Education (SOC 25-2012)

Table 1, page 20

The average annual wage for Wyoming kindergarten teachers ($54,850) exceeded those of the surrounding states by a large margin and trailed the national average slightly by $740. Relative to Wyoming, Colorado wages were 11.6% lower while South Dakota wages were the lowest of the surrounding states (28.8% lower than Wyoming).

Wyoming is competitive in terms of wages in this teaching category and faces very little cost pressure from surrounding states.

Elementary School Teachers, Except Special Education (SOC 25-2021)

Table 1, page 20

The average annual wage for Wyoming elementary school teachers ($58,690) exceeded the average annual wages for the U.S. and all surrounding states.

The average annual wage for Wyoming elementary school teachers was $7,740 higher than that of the most competitive state, Utah. South Dakota had the lowest average annual wage of all surrounding states (31.6% lower than Wyoming). Wyoming school districts face little cost pressure from surrounding states for elementary school teachers.

Middle School Teachers, Except Special and Career/Technical Education (SOC 25-2022)

Table 1, pages 20-21

The average annual wage for Wyoming middle school teachers ($61,400) was higher than the U.S. average ($56,930) and all surrounding states. As was the case with kindergarten and elementary school teachers, Wyoming wages were substantially higher on average than average wages in surrounding states. Utah paid the next highest wages (13.2% lower), while South Dakota trailed Wyoming by $20,930.

Secondary School Teachers, Except Special and Career/ Technical Education (SOC 25-2031)

Table 1, page 21

The relationship between secondary school teachers' wages in Wyoming and surrounding states was very similar to that of middle school teachers' salaries. Colorado (14.4% lower than Wyoming) had the second highest wages, while South Dakota lagged behind all surrounding states (33.1% lower than Wyoming).

Wage comparisons in this specialized occupation yield largely the same result of those previously discussed in this narrative. The gap between Wyoming and the next highest compensating state, Colorado (10.5% lower), was the second

smallest margin of any detailed category.

Special Education Teachers, Preschool, Kindergarten, and Elementary School (SOC 25-2041)
Special Education Teachers, Middle School (SOC 25-2053)
Special Education Teachers, Secondary School (SOC 25-2054)

Table 1, page 22

Wages of special education teachers in Wyoming relative to the surrounding states and the U.S. followed a very similar pattern to the teaching categories previously discussed. One exception is that the U.S. average annual wage for secondary school special education teachers ($60,627) exceeded that of salaries in Wyoming ($57,760).

Summary of Teachers' Wages

Wyoming wages exceeded the national average with the exceptions of preschool teachers, except special education (the U.S. was 10.0% higher), kindergarten teachers, except special education (the U.S. was 1.4% higher), and special education teachers in secondary schools (the U.S. was 5.0% higher).

Teacher wages in each detailed classification are greater than those of surrounding states, with the exception that Colorado wages were 5.7% higher on average for preschool teachers, except special education.

Within public schools, Wyoming's wage advantage was substantial in most cases during the 2011/12 school year. Of the detailed teaching occupations discussed, none of the surrounding states' wages represented 90% of Wyoming wages (with the exception of Colorado preschool teachers). When examining these teaching occupations collectively, none of the states compensated teachers at 85% of Wyoming wages. Wyoming school districts currently face negligible cost pressure on salaries in relation to competition from surrounding states.

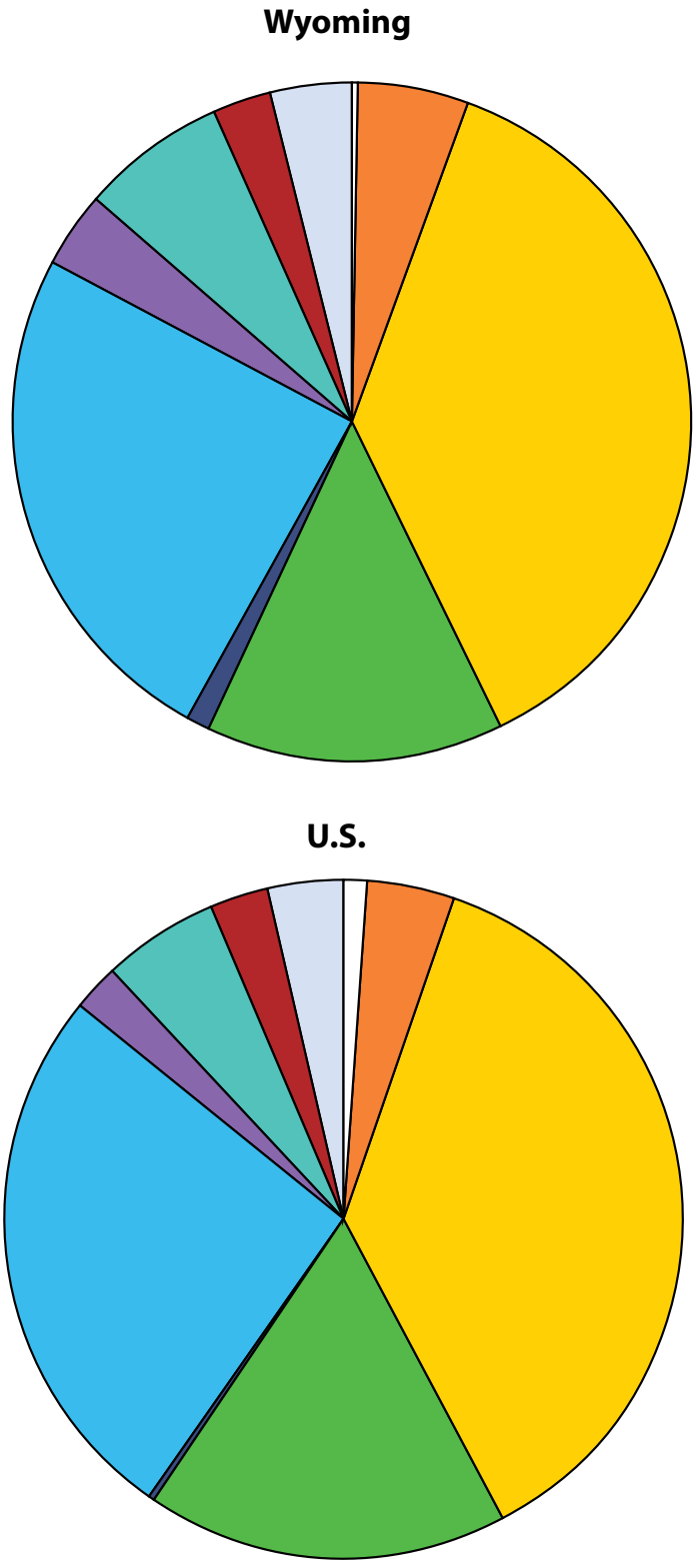
Occupational Staffing Patterns for the U.S., Wyoming, and Surrounding States, 2011/12

Figure 1-4 (see page 24) shows staffing patterns for the detailed teaching occupations within SOC 25-2000 for the U.S. and Wyoming. These staffing patterns are very similar. In percentage terms, the largest difference was within middle school teachers, except special education and career/technical education. This occupation comprised 16.9% of all U.S. teachers, compared to 14.1% of all teachers in Wyoming.

Figure 1-5 (see page 25) displays the overall staffing patterns of teachers in schools in the U.S., Wyoming, and selected surrounding states for the 2011/12 school year. The underlying occupational detail for the graphics can be found in Table 1 at http://doe.state.wy.us/LMI/education_costs/LSO_OES_Tables_2010_2012.pdf. As was true for the teaching staffing pattern, the overall staffing pattern (i.e. all occupations commonly found within school employment) was very similar across Wyoming, the U.S.,

(Text continued on page 25)

Figure 1-4: Occupational Staffing Patterns for Primary, Secondary, & Special Education Teachers in Local School Districts in Wyoming and the U.S., 2012



Source: Occupational Employment Statistics Survey Files, U.S. Bureau of Labor Statistics.

Occupation	Percentage of Total Employment WY	U.S.
Preschool Teachers, Except Special Education (25-2011)	0.4	1.4
Kindergarten Teachers, Except Special Education (25-2012)	5.4	4.0
Elementary School Teachers, Except Special Education (25-2021)	37.2	36.6
Middle School Teachers, Except Special and Career/Technical Education (25-2022)	14.1	16.9
Career/Technical Education Teachers, Middle School (25-2023)	1.0	0.5
Secondary School Teachers, Except Special & Career/Technical Education (25-2031)	24.7	25.3
Career/Technical Education Teachers, Secondary School (25-2032)	3.8	2.5
Special Education Teachers, Preschool, Kindergarten, & Elementary School (25-2041)	6.9	5.7
Special Education Teachers, Middle School (25-2053)	2.8	2.7
Special Education Teachers, Secondary School (25-2054)	3.7	4.4
Total, All Primary, Secondary, & Special Education Teachers (25-2000)	**100.0**	**100.0**

(Text continued from page 23)

Colorado, and South Dakota. The U.S. had the highest percentage of employees in direct instruction (66.8%), with Colorado exhibiting the lowest (63.2%). Non-teaching employment comprises slightly over one-third of all public school employment.

Salaries for Selected Non-Teaching Occupations

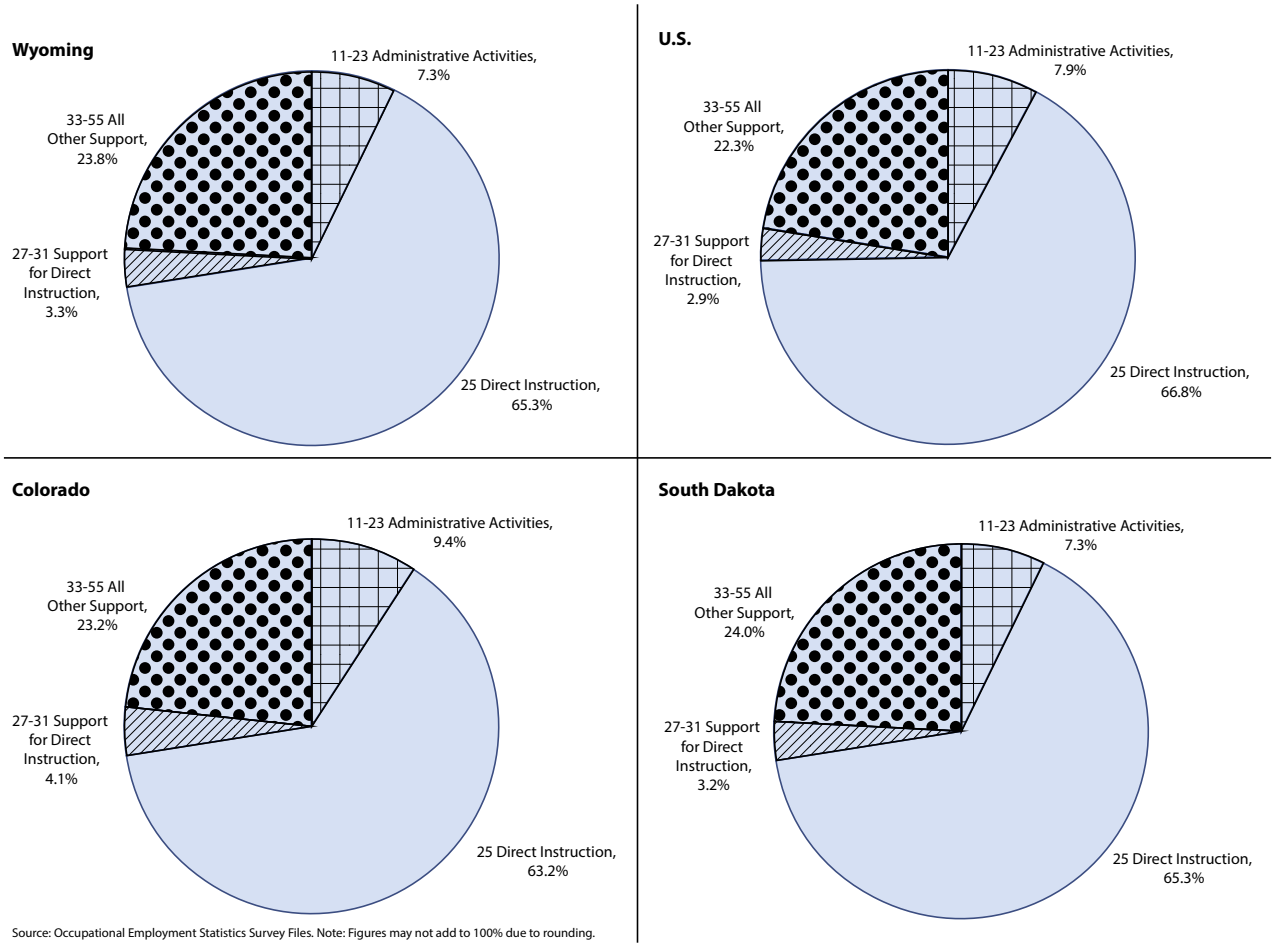
Other Management Occupations (SOC 11-9000)

As can be seen in **Table 1-2** (see page 27), this group includes education administrator occupations at all levels in public schools. This is a general occupational grouping which has comparable occupation managers in other sectors including construction, food service, and the medical field. With this caveat in mind, Wyoming school districts wages ($87,019) lagged Wyoming state government ($98,213) and the federal government ($112,607). Compared to the private sector in Wyoming, school district wages were almost $20,000 higher on average.

Computer Specialists (SOC 15-1000)

There was substantial variation within

Figure 1-5: Occupational Staffing Patterns for the U.S., Wyoming, and Surrounding States, 2011/12



Source: Occupational Employment Statistics Survey Files. Note: Figures may not add to 100% due to rounding.

this general occupation classification among Wyoming and the surrounding states. Within public school education, salaries ranged from a low of $41,440 in Montana to a high of $62,728 in Colorado, a difference of $21,288. Nebraska salaries were roughly equal to that of Wyoming. While Wyoming ($52,367) trailed only Colorado, the difference was substantial – Wyoming salaries were 19.8% lower. The national average in all ownership categories other than public schools exceeded Wyoming public school wages. Federal government salaries in Wyoming and surrounding states were 56.2% higher. Collectively, the higher wages in Colorado and the higher wages in the U.S. overall may be a source of turnover within this occupation.

Community and Social Services Occupations (SOC 21-0000)

Table 1, page 15

This general category includes occupations such as counselors and social workers.

Wyoming public schools are highly competitive regarding wages relative to the U.S. and surrounding regardless of ownership (i.e. public schools or private sector, and, all levels of government). Within Wyoming, the public school wages are much higher than the private sector at $63,204 and $36,096 respectively. Therefore, school districts are extremely competitive in terms of wages with other potential employers.

Health Diagnosing and Treating Practitioners (SOC 29-1000)

This general occupation classification had the most variation of any discussed in this narrative.

Within public school education, salaries ranged from a low of $46,495 in South Dakota to a high of $82,910 in Colorado, a difference of $36,415. Wyoming wages were lower than Colorado and Montana with a wage of $60,388. Wyoming public school salaries were lower than the private sector in-state, the U.S. overall, and all surrounding states with the exception of South Dakota. Given relative wages and the large amount of employment in these occupations (more than 6,000 people in Wyoming and approximately 3.5 million nationally) there is likely to be some cost pressures to retaining individuals in this occupation.

Cooks and Food Preparation Workers (SOC 35-2000)

Currently, jobs in this occupational category do not seem to be a significant source of cost pressure to Wyoming school districts given that wages exceed that of surrounding states and the U.S. among all ownership types. The one exception is Wyoming state government with a larger salary, $31,738 relative to $26,060 in public schools.

Non-Teaching Occupations at the Detailed Level

In this section, three occupations are examined at the most detailed occupational level (six-digit SOC code), as these professions have many opportunities in other sectors of the economy.

(Text continued on page 28)

Table 1-2: **Employment and Mean Wage by State, Region, U.S., and Ownership for Selected Occupations in Public Schools in Wyoming or Bordering State in 2011/12 (Excerpt)**

Other Management Occupations (SOC 11-9000)

	Total, All Industries		Public Schools		Local Government		State Government		Federal Government		Private Industry	
	Emp.	Wage	Emp.	Wage	Emp.	Wage	Emp.	Wage	Emp.	Wage	Emp.	Wage
U.S.	1,580,670	$88,045	210,300	$90,974	309,190	$89,070	114,790	$91,797	79,160	$112,607	1,077,040	$85,539
WY & Border States	61,456	$80,418	10,293	$81,149	15,712	$79,477	6,666	$86,029	2,918	$104,431	36,216	$77,849
Colorado	23,570	$88,137	4,669	$82,692	6,659	$85,675	2,262	$93,765			13,148	$86,198
Idaho	6,822	$67,190	1,123	$73,478	1,638	$69,019	621	$75,005			4,403	$63,976
Montana	4,610	$69,257	707	$73,180	1,245	$64,230	1,041	$68,120			2,063	$68,404
Nebraska	9,013	$79,563	1,404	$86,166	2,312	$78,645	622	$93,909			5,863	$77,377
South Dakota	2,992	$72,618	579	$70,571	794	$69,014	297	$81,187			1,646	$69,875
Utah	10,918	$80,652	1,311	$83,665	1,740	$80,700	1,427	$85,961			7,369	$78,548
Wyoming	3,531	$77,113	500	$87,019	1,324	$81,775	396	$98,213			1,724	$67,130

Computer Specialists (SOC 15-1000)

	Total, All Industries		Public Schools		Local Government		State Government		Federal Government		Private Industry	
	Emp.	Wage	Emp.	Wage	Emp.	Wage	Emp.	Wage	Emp.	Wage	Emp.	Wage
U.S.	4,125,240	$75,371	93,870	$51,477	218,580	$57,405	176,190	$61,048	80,800	$87,866	3,649,610	$76,862
WY & Border States	172,345	$75,435	2,864	$53,910	8,009	$59,543	7,813	$58,433	4,496	$81,813	152,077	$76,955
Colorado	88,625	$83,856	1,263	$62,728	3,645	$67,303	1,852	$70,717			81,162	$84,805
Idaho	11,184	$63,346	263	$47,206	655	$47,363	845	$46,879			9,434	$65,593
Montana	6,265	$56,062	249	$41,440	494	$42,776	1,087	$52,002			4,492	$57,704
Nebraska	24,285	$69,376	277	$52,317	1,099	$62,656	1,117	$52,469			21,486	$70,400
South Dakota	6,121	$56,489	266	$42,625	537	$46,078	457	$49,834			4,955	$57,736
Utah	33,303	$69,934	318	$45,562	972	$54,110	1,935	$61,696			29,233	$70,586
Wyoming	2,562	$58,355	228	$52,367	607	$54,161	520	$55,022			1,315	$60,596

Health Diagnosing and Treating Practitioners (SOC 29-1000)

	Total, All Industries		Public Schools		Local Government		State Government		Federal Government		Private Industry	
	Emp.	Wage	Emp.	Wage	Emp.	Wage	Emp.	Wage	Emp.	Wage	Emp.	Wage
U.S.	3,453,680	$70,112	119,450	$62,138	376,870	$65,009	167,780	$68,704	89,110	$80,985	2,819,890	$70,534
WY & Border States	152,047	$64,596	6,609	$69,178	18,065	$66,137	7,221	$62,548	4,391	$71,252	122,408	$64,252
Colorado	57,133	$69,572	3,499	$82,910	8,488	$74,264	3,300	$70,760			44,016	$68,422
Idaho	14,947	$63,021	494	$50,094	2,165	$61,249	324	$54,754			12,147	$63,247
Montana	11,047	$61,509	245	$60,687	567	$57,811	270	$51,807			9,804	$61,784
Nebraska	24,813	$61,100	897	$54,663	2,535	$56,420	739	$55,999			20,963	$61,686
South Dakota	13,586	$56,919	416	$46,495	730	$49,345	420	$46,839			11,652	$57,101
Utah	24,459	$63,349	705	$53,328	1,225	$54,741	1,928	$57,616			20,669	$64,103
Wyoming	6,062	$63,743	353	$60,388	2,355	$64,907	240	$59,606			3,157	$62,033

Cooks and Food Preparation Workers (35-2000)

	Total, All Industries		Public Schools		Local Government		State Government		Federal Government		Private Industry	
	Emp.	Wage	Emp.	Wage	Emp.	Wage	Emp.	Wage	Emp.	Wage	Emp.	Wage
U.S.	1,706,440	$21,126	165,380	$22,905	204,230	$23,116	19,990	$28,495	2,480	$41,080	1,478,830	$20,718
WY & Border States	76,191	$20,717	10,903	$23,315	13,639	$23,149	1,051	$25,152	237	$36,746	61,276	$20,036
Colorado	20,730	$22,756	4,126	$25,040	4,507	$24,952	453	$24,859	15,701	$22,009		
Idaho	9,899	$19,166	1,549	$19,888	1,911	$20,384	38	$26,450	7,940	$18,805		
Montana	6,179	$20,965	878	$23,575	1,155	$23,841	111	$22,689	4,876	$20,070		
Nebraska	15,779	$19,219	1,262	$21,488	1,908	$21,057	288	$24,836	13,567	$18,823		
South Dakota	8,453	$19,780	902	$21,754	1,178	$21,560	7,192	$19,308				
Utah	11,701	$20,481	1,603	$23,368	1,910	$22,907	66	$23,155	9,719	$19,975		
Wyoming	3,450	$22,403	583	$26,060	1,070	$25,664	92	$31,738	2,281	$20,427		

Source: Occupational Employment Statistics Survey Files, U.S. Bureau of Labor Statistics.

http://doe.state.wy.us/LMI/education_costs/LSO_OES_Tables_2010_2012.pdf

(Text continued from page 26)

Education Administrators, Elementary and Secondary School (SOC 11-9032)

Table 1, page 5

Within public schools, Wyoming wages ($88,780) exceeded all of the surrounding states. Nebraska pays the next highest salary on average ($87,230), while South Dakota trails the surrounding states at a salary of $71,570. The U.S. average exceeds Wyoming salaries by $3,600.

Clinical, Counseling, and School Psychologists (SOC 19-3031)

Table 1, page 14

This occupation was paid $76,600 in public schools in Wyoming on average. This wage exceeded wages in the private sector within Wyoming by $12,330. Therefore there is a strong incentive for Wyoming residents with the required training to seek employment within Wyoming school districts.

This wage also exceeded the overall U.S. wage overall and in public schools in the surrounding states with the exception of Colorado public schools where the wages were substantially higher ($87,340). This wage differential may lead individuals in this profession to consider relocation to Colorado, therefore reducing the pool of candidates for the Wyoming school districts.

Secretaries, Except Legal, Medical, and Executive (SOC 43-6014)

Table 1, page 53

Within Wyoming, school districts pay higher wages ($35,710) than among all other ownerships.

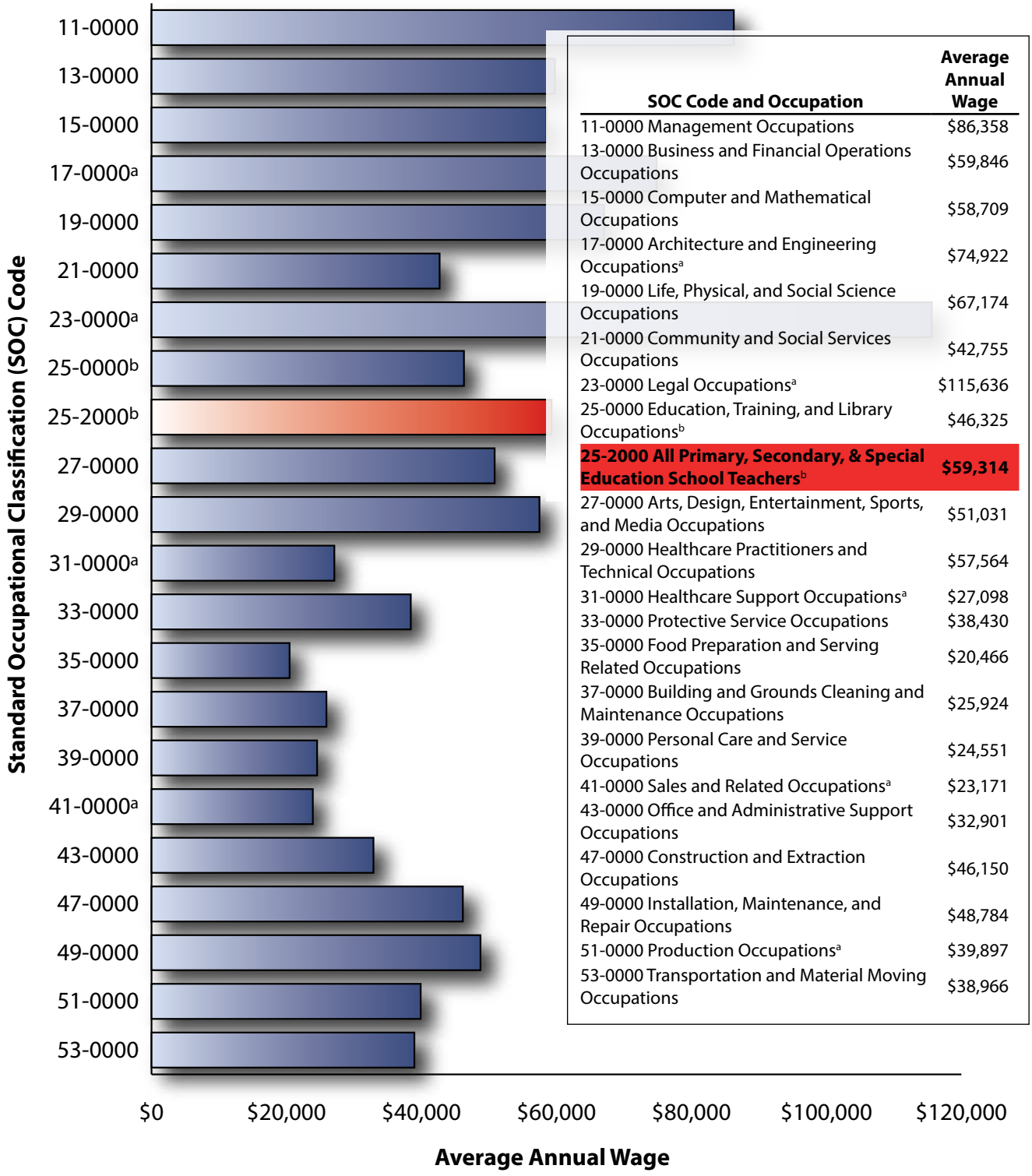
Wyoming school districts pay higher wages than school districts and the private sector in surrounding states, with the exception of Colorado state government ($38,010). Federal government salaries nationwide ($47,640) and in Wyoming and the surrounding states ($44,596) are higher than Wyoming school district salaries.

Overall, individuals may find employment in this occupation with Wyoming school districts desirable, therefore cost pressure for this occupation is unlikely.

More Information

As mentioned in last year's report, R&P is continuing to advance the methodology of comparing teacher salaries to occupations with similar skills, abilities and educational attainment. **Figure 1-7** (see page 29) shows how wages for all teachers (SOC 25-2000) compare to wages in other major occupational groups. This research is a major component of *Current Status of Cost Pressures on Teacher Salaries in Wyoming, 2013*, which accompanies this report. This issue will also be examined in detail in forthcoming articles from R&P.

Figure 1-7: Average Annual Wage for All Primary, Secondary, & Special Education School Teachers (SOC 25-2000) in Public Schools and Other Occupations (Across All Industries) in Wyoming, 2011/12



SOC Code and Occupation	Average Annual Wage
11-0000 Management Occupations	$86,358
13-0000 Business and Financial Operations Occupations	$59,846
15-0000 Computer and Mathematical Occupations	$58,709
17-0000 Architecture and Engineering Occupations[a]	$74,922
19-0000 Life, Physical, and Social Science Occupations	$67,174
21-0000 Community and Social Services Occupations	$42,755
23-0000 Legal Occupations[a]	$115,636
25-0000 Education, Training, and Library Occupations[b]	$46,325
25-2000 All Primary, Secondary, & Special Education School Teachers[b]	**$59,314**
27-0000 Arts, Design, Entertainment, Sports, and Media Occupations	$51,031
29-0000 Healthcare Practitioners and Technical Occupations	$57,564
31-0000 Healthcare Support Occupations[a]	$27,098
33-0000 Protective Service Occupations	$38,430
35-0000 Food Preparation and Serving Related Occupations	$20,466
37-0000 Building and Grounds Cleaning and Maintenance Occupations	$25,924
39-0000 Personal Care and Service Occupations	$24,551
41-0000 Sales and Related Occupations[a]	$23,171
43-0000 Office and Administrative Support Occupations	$32,901
47-0000 Construction and Extraction Occupations	$46,150
49-0000 Installation, Maintenance, and Repair Occupations	$48,784
51-0000 Production Occupations[a]	$39,897
53-0000 Transportation and Material Moving Occupations	$38,966

Full table available at http://doe.state.wy.us/LMI/education_costs/LSO_OES_Tables_2010_2012.pdf
Source: Occupational Employment Statistics (OES).
[a]Average Annual Wage for Wyoming and Surrounding States.
[b]Only in Public Schools.

Research & Planning
Wyoming DWS

Chapter 2: Local Wage Trends and Commuting

by: Patrick Harris, Principal Economist

While wages in teaching jobs in Wyoming are often higher than surrounding states and the nation, counties within Wyoming vary in terms of employment and average annual wage.

The previous chapter discussed the differences in employment and wages between Wyoming, surrounding states, and the U.S. using Occupational Employment Statistics (OES) survey data. In contrast, this chapter examines employment and wages at the county level for Wyoming using contract data from the Wyoming Department of Education (WDE 602). This information is provided in detail in Table 5: Wyoming Department of Education Contractual Staffing Data; 2011/12 Employment and Contract Wages, 2011/12, which is available at http://doe.state.wy.us/LMI/education_costs/Table5_WDE_Contract_Data_2013.pdf.

In chapter 1, comparisons to surrounding states and the U.S. were based on OES establishment survey data. As we pointed out in the Methodological Note and illustrate in Appendix B: Data Collection Schematic, the OES survey represents a sample-based estimate of the average number of jobs worked and average wages earned (the estimated average wage for all teachers in Wyoming for 2011/12 was $59,314). As a sample survey, OES estimates are not available at the county level. The WDE 602 data file representing the "Fall School District Staff Member Collection" is a point in time census, or what we have been referring to as a contract file of administrative data (the average teacher contract wage reported in WDE 602 was $58,075). For illustrative purposes, this chapter compares the two sources of data to point out, for example, that while Wyoming as a whole appears to be competitively positioned, not all counties may be considered to be equally positioned relative to surrounding states and the nation. Further, there may be a level of intercounty competitiveness as teachers begin to retire. In this case, the two measures are very close in concept but should not be mistaken for one another.

Some data for teaching occupations at the county level are not available for analysis because the low number of teachers in that occupation presents a confidentiality issue. Therefore, these occupations are not included in Table 5 and will not be discussed in this chapter.

All Primary, Secondary, and Special Education Teachers (SOC 25-2000)

The statewide average annual wage for Wyoming in the 2011/12 school year was $58,075. Wages in Teton County were 11.2% higher than the statewide average. Three counties had wages that were at least 10% lower than the statewide average: Niobrara (18.7%), Platte (10.3%), and Albany (10.2%). **Figure 2-1** (see page 32) shows the average annual wage for each county from highest to lowest in 2011/12.

Elementary School Teachers, Except Special Education Teachers (SOC 25-2021)

The statewide average wage for this occupation in 2011/12 was $56,550.

Teton County had the highest average annual wage at $63,379 (12.1% higher than the statewide average). Niobrara County had the lowest average annual wage at $45,959 (18.7% lower than the statewide average).

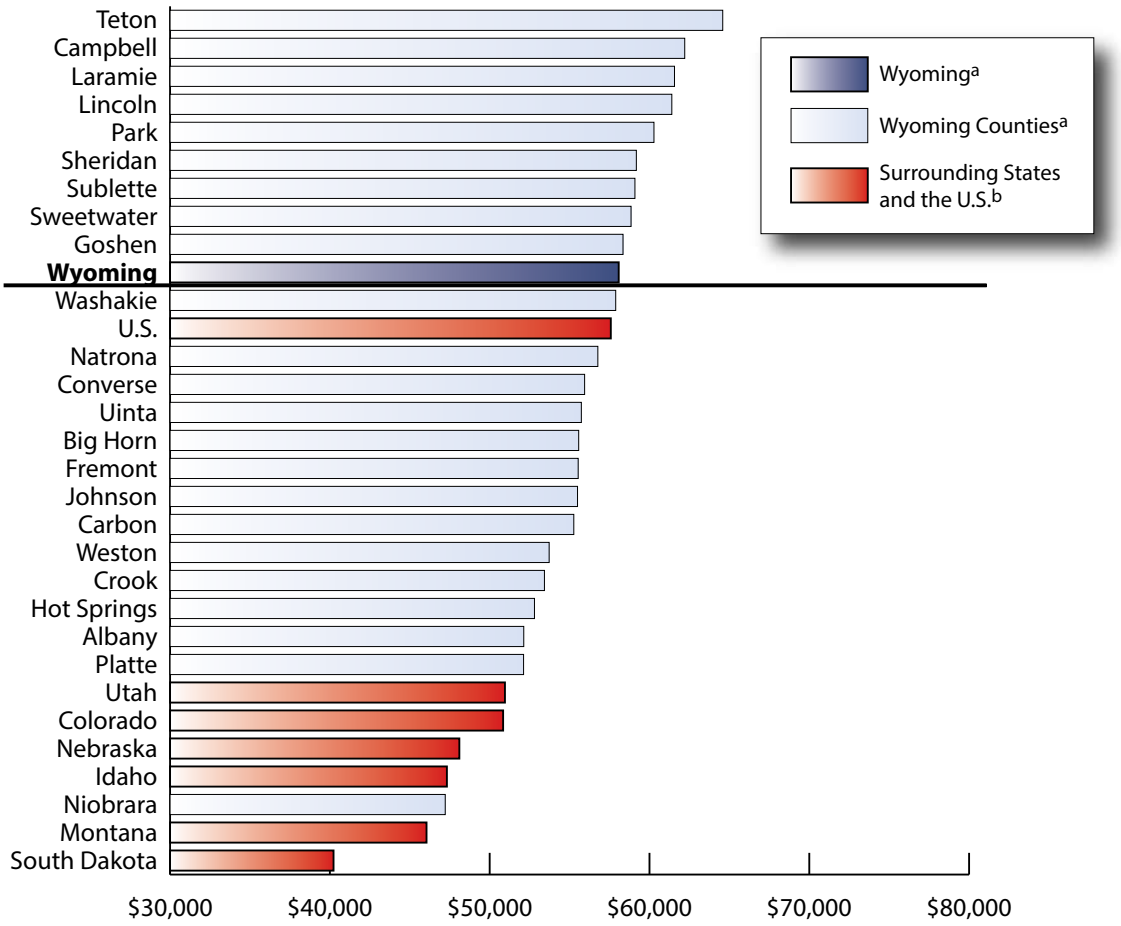
Middle School Teachers, Except Special Education Teachers (SOC 25-2022)

The statewide average wage for this occupation in 2011/12 was $58,740. The average annual wage for Teton County was 11.0% higher than the statewide average, while the average annual wage for Crook County was 16.6% lower.

Secondary School Teachers, Except Special Education Teachers (SOC 25-2031)

The statewide average wage for this occupation in 2011/12 was $60,159. The average annual wage in Teton County was 12.0% higher, while the average wage for Niobrara County was 28.7% less than the statewide average.

Figure 2-1: Average Annual Wage for Primary, Secondary, and Special Education School Teachers (SOC 25-2000) in Public Schools (NAICS 611100) in Wyoming (including Counties), Surrounding States, and the U.S., 2011/12



[a]Source: Wyoming Department of Education Contract Files (WDE 602).
[b]Source: Occupational Employment Statistics (OES).
Prepared by M Moore Research & Planning, WYDWS, 07/06/2013

As discussed in Chapter 1, the average annual wage for all primary, secondary, and special education school teachers (SOC 25-2000) is higher than the national average and surrounding states. However, the variation among Wyoming's counties is substantial. An analysis of Wyoming's counties and surrounding states is warranted in order to assess each county's capability of attracting and retaining those in teaching occupations.

Table 2-1 compares data from OES survey estimates (from Table 1) and WDE 602 contract files (from Table 5). The average annual wage for all primary, secondary, and special education school teachers (SOC 25-2000) in Wyoming differed by $1,239 (approximately 2.0%) between the OES estimates ($59,314) and the WDE 602 contract data ($58,075). The difference in average annual wage was caused in part by the standard error of the OES estimates and the WDE 602 contract data source that includes *no shows*, which are defined in Chapter 3 of this publication as "Contracted individuals who did not have Unemployment Insurance wages in the fourth quarter of the contract year." The OES average annual wage for Wyoming ($59,314) was used as the base in Table 2-1.

While the following discussion focuses on all primary, secondary, and special education school teachers (SOC 25-2000),

Table 2-1: **Difference in Average Annual Wage for All Primary, Secondary, and Special Education Teachers (SOC 25-2000) in Wyoming Counties[1] and Surrounding States[2], 2011/12**

		Occupational Employment Statistics (OES) Survey Data							
Wyoming County		WY	U.S.	CO	ID	MT	NE	SD	UT
		$59,314	$57,580	$50,841	$47,323	$46,048	$48,102	$40,229	$50,955
Wyoming Department of Education (WDE 602) Contract File									
Albany County	$52,133	-$7,181	-$5,447	$1,292	$4,810	$6,085	$4,031	$11,904	$1,178
Big Horn County	$55,570	-$3,744	-$2,010	$4,729	$8,247	$9,522	$7,468	$15,341	$4,615
Campbell County	$62,206	$2,892	$4,626	$11,365	$14,883	$16,158	$14,104	$21,977	$11,251
Carbon County	$55,264	-$4,050	-$2,316	$4,423	$7,941	$9,216	$7,162	$15,035	$4,309
Converse County	$55,941	-$3,373	-$1,639	$5,100	$8,618	$9,893	$7,839	$15,712	$4,986
Crook County	$53,427	-$5,887	-$4,153	$2,586	$6,104	$7,379	$5,325	$13,198	$2,472
Fremont County	$55,538	-$3,776	-$2,042	$4,697	$8,215	$9,490	$7,436	$15,309	$4,583
Goshen County	$58,343	-$971	$763	$7,502	$11,020	$12,295	$10,241	$18,114	$7,388
Hot Springs County	$52,803	-$6,511	-$4,777	$1,962	$5,480	$6,755	$4,701	$12,574	$1,848
Johnson County	$55,497	-$3,817	-$2,083	$4,656	$8,174	$9,449	$7,395	$15,268	$4,542
Laramie County	$61,565	$2,251	$3,985	$10,724	$14,242	$15,517	$13,463	$21,336	$10,610
Lincoln County	$61,398	$2,084	$3,818	$10,557	$14,075	$15,350	$13,296	$21,169	$10,443
Natrona County	$56,769	-$2,545	-$811	$5,928	$9,446	$10,721	$8,667	$16,540	$5,814
Niobrara County	$47,219	-$12,095	-$10,361	-$3,622	-$104	$1,171	-$883	$6,990	-$3,736
Park County	$60,280	$966	$2,700	$9,439	$12,957	$14,232	$12,178	$20,051	$9,325
Platte County	$52,121	-$7,193	-$5,459	$1,280	$4,798	$6,073	$4,019	$11,892	$1,166
Sheridan County	$59,178	-$136	$1,598	$8,337	$11,855	$13,130	$11,076	$18,949	$8,223
Sublette County	$59,090	-$224	$1,510	$8,249	$11,767	$13,042	$10,988	$18,861	$8,135
Sweetwater County	$58,846	-$468	$1,266	$8,005	$11,523	$12,798	$10,744	$18,617	$7,891
Teton County	$64,584	$5,270	$7,004	$13,743	$17,261	$18,536	$16,482	$24,355	$13,629
Uinta County	$55,736	-$3,578	-$1,844	$4,895	$8,413	$9,688	$7,634	$15,507	$4,781
Washakie County	$57,887	-$1,427	$307	$7,046	$10,564	$11,839	$9,785	$17,658	$6,932
Weston County	$53,721	-$5,593	-$3,859	$2,880	$6,398	$7,673	$5,619	$13,492	$2,766

[1]Source: Wyoming Department of Education Contract Files (WDE 602).
[2]Source: Occupational Employment Statistics (OES).

similar comparisons can be conducted for specialized teaching occupations, such as elementary school teachers, except special education (SOC 25-2021) by using the information provided in Appendix B.

All Wyoming counties had competitive wages with surrounding states, with the exception of Niobrara County which fell below Colorado, Idaho, Nebraska, and Utah.

Of Wyoming's 23 counties, 10 had average wages higher than the national average, while 13 counties had average wages lower average wages (see Table 2-1). The three counties with average wages higher than the national average were Teton ($7,004), Campbell ($4,626), and Laramie ($3,985). The three counties that trailed the national average by the largest amount were Niobrara (-$10,361), Platte (-$5,459), and Albany (-$5,447).

Understanding Table 2-2

The information presented in Table 2-2 (see page 35-37) is similar to Table 1-1 (see page 16), but compares Wyoming's counties to the overall state average. While Table 1-1 was compiled using estimates from the Occupational Employment Statistics (OES), Table 2-2 is based on data in the Wyoming Department of Education Contract Files (WDE 602).

The left side shows how employment and average wage changed from 2009/10 to 2011/12 across the state and in each county. The average annual wage for teachers increased in each of Wyoming's 23 counties from 2009/10 to 2010/11. The most significant wage increases were seen in Carbon (6.0%), Johnson (4.9%), Lincoln (4.9%), Niobrara (4.7%) and Big Horn (4.2%) counties.

The number of teachers employed in public schools decreased in eight counties: Albany (-1.4%), Campbell (-1.5%), Goshen (-4.0%), Hot Springs (-10.3%), Lincoln (-3.1%), Platte (-2.7%), Sheridan (-4.6%), and Teton (-4.9%) counties.

The right side column of Table 2-2 compares annual employment and average annual wage of teachers to statewide numbers. In nine of Wyoming's counties during the 2011/12 school year, teachers had higher average wages than the state as a whole (Campbell, Goshen, Laramie, Lincoln, Park, Sheridan, Sublette, Sweetwater, and Teton).

Wage Change, 2009/10 to 2011/12

A summary table of all primary, secondary, and special education teachers (SOC 25-2000) for each county is presented in **Table 2-2**, which is taken from Appendix B. This summary table is similar to those introduced in Chapter 1. This summary table shows the change in employment and average annual wage for each county, and how each county's average annual wage compared to the statewide average using the WDE 602 data.

For all primary, secondary, and special education teachers (SOC 25-2000) in Wyoming, the average annual wage increased from $56,997 in 2009/10 to $58,075 in 2011/12. The WDE 602 staffing file shows an

(Text continued on page 38)

Table 2-2: Total, All Primary, Secondary, & Special Education School Teachers (SOC 25-2000) in Public Schools in Wyoming and its 23 Counties, 2009/10 and 2011/12

This group is a composite of all teachers involved in direct instruction in the classroom.

Wyoming

Employment

2009/10	2011/12	Change	%	
7,406	7,443	37	0.5%	↑

Average Annual Wage

2009/10	2011/12	Change	%	
$56,997	$58,075	$1,078	1.9%	↑

Of all 23 Wyoming counties in 2012, the highest average annual wage for teachers was found in Teton County ($64,584). This was $5,594 more (10.3%) than the statewide average.

Albany County

Employment

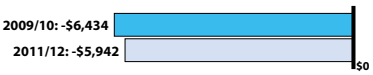
2009/10	2011/12	Change	%	
351	346	-5	-1.4%	↓

Average Annual Wage

2009/10	2011/12	Change	%	
$50,563	$52,133	$1,569	3.1%	↑

Comparison to Wyoming Wage

2009/10	%	2011/12	%
-$6,434	-11.3%	-$5,942	-10.2%



Big Horn County

Employment

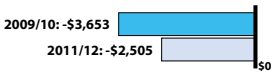
2009/10	2011/12	Change	%	
212	217	5	2.4%	↑

Average Annual Wage

2009/10	2011/12	Change	%	
$53,344	$55,570	$2,226	4.2%	↑

Comparison to Wyoming Wage

2009/10	%	2011/12	%
-$3,653	-6.4%	-$2,505	-4.3%



Campbell County

Employment

2009/10	2011/12	Change	%	
646	636	-10	-1.5%	↓

Average Annual Wage

2009/10	2011/12	Change	%	
$61,139	$62,206	$1,067	1.7%	↑

Comparison to Wyoming Wage

2009/10	%	2011/12	%
$4,142	7.3%	$4,131	7.1%

Carbon County

Employment

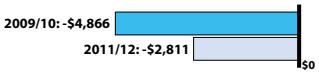
2009/10	2011/12	Change	%	
245	247	2	0.8%	↑

Average Annual Wage

2009/10	2011/12	Change	%	
$52,131	$55,264	$3,133	6.0%	↑

Comparison to Wyoming Wage

2009/10	%	2011/12	%
-$4,866	-8.5%	-$2,811	-4.8%



Converse County

Employment

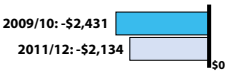
2009/10	2011/12	Change	%	
218	225	7	3.2%	↑

Average Annual Wage

2009/10	2011/12	Change	%	
$54,566	$55,941	$1,375	2.5%	↑

Comparison to Wyoming Wage

2009/10	%	2011/12	%
-$2,431	-4.3%	-$2,134	-3.7%



Crook County

Employment

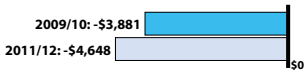
2009/10	2011/12	Change	%	
103	107	4	3.9%	↑

Average Annual Wage

2009/10	2011/12	Change	%	
$53,116	$53,427	$311	0.6%	↑

Comparison to Wyoming Wage

2009/10	%	2011/12	%
-$3,881	-6.8%	-$4,648	-8.0%



Fremont County

Employment

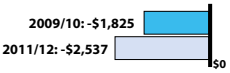
2009/10	2011/12	Change	%	
583	589	6	1.0%	↑

Average Annual Wage

2009/10	2011/12	Change	%	
$55,172	$55,538	$366	0.7%	↑

Comparison to Wyoming Wage

2009/10	%	2011/12	%
-$1,825	-3.2%	-$2,537	-4.4%



Source: Wyoming Department of Education Contract Files (WDE 602).

Chapter 2

Table 2-2: Total, All Primary, Secondary, & Special Education School Teachers (SOC 25-2000) in Public Schools in Wyoming and its 23 Counties, 2009/10 and 2011/12

This group is a composite of all teachers involved in direct instruction in the classroom.

Goshen County

Employment

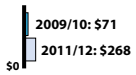
2009/10	2011/12	Change	%	
173	166	-7	-4.0%	↓

Average Annual Wage

2009/10	2011/12	Change	%	
$57,068	$58,343	$1,276	2.2%	↑

Comparison to Wyoming Wage

2009/10	%	2011/12	%
$71	0.1%	$268	0.5%



Hot Springs County

Employment

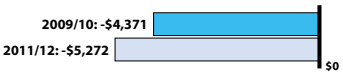
2009/10	2011/12	Change	%	
68	61	-7	-10.3%	↓

Average Annual Wage

2009/10	2011/12	Change	%	
$52,626	$52,803	$176	0.3%	↑

Comparison to Wyoming Wage

2009/10	%	2011/12	%
-$4,371	-7.7%	-$5,272	-9.1%



Johnson County

Employment

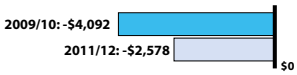
2009/10	2011/12	Change	%	
124	128	4	3.2%	↑

Average Annual Wage

2009/10	2011/12	Change	%	
$52,905	$55,497	$2,592	4.9%	↑

Comparison to Wyoming Wage

2009/10	%	2011/12	%
-$4,092	-7.2%	-$2,578	-4.4%



Laramie County

Employment

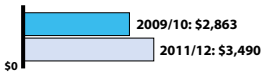
2009/10	2011/12	Change	%	
1,106	1,113	7	0.6%	↑

Average Annual Wage

2009/10	2011/12	Change	%	
$59,860	$61,565	$1,705	2.8%	↑

Comparison to Wyoming Wage

2009/10	%	2011/12	%
$2,863	5.0%	$3,490	6.0%



Lincoln County

Employment

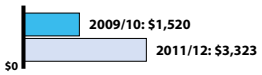
2009/10	2011/12	Change	%	
255	247	-8	-3.1%	↓

Average Annual Wage

2009/10	2011/12	Change	%	
$58,517	$61,398	$2,881	4.9%	↑

Comparison to Wyoming Wage

2009/10	%	2011/12	%
$1,520	2.7%	$3,323	5.7%



Natrona County

Employment

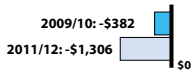
2009/10	2011/12	Change	%	
863	882	19	2.2%	↑

Average Annual Wage

2009/10	2011/12	Change	%	
$56,615	$56,769	$154	0.3%	↑

Comparison to Wyoming Wage

2009/10	%	2011/12	%
-$382	-0.7%	-$1,306	-2.2%



Niobrara County

Employment

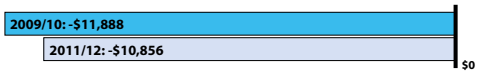
2009/10	2011/12	Change	%	
53	66	13	24.5%	↑

Average Annual Wage

2009/10	2011/12	Change	%	
$45,109	$47,219	$2,110	4.7%	↑

Comparison to Wyoming Wage

2009/10	%	2011/12	%
-$11,888	-20.9%	-$10,856	-18.7%



Park County

Employment

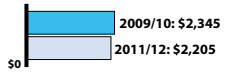
2009/10	2011/12	Change	%	
317	321	4	1.3%	↑

Average Annual Wage

2009/10	2011/12	Change	%	
$59,342	$60,280	$939	1.6%	↑

Comparison to Wyoming Wage

2009/10	%	2011/12	%
$2,345	4.1%	$2,205	3.8%



Source: Wyoming Department of Education Contract Files (WDE 602).

Table 2-2: Total, All Primary, Secondary, & Special Education School Teachers (SOC 25-2000) in Public Schools in Wyoming and its 23 Counties, 2009/10 and 2011/12

This group is a composite of all teachers involved in direct instruction in the classroom.

Platte County

Employment					Comparison to Wyoming Wage			
2009/10	2011/12	Change	%		2009/10	%	2011/12	%
148	144	-4	-2.7%	↓	-$5,459	-9.6%	-$5,954	-10.3%

Average Annual Wage				
2009/10	2011/12	Change	%	
$51,538	$52,121	$583	1.1%	↑

Sheridan County

Employment					Comparison to Wyoming Wage			
2009/10	2011/12	Change	%		2009/10	%	2011/12	%
395	377	-18	-4.6%	↓	$1,201	2.1%	$1,103	1.9%

Average Annual Wage				
2009/10	2011/12	Change	%	
$58,198	$59,178	$980	1.7%	↑

Sublette County

Employment					Comparison to Wyoming Wage			
2009/10	2011/12	Change	%		2009/10	%	2011/12	%
135	140	5	3.7%	↑	$1,890	3.3%	$1,015	1.7%

Average Annual Wage				
2009/10	2011/12	Change	%	
$58,887	$59,090	$202	0.3%	↑

Sweetwater County

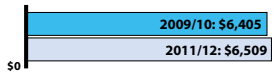
Employment					Comparison to Wyoming Wage			
2009/10	2011/12	Change	%		2009/10	%	2011/12	%
592	614	22	3.7%	↑	$1,608	2.8%	$771	1.3%

Average Annual Wage				
2009/10	2011/12	Change	%	
$58,605	$58,846	$242	0.4%	↑

Teton County

Employment					Comparison to Wyoming Wage			
2009/10	2011/12	Change	%		2009/10	%	2011/12	%
224	213	-11	-4.9%	↓	$6,405	11.2%	$6,509	11.2%

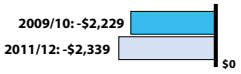
Average Annual Wage				
2009/10	2011/12	Change	%	
$63,402	$64,584	$1,182	1.9%	↑



Uinta County

Employment					Comparison to Wyoming Wage			
2009/10	2011/12	Change	%		2009/10	%	2011/12	%
367	370	3	0.8%	↑	-$2,229	-3.9%	-$2,339	-4.0%

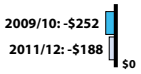
Average Annual Wage				
2009/10	2011/12	Change	%	
$54,768	$55,736	$968	1.8%	↑



Washakie County

Employment					Comparison to Wyoming Wage			
2009/10	2011/12	Change	%		2009/10	%	2011/12	%
126	126	0	0.0%	--	-$252	-0.4%	-$188	-0.3%

Average Annual Wage				
2009/10	2011/12	Change	%	
$56,745	$57,887	$1,142	2.0%	↑



Weston County

Employment					Comparison to Wyoming Wage			
2009/10	2011/12	Change	%		2009/10	%	2011/12	%
102	108	6	5.9%	↑	-$4,513	-7.9%	-$4,354	-7.5%

Average Annual Wage				
2009/10	2011/12	Change	%	
$52,484	$53,721	$1,237	2.4%	↑

Source: Wyoming Department of Education Contract Files (WDE 602).

(Text continued from page 30)

increase of 1.9%, compared to the 3.9% increase shown by OES.

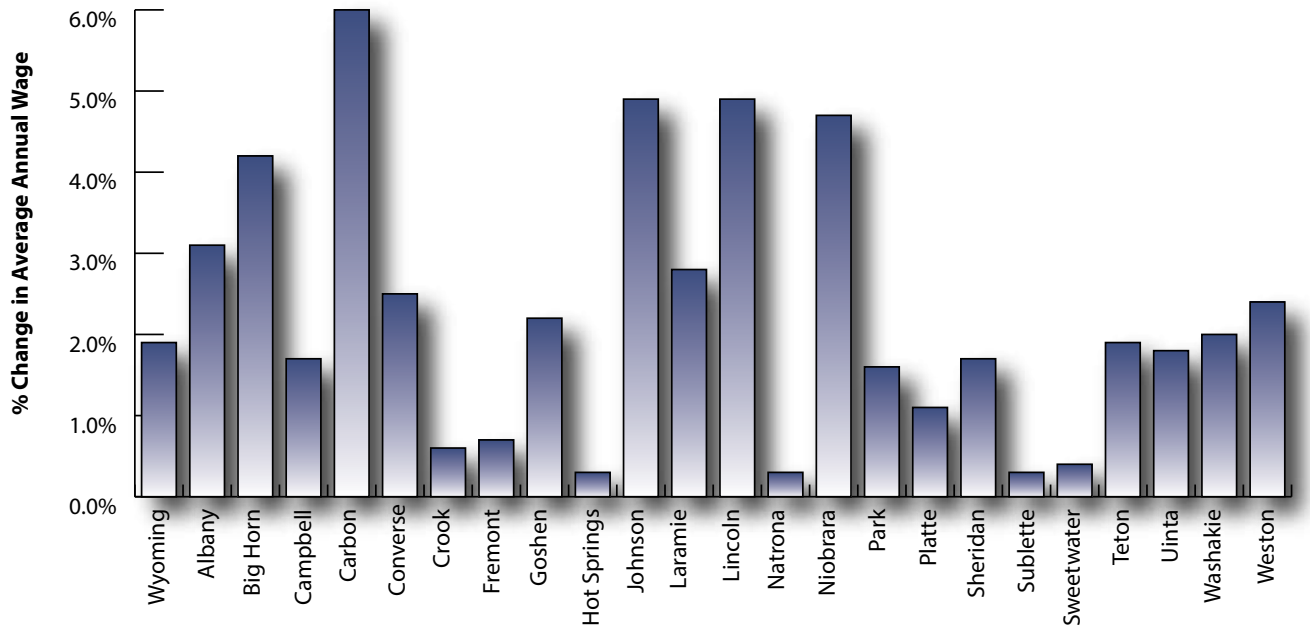
The average annual wage for teachers (25-2000) in all counties increased from 2009/10 to 2011/12 , and Carbon County experienced the highest percentage increase of 6.0%, or $3,133 (see **Figure 2-2**). Six counties saw an increase in wages of less than 1.0%: Crook, Fremont, Hot Springs, Natrona, Sublette, and Sweetwater. In terms of employment, Washakie County was the only county where employment remained unchanged (126) during both periods. The largest increase in employment was in Sweetwater County (22 individuals), while the largest decrease in employment was in Teton (-11 individuals).

Commuting

With Wyoming being a rural state, workers may need to travel great distances to their workplace. It appears that higher wages, as noted in another study of Wyoming workers by Research & Planning (*Health Care Workforce Needs in Wyoming: Advancing the Study, 2011*) may be associated with more extensive commuting. For the 2011/12 school year, 11.2% of all contracted WDE employees commuted to their place of employment either from another county or from out of state.

Table 2-3 (see page 39) shows the county of contracted employment by commuting type (i.e., intracounty,

Figure 2-2: Percentage Change in Average Annual Wage for All Primary, Secondary, and Special Education School Teachers (SOC 25-2000) in Local Government Schools (NAICS 611100) in Wyoming by County, 2009/10 to 2011/12



Source: Wyoming Department of Education Contract File (WDE 602).

intercounty, or interstate). Two counties had more than 20.0% of employees in all occupations in public schools commuting to work from outside the county: Niobrara and Big Horn. Only four counties had less than 10.0% of their workforce for all occupations in public schools coming from outside the county: Fremont, Laramie, Natrona, and Park. Natrona County had the smallest percentage of workers in public schools commuting from outside the county (7.5%).

Statewide, 13.8% of teachers were commuting to work from outside their county of employment. Six counties (Big Horn, Crook, Hot Springs, Niobrara, Sublette, and Weston) had more than 20.0% of contracted teachers commuting from outside the county. Niobrara had nearly half (47.7%) of their 65 teachers coming from outside the county. The two largest counties by population (Natrona and Laramie) were the only counties with less than 10.0% of teachers commuting to work from outside the county, 9.4% and 8.3% respectively.

The percentage of contracted teachers

Table 2-3: **Commuting Patterns for All Occupations and Teachers in Public Schools in Wyoming, 2011/12**

Total, All Occupations in Public Schools in Wyoming

County of Employment	Contract Emp.	Intracounty Workers		Intercounty and Interstate Commuters			
		N	%	Intercounty Commuters	Interstate Commuters	Total	%
Albany	777	662	85.2	41	74	115	14.8
Big Horn	515	403	78.3	84	28	112	21.7
Campbell	1,658	1,480	89.3	81	97	178	10.7
Carbon	605	535	88.4	28	42	70	11.6
Converse	541	464	85.8	42	35	77	14.2
Crook	278	240	86.3	18	20	38	13.7
Fremont	1,502	1,377	91.7	53	72	125	8.3
Goshen	416	364	87.5	16	36	52	12.5
Hot Springs	182	153	84.1	17	12	29	15.9
Johnson	307	270	87.9	21	16	37	12.1
Laramie	2,470	2,255	91.3	51	164	215	8.7
Lincoln	653	582	89.1	12	59	71	10.9
Natrona	2,260	2,091	92.5	60	109	169	7.5
Niobrara	121	85	70.2	33	3	36	29.8
Park	848	771	90.9	32	45	77	9.1
Platte	368	330	89.7	26	12	38	10.3
Sheridan	888	783	88.2	55	50	105	11.8
Sublette	360	292	81.1	38	30	68	18.9
Sweetwater	1,585	1,424	89.8	76	85	161	10.2
Teton	457	385	84.2	28	44	72	15.8
Uinta	914	799	87.4	55	60	115	12.6
Washakie	345	291	84.3	18	36	54	15.7
Weston	266	220	82.7	12	34	46	17.3
Total	**18,316**	**16,256**	**88.8**	**897**	**1,163**	**2060**	**11.2**

Total, All Teachers in Public Schools in Wyoming

County of Employment	Contract Emp.	Intracounty Workers		Intercounty and Interstate Commuters			
		N	%	Intercounty Commuters	Interstate Commuters	Total	%
Albany	345	294	85.2	19	32	51	14.8
Big Horn	211	141	66.8	56	14	70	33.2
Campbell	627	551	87.9	38	38	76	12.1
Carbon	241	200	83.0	22	19	41	17.0
Converse	223	185	83.0	21	17	38	17.0
Crook	107	80	74.8	14	13	27	25.2
Fremont	577	510	88.4	38	29	67	11.6
Goshen	160	133	83.1	9	18	27	16.9
Hot Springs	61	48	78.7	10	3	13	21.3
Johnson	123	105	85.4	11	7	18	14.6
Laramie	1,086	996	91.7	24	66	90	8.3
Lincoln	244	218	89.3	7	19	26	10.7
Natrona	869	787	90.6	33	49	82	9.4
Niobrara	65	34	52.3	29	2	31	47.7
Park	320	288	90.0	11	21	32	10.0
Platte	140	121	86.4	15	4	19	13.6
Sheridan	376	319	84.8	32	25	57	15.2
Sublette	139	110	79.1	17	12	29	20.9
Sweetwater	601	511	85.0	54	36	90	15.0
Teton	211	186	88.2	12	13	25	11.8
Uinta	360	302	83.9	34	24	58	16.1
Washakie	126	106	84.1	6	14	20	15.9
Weston	104	82	78.8	8	14	22	21.2
Total	**7,316**	**6,307**	**86.2**	**520**	**489**	**1,009**	**13.8**

Sources: Wyoming Department of Education Contract Files (WDE 602).
Research & Planning (R&P) Wage Records Database

commuting from outside the county was generally higher than for all occupations in public schools. Hot Springs, Johnson, Niobrara, and Platte counties all had less than 10 teachers coming from outside the state.

More information on commuting is available online at http://doe.state.wy.us/LMI/commute.htm. This commuting analysis does not include telecommuting.

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Chapter 3: Local Turnover

by: Tony Glover, Workforce Information Supervisor

People change employers for many reasons, including family-based decisions (care for young children, elderly parents, or to relocate with a spouse), personal reasons (the chosen profession is no longer desirable because of schedules, work environment, workplace safety, or retirement), and financial reasons (promotion and/or wage progression; LSO, 2000).

While this chapter cannot identify the specific reasons persons employed in Wyoming's public schools choose to change employers, it does offer insight into those changes and shows where a large portion of individuals that left landed with respect to location, industry, and wages. It is hypothesized that individuals who leave jobs with higher wages for jobs paying less are likely doing so due to family-based and personal reasons. Further, individuals who left jobs paying less to acquire jobs paying more left for financial incentives, such as career advancement.

It is accepted that the education and skills acquired by teachers have several applications to occupations other than teaching and industries other than public schools. However, Chapter 1 showed that Wyoming pays its teachers more than surrounding states and Chapter 2 demonstrated the large variation in teacher pay within Wyoming. The primary function of this chapter is to focus on individuals leaving school district employment for another school district, another industry, or another state.

To capture the school districts' employee transitions, it is necessary to combine the Wyoming Department of Education - Fall School District Staff Member Collection (WDE 602), Wyoming's Unemployment Insurance Wage Records (WR), and Wyoming's Quarterly Census of Employment and Wages (QCEW) databases. Longitudinal WDE 602 data allows tracking the internal (Wyoming Public Schools) market of public school employees for example, when a teacher changes districts or occupations from one year to the next. Wage Records collects SSN, year, quarter, employer, and wages for all individuals covered by Unemployment Insurance in Wyoming and the QCEW collects data on the characteristics of the employers that report data to WR such as North American Industrial Classification (industry), ownership (local, state, federal, private) and county of employment. Whereas, the WDE 602 is restricted to the public schools market only, WR combined with the QCEW allows for the analysis of individuals changes in locations and industries of employment other than public schools. Due to the level of tabular cell detail in this chapter and to ensure the confidentiality of individuals studied, data are presented as an aggregate of two years 2010/11 and 2011/12.

It is assumed that the large investment in teachers' human capital (education, training, and experience) towards the specific occupation of teaching in schools limits their market to teaching in schools. Non-teaching occupations occurring in public schools have a larger number of market opportunities. As pointed out in previous chapters, computer specialists (SOC 15-1000) and health diagnosing and treating practitioners (SOC 29-1000)

are both paid higher wages in the private sector in Wyoming and, in most cases, higher wages in the private sector in other states.

Much of the previous work in this publication is focused on all primary, secondary, and special education school teachers (SOC 25-2000) and touched briefly on the numerous other occupations found in Wyoming's public schools. The focus on teachers was based on specific requests from the Legislative Service Office (LSO), and the non-teaching occupations were used for illustrative purposes. This chapter categorizes public school contracts from the Wyoming Department of Education database (WDE 602) into two occupational groups and two retention statuses, and presents findings on the destination industries and locations of work for those who left public school employment. The first occupational group is all occupations (including teachers) and the second is primary, secondary, and special education school teachers (SOC 25-2000) only. The two retention statuses are retained and leavers; leavers are comprised of no shows and exits (see Box 3-1).

As noted above, the WDE 602 was combined with other administrative databases maintained by the Research & Planning (R&P) section of the Wyoming Department of Workforce Services. The first of these is Unemployment Insurance (UI) Wage Records, collected quarterly for unemployment insurance tax purposes. Wage Records contain social security number, year, quarter, employer, and wages. R&P currently maintains 22 years of wage records by quarter for Wyoming and 12 years of the same data for Colorado, Utah, Idaho, Montana, South Dakota, Nebraska, Texas, Alaska, New Mexico, and Oklahoma. The data are combined with a third administrative database, the Quarterly Census of Employment and Wages (QCEW), also collected for UI tax administration, which has detailed information about the industry, ownership, and other characteristics of the employers found in wage records. When combined, the resulting data set allows R&P to determine the who (SSN & UI account), what (earnings), when (temporally across 20 years), and where (UI accounts are geocoded) for approximately 92.0% of the employed individuals in Wyoming.

Box 3-1: Retention Statuses

1. Retained: Contracted staff who also had Unemployment Insurance (UI) reported wages in the fourth quarter of the contract year and who renewed a contract with the same school district the following year.

2. Leavers: The total of no shows and exits.
- ***a. No Shows:*** Contracted individuals who did not have UI wages in the fourth quarter of the contract year.
- ***b. Exits:*** Contracted individuals with UI wages in the fourth quarter of the contract year that did not renew a contract with the same school district in the following year.

The WDE 602, like other administrative data sets, is collected for operational purposes and has little oversight or integrity rules relating to the quality or completeness of the data. While working with the WDE 602 Staffing File, it became apparent that many of the birth dates listed were not the

(Text continued on page 43)

same as those found on the Department of Motor Vehicles (DMV) driver's license database. When there was a difference between the WDE 602 and the DMV during this research, the DMV took precedence.

The WDE 602, Wage Records, QCEW, and DMV driver's license databases were combined to create a table similar to the hypothetical example found in **Table 3-1**. From left to right, the SSN is found in the WDE 602, Wage Records, and DMV databases, and creates the main linking variable between data sets. The school year is defined in terms of a typical school year cycle. For example, 2010/11 is used for the period of July 1, 2010 to June 30, 2011. As wage records are collected quarterly, the 2010/11 school year corresponds to calendar year 2010Q3, 2010Q4, 2011Q1, and 2011Q2. The staff ID is the primary linkage mechanism between the WDE 602 and signifies whether the individual was contracted in the WDE 602. The Standard Occupational Classification (SOC) code was assigned by R&P staff trained by the U.S. Bureau of Labor Statistics, which manages the Occupational Employment Statistics (OES) survey. This assignment was based on the WDE 602 assignment code and highest grade with which the contracted individual has contact, e.g. elementary, middle, or high school. The district ID, district, district wages, and experience are also present on the WDE 602. The age was calculated by subtracting the year of birth (DMV) from the school year (WDE 602). The primary state, primary industry, and primary county represent the state, county, and industry for which the individual had the highest wages in the four-quarter period based on Wage Records. Lastly, total wage is the individual's total wages for all employers during the four-quarter period.

Table 3-1 shows that the individual named Hypothetical Pat with the SSN of 999999999 was employed by the Natrona County School District from the 2007/08 school year until the 2010/11 school

Table 3-1: **Record Structure of Linked Administrative Databases for Hypothetical Pat**

Staffing File Matched to Wage Records		Contract File (WDE 602)						Driver's License	QCEW[b] Matched to Wage Records			
Social Security Number	School Year	Staff ID	SOC[a] Code	District ID	School District	District Wages	Experience (in Years)	Age	Primary State of Residence	Primary Industry	County	Total Wages
999999999	2007/08	8888888	25-2031	1301000	Natrona County School District #1	$39,967	15	30	WY	09a- Public Schools	Natrona County	$39,967
999999999	2008/09	8888888	25-2031	1301000	Natrona County School District #1	$45,526	16	31	WY	09a- Public Schools	Natrona County	$45,526
999999999	2009/10	8888888	25-2031	1301000	Natrona County School District #1	$55,968	17	32	WY	09a- Public Schools	Natrona County	$55,968
999999999	2010/11	8888888	25-2031	1301000	Natrona County School District #1	$55,968	18	33	WY	09a- Public Schools	Natrona County	$55,968
999999999	2011/12							34	WY	01- Natural Rescources & Mining (11, 21)	Campbell County	$75,284

This record structure has 90,360 records in the actual analysis table.

[a]Standard Occupational Classification.

[b]Quarterly Census of Employment and Wages.

Chapter 3

(Text continued from page 43)

year. During this time, Pat showed wage progression from 2007/08 to 2009/10, at which point Pat's wages remained relatively flat for two consecutive school years. Between the 2010/11 and 2011/12 school years, Hypothetical Pat decided to leave employment as a teacher (SOC 25-2031) with the Natrona County School District and work in Campbell County in the natural resources & mining industry. Based on the definitions outlined on page 43, Hypothetical Pat was an exit from public school employment in 2010/11. In this example, the career transition appears to have been financial in nature (although this does not rule out other explanations) as Pat's wages increased from $55,968 to $75,284 per year, a gain of $19,316.

As stated at the beginning of this chapter, public school contracts were divided into two distinct retention statuses: retained (next year) and leavers, which consists of no shows (for the current year) plus exits (those who leave the district by the next year). Public school contracts were also divided into two occupational groups: all occupations and all teachers (SOC 25-2000). The summary results appear in **Table 3-2** (see page 45). The leavers column includes N (number of leavers), contracted average wage (from the WDE 602), and the percentage of all contracted individuals who exited. The exit rate represents a replacement rate that would need to be met to maintain the same level of employment across school districts. Table 3-2a shows that across all occupations, the replacement rate of contracted individuals who exit ranges from 11.0% in 2008/09 to 13.3% in 2011/12. The total replacement rate for teachers is lower, ranging between 8.2% in 2008/09 and 9.6% in 2011/12. Provided that demand remains constant, or increases, the number of leavers represents a recruitment cost at the school district level.

Tables 3-2a and 3-2b also show exit rates for three age groups by school year: less than or equal to 34 (≤34), 35-54, and 55+. Previous research (Robinson & Strunk, 2006) states, "This research points to a U-shaped curve of teacher experience and quits: Younger teachers have a higher rate of turnover, which declines as teachers hit middle age/ experience, and then rises again as teachers near retirement."

Combined data of teachers that left for the 2010/11 to 2011/12 school years were aggregated by the age of the leaver in the year of departure to create **Figure 3-1** (see page 46). The U-shaped curve described by Robinson & Strunk is apparent and was used to define the age group boundaries that appear in Tables 3-2a and 3-2b. The importance of these distinct age groups lays in the motivation and circumstances of the individuals that leave and the type of resource that needs to be replaced. As suggested in the introduction, young people may leave due to factors such as child care, workplace environment, and other financial reasons and older individuals may be more likely to retire.

As discussed in Chapter 2, there are wage differences within Wyoming between counties. A contracted individual moving from Converse County to Natrona County would qualify as a district leaver under the current definition. **Tables 3-3a and 3-3b** (see page 47) were created by combining two school years (2010/11 & 2011/12) of data to eliminate issues related to low cell counts and confidentiality. For these same reasons, the no show and exit columns

Table 3-2a: Wyoming Public School All Occupation Contracts by Retention Status, 2008/09 to 2012/13

						Leavers						
		Contracts		Retained		No Shows		Exits		Total, All Leavers		
School Year	Age Group	N	Contract Annual Wage	N	Average Annual Wage	N	Average Annual Wage	N	Average Annual Wage	N	Average Annual Wage	Exit Rate
2008/09	Total	17,459	$41,350	15,540	$42,346	444	$27,760	1,475	$34,952	1,919	$33,288	11.0
	≤34	3,458	$36,496	2,879	$38,582	140	$23,227	439	$27,048	579	$26,124	16.7
	35-54	9,283	$42,442	8,561	$43,383	204	$27,659	518	$32,709	722	$31,282	7.8
	55+	4,718	$42,761	4,100	$42,824	100	$34,313	518	$43,893	618	$42,343	13.1
2009/10	Total	18,238	$41,933	16,059	$43,015	496	$28,115	1,683	$35,678	2,179	$33,956	11.9
	≤34	3,773	$37,067	3,102	$39,414	152	$22,820	519	$27,215	671	$26,219	17.8
	35-54	9,481	$43,149	8,669	$44,341	249	$28,111	563	$31,434	812	$30,415	8.6
	55+	4,984	$43,304	4,288	$42,940	95	$36,598	601	$46,961	696	$45,547	14.0
2010/11	Total	18,356	$42,090	15,907	$43,490	515	$25,012	1,934	$35,122	2,449	$32,996	13.3
	≤34	3,797	$37,472	3,079	$40,279	162	$19,565	556	$27,147	718	$25,436	18.9
	35-54	9,427	$43,322	8,503	$44,746	242	$24,579	682	$32,215	924	$30,215	9.8
	55+	5,132	$43,243	4,325	$43,306	111	$33,907	696	$44,340	807	$42,905	15.7
2011/12	Total	18,316	$42,817	15,899	$44,141	370	$18,153	2,047	$36,990	2,417	$34,106	13.2
	≤34	3,853	$38,536	3,122	$41,002	112	$16,296	619	$30,120	731	$28,002	19.0
	35-54	9,241	$44,178	8,352	$45,546	178	$18,534	711	$34,518	889	$31,318	9.6
	55+	5,222	$43,567	4,425	$43,702	80	$19,904	717	$45,371	797	$42,815	15.3
2012/13	Total	18,570	$42,936			544	$27,195					
	≤34	4,029	$38,522			180	$21,811					
	35-54	9,253	$44,564			238	$29,591					
	55+	5,288	$43,452			126	$30,359					

Table 3-2b: Wyoming Public School Teacher[a] Contracts by Contracted Individuals' Retention Status, 2008/09 to 2012/13

						Leavers						
		Contracts		Retained		No Shows		Exits		Total, All Leavers		
School Year	Age Group	N	Contract Annual Wage	N	Average Annual Wage	N	Average Annual Wage	N	Average Annual Wage	N	Average Annual Wage	Exit Rate
2008/09	Total	7,225	$55,808	6,630	$56,114	136	$47,591	459	$53,817	595	$52,394	8.2
	20-34	1,886	$47,740	1,680	$48,146	54	$39,717	152	$46,094	206	$44,422	10.9
	35-54	3,776	$57,567	3,596	$57,805	49	$50,404	131	$53,708	180	$52,809	4.8
	55+	1,563	$61,293	1,354	$61,509	33	$56,300	176	$60,567	209	$59,894	13.4
2009/10	Total	7,406	$56,996	6,750	$57,355	113	$45,886	543	$54,852	656	$53,308	8.9
	≤34	2,006	$48,991	1,781	$49,475	48	$40,538	177	$46,411	225	$45,158	11.2
	35-54	3,793	$58,843	3,595	$59,217	46	$47,217	152	$53,514	198	$52,051	5.2
	55+	1,607	$62,631	1,374	$62,696	19	$56,175	214	$62,785	233	$62,246	14.5
2010/11	Total	7,410	$57,296	6,735	$57,571	86	$47,825	589	$55,531	675	$54,549	9.1
	≤34	2,019	$49,466	1,807	$49,832	36	$42,318	176	$47,171	212	$46,347	10.5
	35-54	3,771	$58,969	3,557	$59,372	34	$48,750	180	$52,921	214	$52,258	5.7
	55+	1,620	$63,160	1,371	$63,098	16	$58,250	233	$63,863	249	$63,502	15.4
2011/12	Total	7,443	$58,074	6,729	$58,358	42	$44,921	672	$56,060	714	$55,405	9.6
	≤34	2,100	$50,311	1,851	$50,695	22	$42,090	227	$47,975	249	$47,455	11.9
	35-54	3,711	$59,986	3,511	$60,237	12	$49,777	188	$55,935	200	$55,566	5.4
	55+	1,632	$63,719	1,367	$63,906	8	$45,424	257	$63,293	265	$62,754	16.2
2012/13	Total	7,610	$57,984			102	$46,179					
	≤34	2,219	$50,141			50	$40,829					
	35-54	3,783	$59,989			39	$48,049					
	55+	1,608	$64,092			13	$61,148					

[a]Teachers = All Primary, Secondary, and Special Education Teachers (SOC 25-2000).

are consolidated into the single category of leavers. As Table 3-3a shows, the top three counties with the greatest replacement need for all occupations are Hot Springs (24.2%), Albany (21.3%), and Sublette (19.4%) counties, and the lowest three are Niobrara (8.4%), Laramie (9.3%), and Natrona (9.5%) counties. For teachers (Table 3-3b), the greatest replacement needs are in Hot Springs (23.3%), Albany (15.7%), and Goshen (13.7%) counties and the lowest are Niobrara (5.6%), Lincoln (6.1%), and Park (6.5%), and Laramie and Natrona counties were tied at (6.7%).

Data to this point have shown who the leavers are by school year and age group, and the counties from which they leave. Using the same two years of data presented in Tables 3-3a and 3-3b, **Table 3-4a** (see page 48) is comprised of all of the leavers from 2010/11 and 2011/12 combined. At first glance it can be seen that even though we have aggregated two school years of data, there remain numerous blank cells in Table 3-4 that are non-disclosable (ND) due to confidentiality. To better understand Table 3-4a, Hypothetical Pat from Table 3-1 is one of the 35 individuals, ages

Figure 3-1: Number of Wyoming Public School District Leavers by Age Group, All Occupations, 2010/11 to 2011/12

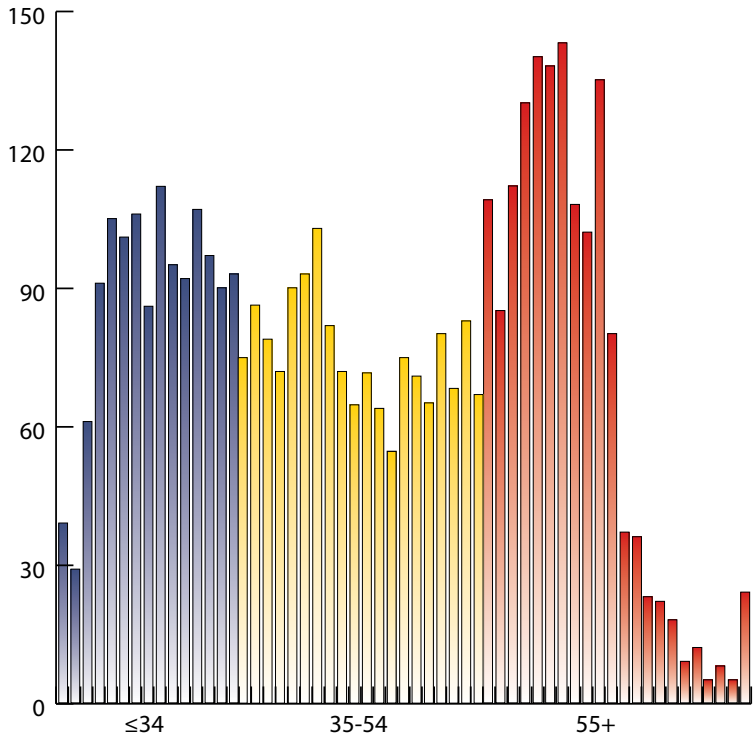


Figure 3-2: Number of Wyoming Public School District Leavers by Age Group, Teachers, 2010/11 to 2011/12

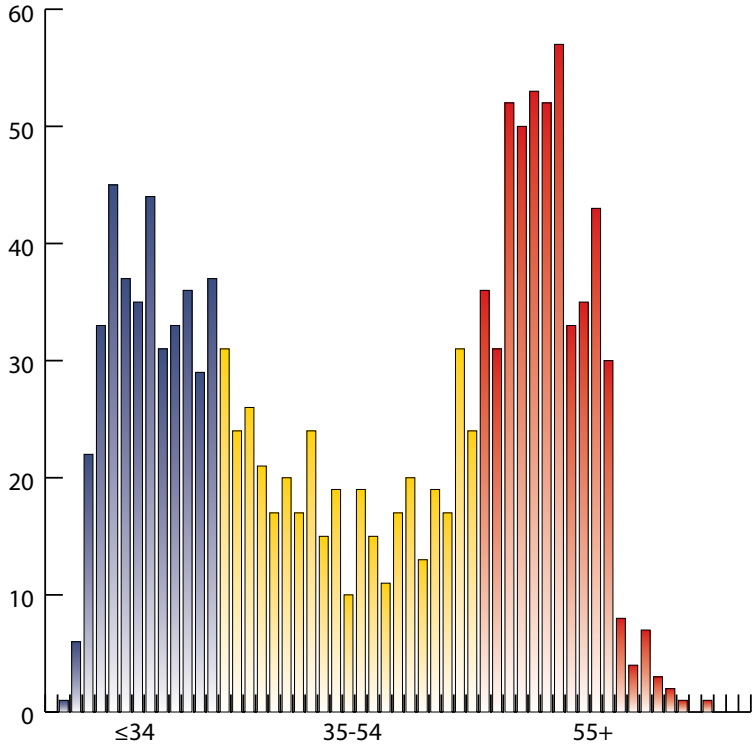


Table 3-3a: **Public School Contracts by Districts' County and Contracted Individuals' Retention Status for Combined 2010/11 & 2011/12**

	Total		Retained		Leavers		
Table 3-3a: Total, All Occupations							
County	**N**	**Contract Wages**	**N**	**Contract Wages**	**N**	**Contract Wages**	**Exit Rate**
Total	**36,674**	**$42,452**	**31,806**	**$43,815**	**4,868**	**$33,547**	**13.3**
01-Albany County	1,623	$38,557	1,277	$41,338	346	$28,293	21.3
02-Big Horn County	1,024	$40,133	896	$41,443	128	$30,968	12.5
03-Campbell County	3,375	$44,316	2,929	$45,808	446	$34,516	13.2
04-Carbon County	1,199	$39,221	997	$40,801	202	$31,420	16.8
05-Converse County	1,073	$39,987	923	$41,020	150	$33,628	14
06-Crook County	543	$36,969	475	$38,202	68	$28,357	12.5
07-Fremont County	2,986	$43,215	2,527	$44,277	459	$37,369	15.4
08-Goshen County	864	$40,817	702	$41,889	162	$36,172	18.8
09-Hot Springs County	376	$35,728	285	$37,508	91	$30,153	24.2
10-Johnson County	609	$39,841	534	$41,338	75	$29,188	12.3
11-Laramie County	4,945	$47,118	4,484	$47,854	461	$39,953	9.3
12-Lincoln County	1,316	$39,673	1,178	$41,194	138	$26,690	10.5
13-Natrona County	4,487	$44,241	4,061	$44,892	426	$38,033	9.5
14-Niobrara County	238	$38,768	218	$39,768	20	$27,860	8.4
15-Park County	1,690	$42,021	1,506	$43,448	184	$30,338	10.9
16-Platte County	739	$34,407	609	$35,721	130	$28,250	17.6
17-Sheridan County	1,782	$42,392	1,534	$44,378	248	$30,112	13.9
18-Sublette County	707	$43,331	570	$46,321	137	$30,889	19.4
19-Sweetwater County	3,123	$40,993	2,691	$42,473	432	$31,772	13.8
20-Teton County	947	$52,021	785	$53,423	162	$45,227	17.1
21-Uinta County	1,812	$39,739	1,582	$41,043	230	$30,764	12.7
22-Washakie County	696	$37,710	600	$39,683	96	$25,382	13.8
23-Weston County	520	$39,513	443	$40,706	77	$32,649	14.8
Table 3-3b: Teachers[a]							
Total	**14,853**	**$57,686**	**13,464**	**$57,964**	**1,389**	**$54,989**	**9.4**
01-Albany County	700	$51,940	590	$53,139	110	$45,508	15.7
02-Big Horn County	430	$54,566	387	$54,943	43	$51,169	10
03-Campbell County	1,298	$61,795	1,193	$61,684	105	$63,058	8.1
04-Carbon County	489	$54,505	423	$54,562	66	$54,140	13.5
05-Converse County	446	$55,271	403	$55,498	43	$53,144	9.6
06-Crook County	212	$52,972	192	$53,400	20	$48,865	9.4
07-Fremont County	1,161	$55,599	1,028	$55,850	133	$53,657	11.5
08-Goshen County	342	$57,675	295	$58,653	47	$51,539	13.7
09-Hot Springs County	129	$52,968	99	$53,898	30	$49,900	23.3
10-Johnson County	251	$55,066	226	$55,222	25	$53,656	10
11-Laramie County	2,206	$60,661	2,058	$60,781	148	$59,001	6.7
12-Lincoln County	492	$60,092	462	$60,311	30	$56,718	6.1
13-Natrona County	1,767	$56,983	1,648	$57,086	119	$55,558	6.7
14-Niobrara County	126	$46,576	119	$47,042	7	$38,646	5.6
15-Park County	646	$59,679	604	$59,945	42	$55,860	6.5
16-Platte County	288	$52,133	250	$51,831	38	$54,120	13.2
17-Sheridan County	756	$58,949	693	$59,063	63	$57,695	8.3
18-Sublette County	279	$59,308	241	$59,615	38	$57,360	13.6
19-Sweetwater County	1,202	$58,568	1,090	$58,588	112	$58,374	9.3
20-Teton County	435	$64,179	385	$64,613	50	$60,833	11.5
21-Uinta County	735	$55,262	663	$55,595	72	$52,199	9.8
22-Washakie County	254	$57,322	229	$58,060	25	$50,561	9.8
23-Weston County	209	$53,592	186	$53,848	23	$51,529	11

[a]Teachers = All Primary, Secondary, and Special Education Teachers (SOC 25-2000).

34 and younger, who left public school to work in natural resources and mining and would appear in the yello shaded cells of Table 3-4a. We know Pat was a 34-year-old and left employment in a public school in 2010/11, and in 2011/12 Pat was working in the natural resources and mining industry. We also know Pat was a teacher based upon his or her SOC code (25-2031) while contracted with Natrona County School District. Therefore, Pat would be captured as one of the five individuals in the teacher panel of **Table 3-4b** (see page 49) as well.

In Table 3-4, the largest destination state and industry of both all occupations (1,521) and teachers (606) is the same industry they left: public schools in Wyoming. Recall that the definition of a leaver is predicated on the fact that the individual no longer contracts with the same school district. Therefore the destination of choice for individuals leaving a contract with a public school is another public school. At this point, we do not know the occupation of the new job. The second largest destination in Table

(Text continued on page 50)

Table 3-4a: **Public School Contracted Individuals in All Occupations who Leave District Contracts by Destination State and Industry for Combined 2010/11 & 2011/12**

	Total			≤34			35-54			55+		
		Average Wage			Average Wage			Average Wage			Average Wage	
Destination	N	Contract	Destination	N	Contract	Destination	N	Contract	Destination	N	Contract	Destination
Total	**4,868**	**$33,547**	**$27,422**	**1,449**	**$26,731**	**$28,166**	**1,815**	**$30,758**	**$31,017**	**1,604**	**$42,861**	**$20,544**
Wyoming	**2,924**	**$32,090**	**$26,863**	**959**	**$26,580**	**$28,109**	**1,181**	**$29,904**	**$30,641**	**784**	**$42,123**	**$19,648**
Nat. Res. & Mining (11, 21)	91	$19,554	$51,601	35	$18,119	$55,716	43	$15,193	$54,171	13	$37,842	$32,024
Construction (23)	48	$25,942	$27,196	19	$22,710	$27,269	22	$25,155	$28,339	7	$37,187	$23,410
Manufacturing (31, 32, 33)	37	$18,941	$38,963	18	$17,964	$40,176	15	$16,482	$40,925		$32,560	$26,146
Wholesale Trade, Trans., & Util. (22, 42, 48, 49)	83	$17,409	$33,684	25	$14,564	$36,330	41	$19,871	$35,860	17	$15,656	$24,548
Retail Trade (44, 45)	113	$21,235	$20,420	37	$16,532	$20,278	53	$18,441	$21,885	23	$35,237	$17,271
Information (51)	25	$21,461	$24,874	9	$16,291	$30,087	9	$18,610	$30,986	7	$31,773	$10,312
Financial Activities (52, 53)	65	$17,693	$25,863	27	$14,024	$25,947	30	$15,982	$29,841	8	$36,489	$10,665
Prof. & Business Services (54, 55, 56)	111	$26,601	$21,738	31	$18,400	$26,166	52	$20,944	$23,767	28	$46,186	$13,068
Public Schools, Ed. Services (6111-3)	1,521	$38,775	$23,897	455	$33,027	$26,155	545	$37,399	$28,250	521	$45,234	$17,371
Ed. Services (61)	126	$33,731	$29,604	49	$33,125	$33,454	51	$32,830	$32,367	26	$36,640	$16,928
Health Care & Social Assist. (62)	363	$26,421	$30,261	130	$20,880	$28,556	171	$26,137	$31,418	62	$38,822	$30,648
Leisure & Hospitality (71, 72)	112	$21,720	$15,855	47	$22,493	$14,790	46	$20,390	$17,504	19	$23,025	$14,501
Other Svcs. Exc. Public Admin. (81)	61	$26,829	$25,685	18	$19,662	$19,644	27	$30,352	$32,850	16	$28,946	$20,389
Public Admin. (92)	167	$28,261	$41,179	59	$21,248	$34,302	75	$27,138	$46,193	33	$43,349	$42,081
Nonclassified (99)		$15,042	$4,500					$15,042	$4,500			
Other States	**400**	**$37,668**	**$31,504**	**169**	**$32,538**	**$28,488**	**181**	**$39,254**	**$33,466**	**50**	**$49,267**	**$34,592**
Nat. Res. & Mining (11, 21)	6	$15,337	$45,922		$13,225	$53,276		$23,860	$45,405		$15,264	$17,024
Construction (23)	7	$40,320	$36,158		$30,008	$27,338		$54,069	$47,917			
Manufacturing (31, 32, 33)	6	$17,905	$34,701		$13,997	$29,441		$12,673	$30,224		$40,090	$59,434
Wholesale Trade, Trans., & Util. (22, 42, 48, 49)	14	$19,733	$29,024		$8,064	$15,788	10	$17,816	$28,853		$30,013	$34,006
Retail Trade (44, 45)	19	$22,514	$21,498	6	$18,512	$19,660	9	$15,354	$27,727		$44,626	$10,240
Information (51)		$52,675	$54,865					$52,675	$54,865			
Financial Activities (52, 53)	10	$26,410	$56,311		$26,067	$8,876	6	$26,414	$57,290		$27,411	$192,744
Prof. & Business Services (54, 55, 56)	19	$34,837	$33,071	11	$31,600	$32,467	6	$17,706	$15,663		$104,036	$88,613
Public Schools, Ed. Services (6111-3)	121	$46,190	$33,437	50	$41,659	$32,188	55	$49,193	$35,532	16	$50,030	$30,141
Ed. Services (61)	101	$44,769	$36,145	44	$35,382	$31,755	45	$49,594	$40,506	12	$61,097	$35,888
Health Care & Social Assist. (62)	42	$29,170	$23,619	19	$24,658	$21,802	17	$28,682	$23,880	6	$44,836	$28,636
Leisure & Hospitality (71, 72)	26	$28,691	$16,293	11	$27,629	$12,662	14	$30,626	$20,056		$13,294	$3,544
Other Svcs. Exc. Public Admin. (81)	12	$20,301	$16,406	7	$16,957	$18,716		$27,820	$11,730		$13,636	$18,949
Public Admin. (92)	14	$32,401	$30,599	6	$34,700	$32,496	6	$28,501	$33,403		$37,203	$16,496
Nonclassified (99)		$71,103	$11,160					$71,103	$11,160			
Unknown	**1,544**	**$35,240**		**321**	**$24,127**		**453**	**$29,590**		**770**	**$43,196**	

Blank cells indicate data suppression due to confidentiality (a count of less than 5).

[a]Teachers = All Primary, Secondary, and Special Education Teachers (SOC 25-2000).

Table 3-4b: **Public School Contracted for All Teachers who Leave District Contracts by Destination State and Industry for Combined 2010/11 & 2011/12**

	Total			≤34			35-54			55+		
		Average Wage			Average Wage			Average Wage			Average Wage	
Destination	N	Contract	Destination	N	Contract	Destination	N	Contract	Destination	N	Contract	Destination
Total	**1,389**	**$54,990**	**$31,173**	**461**	**$46,946**	**$33,749**	**414**	**$53,856**	**$36,252**	**514**	**$63,117**	**$21,210**
Wyoming	**825**	**$53,675**	**$31,113**	**308**	**$46,741**	**$34,459**	**269**	**$53,437**	**$36,743**	**248**	**$62,544**	**$20,849**
Nat. Res. & Mining (11, 21)	13	$49,159	$46,586	5	$38,173	$45,296		$43,451	$53,619	5	$63,570	$43,657
Construction (23)	7	$55,597	$19,546		$47,684	$28,357		$52,251	$19,823		$70,814	$6,051
Manufacturing (31, 32, 33)		$69,463	$26,218					$58,695	$33,760		$80,230	$18,675
Wholesale Trade, Trans., & Util. (22, 42, 48, 49)	6	$52,199	$31,586		$52,188	$34,867		$57,906	$39,499		$35,104	$1,288
Retail Trade (44, 45)	13	$52,810	$22,321		$41,386	$33,963		$48,921	$28,710	6	$62,372	$11,364
Information (51)		$53,625	$25,696					$53,625	$25,696			
Financial Activities (52, 53)		$55,030	$13,405		$37,389	$4,424		$45,400	$30,397		$68,666	$9,400
Prof. & Business Services (54, 55, 56)	15	$57,172	$20,334		$44,947	$34,105	5	$55,908	$25,604	7	$63,315	$10,668
Public Schools, Ed. Services (6111-3)	606	$54,525	$31,363	221	$47,424	$35,836	189	$54,238	$36,185	196	$62,806	$21,671
Ed. Services (61)	56	$46,792	$30,612	28	$41,326	$32,200	20	$47,292	$34,126	8	$64,674	$16,268
Health Care & Social Assist. (62)	51	$47,266	$33,188	17	$42,944	$33,444	25	$50,247	$37,110	9	$47,152	$21,809
Leisure & Hospitality (71, 72)	10	$56,500	$21,714	8	$55,540	$16,549		$64,649	$74,188		$56,023	$10,559
Other Svcs. Exc. Public Admin. (81)	15	$54,313	$28,451	5	$45,480	$18,389	7	$51,409	$42,724		$75,810	$11,918
Public Admin. (92)	25	$59,088	$37,061	11	$52,755	$34,122	7	$64,399	$58,975	7	$63,728	$19,763
Nonclassified (99)												
Other States	**151**	**$50,968**	**$31,501**	**80**	**$46,751**	**$31,017**	**54**	**$53,751**	**$33,804**	**17**	**$61,972**	**$26,466**
Nat. Res. & Mining (11, 21)												
Construction (23)		$44,900	$1,260		$44,900	$1,260	0					
Manufacturing (31, 32, 33)												
Wholesale Trade, Trans., & Util. (22, 42, 48, 49)		$60,783	$28,926					$57,700	$9,482		$63,865	$48,370
Retail Trade (44, 45)		$52,980	$11,619		$48,327	$8,162		$39,500	$24,924		$62,047	$6,694
Information (51)		$48,949	$91,392					$48,949	$91,392			
Financial Activities (52, 53)		$46,838	$8,462		$46,838	$8,462	0					
Prof. & Business Services (54, 55, 56)	5	$39,419	$30,878		$38,154	$33,724		$44,479	$19,496			
Public Schools, Ed. Services (6111-3)	66	$51,733	$30,885	32	$47,607	$33,344	27	$53,845	$32,520	7	$62,447	$13,335
Ed. Services (61)	45	$50,772	$39,095	28	$46,862	$35,145	12	$55,670	$42,812	5	$60,916	$52,292
Health Care & Social Assist. (62)	12	$48,429	$24,302	7	$41,831	$27,104		$54,757	$22,183		$69,305	$13,167
Leisure & Hospitality (71, 72)	6	$53,539	$15,705		$52,433	$3,494		$54,645	$27,916			
Other Svcs. Exc. Public Admin. (81)		$51,891	$10,589		$57,466	$16,349		$46,316	$4,828			
Public Admin. (92)	6	$53,263	$32,028		$52,115	$30,462		$53,598	$37,016		$54,550	$20,196
Nonclassified (99)												
Unknown	**413**	**$59,087**		**73**	**$48,027**		**91**	**$55,158**		**249**	**$63,765**	

Blank cells indicate data suppression due to confidentiality (a count of less than 5).

[a]Teachers = All Primary, Secondary, and Special Education Teachers (SOC 25-2000).

Chapter 3

(Text continued from page 47)

3-4a is designated as unknown, with 1,544 individuals in all occupations and 413 teachers whose whereabouts are unaccounted for. The individuals could have withdrawn from the labor market due to retirement, to care for children, or moved to a state in which R&P does not capture wages. The third most common destination is health care and social assistance, with 363 individuals in the all occupations category and 51 teachers choosing it as their destination industry. Given that R&P has similar data on all licensed health care professionals, we could track the career path of these individuals to get a better understanding of those who leave public school employment.

To this point average contract wages are discussed, and they represent the wages in the base year of the analysis. In other words, they are the average of the wages the individual public school employees who were contracted at by the school district. There is currently a debate (NISS, 2013) as to which is more appropriate to use: contract wages the actual compensation as collected by Wage Records. The second wage item introduced in Tables 3-4a & 3-4b is the destination average wage, which is calculated from the wages collected by Wage Records.

Tables 3-4a and 3-4b also demonstrate that the individuals who left public schools with a destination industry of public schools always had lower subsequent wages. It is hypothesized that these may be teachers that left a contracted position for some personal reason or retirement and are working on a part-time basis as substitutes or have returned to employment after an absence but not during the contracting period. Further investigation using the Professional Teachers Standards Board (PTSB) data is warranted. Please see Appendix A and Appendix B for detailed analyses of exit behaviors and wage progression for district staff.

The remainder of Table 3-4a shows that the all occupations group typically loses wages during the transition, but a large number of the transitions resulted in wage gains. For example, the 91 individuals who went into natural resources & mining went from a contracted wage $19,554 per year to a destination wage of $51,601 per year, and the 167 individuals with a destination of public administration in Wyoming went from $28,261 per year to $41,179. Individuals in the all occupations group gained wages in 13 of the 30 possible transitions.

As demonstrated in Chapter 1, teachers in Wyoming are compensated relatively well in comparison to teachers in surrounding states. This holds true when looking at the teachers who left public schools in Wyoming and are working in public schools in one of the surrounding states. Table 3-4b shows that teachers leaving Wyoming to teach in another state went from $51,733 per year to $30,885 per year on average. Table 3-4 also shows that on average, teachers always lost wages when leaving contracts with Wyoming's public schools, no matter their destination industry.

Lastly, Table 3-5 (see http://doe.state.wy.us/LMI/education_costs/Table_3-5_2013.pdf) looks at all of the major three-digit SOC occupational groupings by the destination industry of the leavers and wages across the school

years 2008/09 to 2011/12. It shows that there is substantial variation in the occupations of those who gain wages and those who lose wages. For example, Table 3-5 confirms that on average, teachers lose wages during the transition, but there are quite a few other occupational groups (in particular those requiring less human capital investment) that gain during the transition.

As stated in the introduction, there are numerous reasons for individuals to change employers. The tables introduced here suggest that in most cases, the reason that teachers leave public schools is not for financial gain, but may be attributed to other underlying motivations and circumstances.

Future research using administrative databases is warranted to explore other motivations and circumstantial factors influencing individuals to take a pay cut and leave employment with a school district is warranted.

R&P captures data from the Wyoming Department of Health on births, deaths, divorces, and marriages. All or any of these events could impact career decisions. Births data could help determine whether or not teachers who have young children are more likely to leave full-time employment for part-time. Marriages may attach a teacher to a spouse who may not be able to find local career opportunities, and divorces may make the teacher want to leave one geographical area for another.

In Chapter 2, R&P presented commuting data to show how many teachers and other occupations commuted across county and state lines. The commuting data are created at the SSN, year, quarter, and employer levels, and could be used to see if individuals change districts or industries while trying to shorten their commute travel in some combination with family circumstances mentioned before.

Additionally, R&P has started research using administrative databases to create household (husband, wife, and children) level data, which would be of interest to explore the relationship between leavers and their partners. Perhaps, as suggested earlier, the spouse of a school district employee may not be able to find suitable employment in the same geographic location as their public school spouse. Other factors such as economic conditions, employer downsizing, or business closure are likely to impact the family dynamic and choices on whether to stay with the same employer.

Research & Planning
Wyoming DWS

Chapter 4: Impending Retirement Trends

by: David Bullard, Senior Economist

School districts need to plan to replace teachers who retire. Fortunately, the retirement process is generally well understood and, for the most part, predictable. This chapter will focus on those teachers age 55 and older, because they are the most likely to retire in the next few years,

Current Age Distribution of Wyoming Teachers

Table 4-1 (see page 54) shows the age distribution of Wyoming teachers during the 2012/13 school year. Across all types of teachers, more than one-fifth (21.9%) are in the 55 and older category. However, the age distribution varies across the different types of teachers. The oldest group of teachers is special education teachers, middle school (SOC 25-2053), with 28.7% in the 55 and older category and 20.8% in the 25-34 year old category.

Elementary school teachers, except special education (SOC 25-2021) is the largest group of teachers in the state. Similar to the pattern for all teachers, more than one-fifth (21.6%) are in the 55 and older category. However, a much larger group (27.5%) was age 25-34. It is possible that the large group of teachers in the 25-34 age range is related to recent increases in elementary school enrollment and also may reflect legislative action to decrease class sizes.

Secondary school teachers, except special and vocational education (SOC 25-2031) are the second largest group of teachers. Their age distribution is slightly skewed toward the younger age groups, with more than one-quarter (26.3%) in the 25-34 category, and 19.8% in the 55 and older category.

Large portions of special education teachers are approaching retirement age. One-quarter or more of special education teachers (at all school levels; SOC 25-2041, 25-2053, and 25-2054) are found in the 55 and older age category. Thus, it appears that the most immediate replacement needs will be among special education teachers.

Retirement Eligibility

Every school district in Wyoming is covered by the Wyoming Retirement System (WRS; Loeb & Miller, 2006). Individuals who began working in WRS-covered employment before September 1, 2012, are eligible to retire at age 60, or earlier if they meet the rule of 85 (Wyoming Retirement System, 2013). Under the rule of 85, workers are eligible for a normal (unreduced) retirement benefit when their age plus their years of service equals 85. The level of retirement benefits is based on years of service and three-year highest average salary, so even teachers who are currently eligible for retirement can increase their retirement benefits by working longer.

Applying WRS eligibility requirements to the WDE 602 file reveals that in 2012, approximately one out of seven (1,040, or 13.7%) teachers in Wyoming was eligible for retirement. **Figure 4-1** (see page 55) shows that the number of teachers who become

(Text continued on page 55)

Table 4-1: **Age Distribution of Teachers in Public Schools in Wyoming, 2012/13 School Year**

	All Primary, Secondary, & Special Education Teachers (25-2000)		Kindergarten Teachers, Except Special Education (25-2012)		Elementary School Teachers, Except Special Education (25-2021)		Middle School Teachers, Except Special and Vocational Education (25-2022)		Vocational Education Teachers, Middle School (25-2023)		Secondary School Teachers, Except Special and Vocational Education (25-2031)		Vocational Education Teachers, Secondary School (25-2032)		Special Ed. Teachers, Preschool, K, and Elementary School (25-2041)		Special Education Teachers, Middle School (25-2053)		Special Education Teachers, Secondary School (25-2054)	
Age Group	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
20-24	207	2.8%	18	4.2%	88	4.1%	25	2.0%	ND	ND	44	2.3%	7	1.7%	10	2.7%	7	1.7%	7	1.9%
25-34	1,893	25.4%	143	33.0%	591	27.5%	336	26.5%	ND	ND	507	26.3%	65	15.4%	81	21.9%	86	20.8%	61	16.5%
35-44	1,854	24.9%	119	27.5%	500	23.3%	309	24.3%	18	24.7%	497	25.8%	107	25.4%	93	25.1%	102	24.6%	104	28.1%
45-54	1,857	24.9%	89	20.6%	505	23.5%	317	25.0%	22	30.1%	497	25.8%	136	32.2%	92	24.9%	100	24.2%	97	26.2%
55 and Older	1,632	21.9%	64	14.8%	464	21.6%	282	22.2%	18	24.7%	382	19.8%	107	25.4%	94	25.4%	119	28.7%	101	27.3%
Total	**7,443**	**100.0%**	**433**	**100.0%**	**2,148**	**100.0%**	**1,269**	**100.0%**	**73**	**100.0%**	**1,927**	**100.0%**	**422**	**100.0%**	**370**	**100.0%**	**414**	**100.0%**	**370**	**100.0%**

ND = non-discloseable due to confidentiality.

Source: Wyoming Department of Education Contract Files (WDE 602).

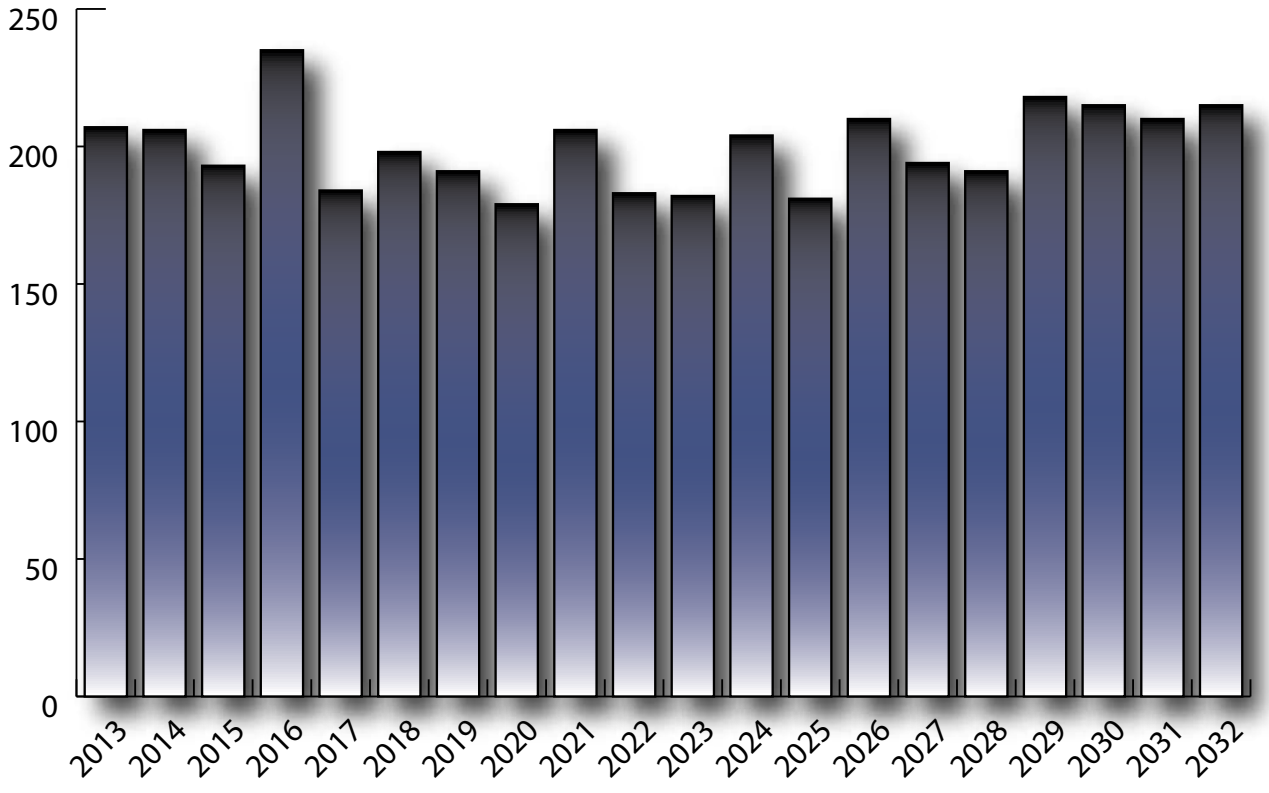
(Text continued from page 53)

eligible for retirement each year from 2013 to 2032 is quite stable, averaging 200 per year. According to this projection, the year in which the largest number of teachers become eligible is 2016 (235 teachers) and the year in which the smallest number become eligible is 2020 (179 teachers). From this perspective, the retirement eligibility process appears quite stable from year to year, without an obvious upward (or downward) trend.

The projections were developed by taking the current population of teachers and aging them year by year (increasing both their age and their years of service). This method assumes that all currently working teachers continue in that status and that no new teachers are hired. Of course, if all newly hired teachers began working in their 20s and had no prior experience, they would not become eligible for retirement during the projection period, and the results would not change.

It should be noted that many teachers do not retire immediately upon becoming eligible. This could be for several possible reasons. Some may gain satisfaction from working and prefer to delay retirement because they enjoy their work. Others may take note of the fact that their Wyoming Retirement System benefits are calculated

Figure 4-1: Number of Teachers Eligible for Retirement Based on 60 Years of Age or Experience + Age >= 85 from 2012 to 2032



Source: Wyoming Department of Education Contract File (WDE 602).

based on their years of service, and realize that by working longer their monthly retirement benefits will be larger. Some may work until age 62, when they first become eligible for (early) Social Security benefits. Yet others may delay their retirement until they are 65 and eligible for Medicare. Certain individuals may delay retirement as long as their health allows them to work.

Research has suggested that individuals who perceived that they "will have adequate financial resources during retirement" were more likely to retire (Adams & Beehr, 1998). Retirement benefits are usually considerably lower than one's salary, so this may affect when a teacher decides to retire. For example, teachers who work 30 years would receive retirement benefits replacing approximately two-thirds (65.6%) of their monthly salary. Thus, being eligible for retirement and being able to afford to retire may be two separate issues.

Another factor influencing the decision to retire is marital status. Adams & Beehr hypothesized that married individuals may be more likely to retire because of "positive expectations regarding the use of leisure time such as spending time with one's spouse" (1998). Additionally, there is some evidence that married people may be better prepared financially for retirement (Templer, Armstrong-Stassen, & Cattaneo, 2010).

Thus, while one cannot predict exactly when teachers may choose to retire, we expect approximately 200 teachers to become eligible each year for the next 20 years.

County-level Data

At the statewide level, more than one in five teachers (21.9%) was 55 or older during the 2011/2012 school year. However, **Table 4-2** shows that this figure varies widely across Wyoming's counties. In Sublette County, 10.7% of teachers were 55 or older,

Table 4-2: **Percentage of Teachers Age 55 and Older and Their Exit Rate in Public Schools in Wyoming, 2011/12 to 2012/13 School Years**

		Workers Age 55 and Older			
				Exits	
	Total Contract Employment, 2011/12	N	%	N	Exit Rate
Albany	346	82	23.7%	15	18.3%
Big Horn	217	57	26.3%	9	15.8%
Campbell	636	126	19.8%	30	23.8%
Carbon	247	72	29.1%	15	20.8%
Converse	225	43	19.1%	6	14.0%
Crook	107	30	28.0%	ND	ND
Fremont	589	165	28.0%	19	11.5%
Goshen	166	38	22.9%	7	18.4%
Hot Springs	61	13	21.3%	ND	ND
Johnson	128	15	11.7%	ND	ND
Laramie	1,113	218	19.6%	36	16.5%
Lincoln	247	49	19.8%	ND	ND
Natrona	882	137	15.5%	13	9.5%
Niobrara	66	13	19.7%	0	0.0%
Park	321	70	21.8%	5	7.1%
Platte	144	48	33.3%	21	43.8%
Sheridan	377	102	27.1%	17	16.7%
Sublette	140	15	10.7%	ND	ND
Sweetwater	614	154	25.1%	26	16.9%
Teton	213	36	16.9%	6	16.7%
Uinta	370	86	23.2%	15	17.4%
Washakie	126	32	25.4%	ND	ND
Weston	108	31	28.7%	6	19.4%
Wyoming	**7,443**	**1,632**	**21.9%**	**259**	**15.9%**

ND= non-disclosable due to confidentiality.
Source: Wyoming Department of Education Contract Files (WDE 602).

while in Platte County, fully one-third (33.3%) were in the same age group. Some other counties with relatively young teacher workforces were Johnson (11.7% age 55 or older), Natrona (15.5%), and Teton (16.9%). The counties with the highest percentage of teachers in the oldest age group were all located in rural areas of the state (Platte 33.3%; Carbon 29.1%; Weston 28.7%; Crook 28.0%; and Fremont 28.0%).

Exit rates for teachers 55 and older also varied across the counties. In several counties, exit rates were much lower than the statewide average of 15.9%. In Niobrara County, for example, there were zero exits among this age group, Park County's exit rate was 7.1%, and Natrona County's was 9.5%.

At the other end of the spectrum, Platte County had more than four out of 10 (43.8%) teachers age 55 and older leave their employment. Other counties with high exit rates included Campbell (23.8%), Carbon (20.8%), Weston (19.4%), and Goshen (18.4%) counties.

It is noteworthy that Carbon, Weston, and Platte counties were among those with both the highest percentage of workers 55 and older and the highest exit rates. Those counties are clearly seeing a large impact from retiring teachers.

In summary, more than one-seventh of all teachers in Wyoming are currently eligible to retire and each year an additional 200 become eligible. There are large differences across counties and types of teachers, with many special education teachers approaching retirement. Although it is impossible to predict exactly when a teacher will choose to retire, recent data suggest that, on average, 15.9% of teachers age 55 and older exit each year.

Note: Individuals who began working in WRS-covered employment on or after September 1, 2012 are eligible for a normal retirement benefit at age 65, and are also eligible for early retirement based on the rule of 85.

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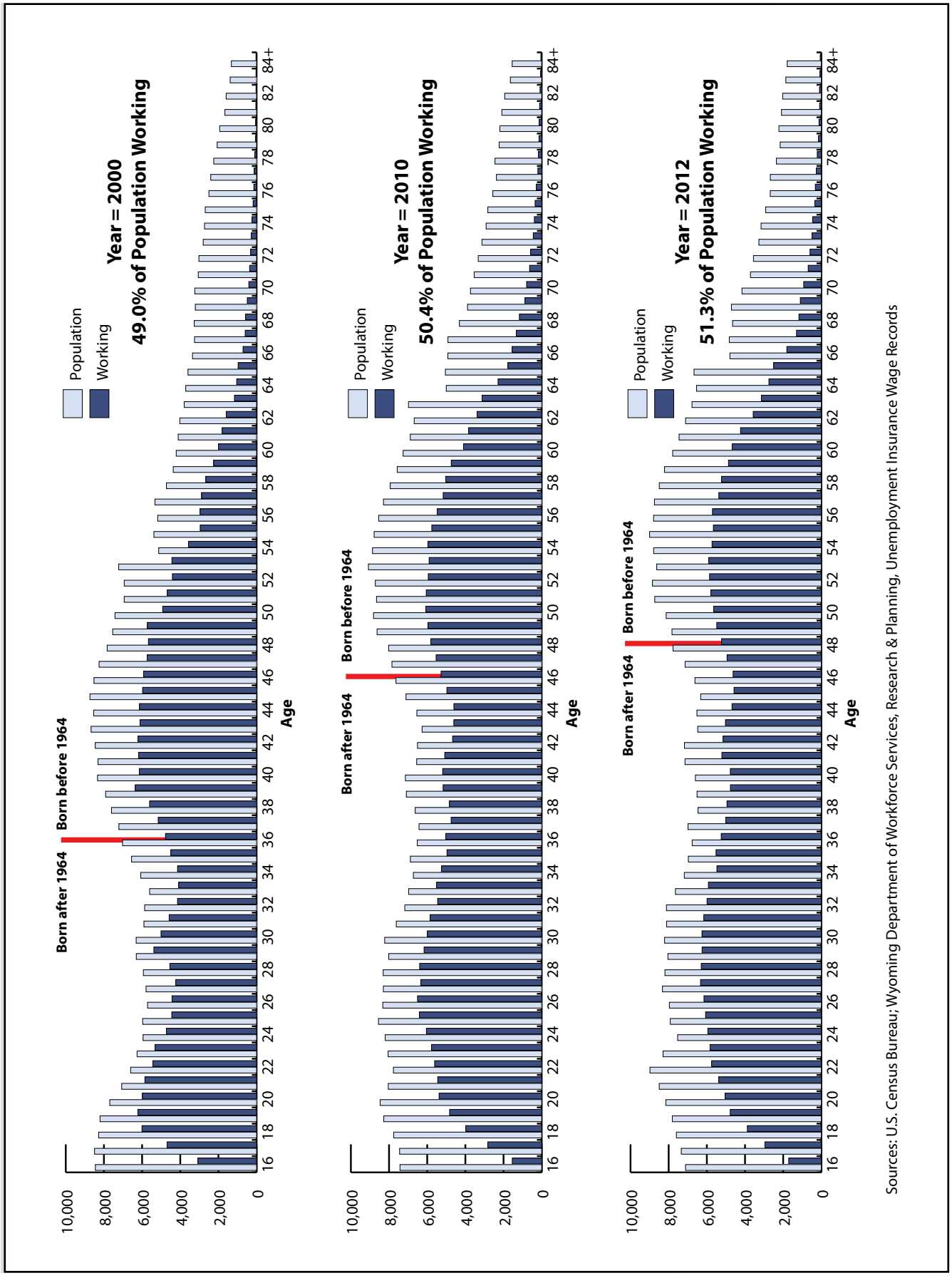


Sources: U.S. Census Bureau; Wyoming Department of Workforce Services, Research & Planning, Unemployment Insurance Wage Records

Figure 5-1: **Estimates of the Resident Population and Working Population by Single Years of Age in Wyoming for Selected Years (Ages 16+)**

Chapter 5: Industry Educational Attainment, Aging Professionals, and Teacher Supply

by: Lisa Knapp, Senior Research Analyst

As detailed in Chapter 4, one in five Wyoming teachers is age 55 and older and, in 2012, 13.7% of teachers were eligible for retirement, a proportion that will continue to grow. The purpose of this article is to give an overview of demographic and educational trends that could affect the replacement of these teachers. This chapter focuses mainly on teaching professions and the educational industry, although comparisons to similar occupations and industries, as well as trends in surrounding states, will be made.

Replacement need refers to the need to replace workers who have exited the labor force for a variety of reasons, including a change in family status, such as marriage, divorce, or child birth, a return to school, and retirement. As this chapter will show, the effects of replacement need due to retirement are of particular concern in Wyoming. The baby boom generation (people born between 1946 and 1964) is rapidly reaching retirement age (Vincent and Velkoff, 2010). The oldest members of this generation turned age 65, a typical age for retirement, in 2011, and, as of July 1, 2012 (the most recent data available), this group was estimated to constitute a quarter of the state's population (25.9%). **Figure 5-1** (see page 58) contains graphs of Wyoming's population and employed workforce by age for 2000, 2010, and 2012. This figure clearly shows that the proportion of older workers compared to the general population continues to increase over time.

Although there were more teachers during the 2012/13 school year (7,443 in 2012/13 compared to 7,345 in 2011/12), more than one in five of them (21.9%) were age 55 and older (WDE 602 Report). A lack of access to Retirement Board files prevented development of an accurate projection of replacement need as a function of retirement. However, a simple model illustrates the effect of retirement for the segment of teachers of record during the 2012/13 school year for those 55 and older over the next 10 years until the youngest of this group turn 65: 7,443 teachers x .219 (percent of the population) = 1,632/10, or 163 people retiring per year on average (see Table 4-2, page 56; workers age 55 and older = 1,632, or 21.9%). This is higher than the rate calculated during the 2011/12 school year when the formula estimated approximately 160 retirements per year. An alternate approach was used in Chapter 4 (see page 53) with similar findings. That method was based on Wyoming Retirement System eligibility requirements and estimated that the number of retirements may average 200 per year.

This chapter utilizes widely available public data sources, such as the U.S. Census Bureau's American Community Survey (ACS) and the national Center for Educational Statistics' Integrated Postsecondary Education Data System (IPEDS) to illustrate trends in age, occupation, and education amongst professionals in the state and nation. The IPEDS database contains information such as enrollment and completion rates by year, degree program, and demographics for postsecondary education institutions in the U.S. More information about this database can be found at http://nces.ed.gov/ipeds/. The ACS is a sample based survey sent to households

and then statistically weighted to represent the entire population. This survey has been collected since 2005 when it replaced the decennial census "long form." Since 2011, this survey has been sent to approximately 295,000 households a month nationally, and provides timely annual estimates of population, housing, social, and economic characteristics of the population (U.S. Department of Commerce). The data used in these analyses are a three-year average of survey responses collected between January 1, 2009, and December 31, 2011, in Wyoming and the U.S. Because more responses are collected in three years compared to one year, the three-year estimate data set is more reliable and better for analyzing areas with smaller populations such as Wyoming.

In general, the analysis of data from these sources show that a large proportion of employees age 55 and older work in jobs that require greater levels of education, and industries that have occupations requiring higher levels of education also employ larger proportions of older workers. In contrast, at least for education jobs, the number of education-related degree completers in Wyoming is very small compared to other states, although there was a significant increase in the number of these graduates in 2012 compared to 2011 (20.9% increase, see **Table 5-3** on page 66). Even though there is not a large number of people graduating to fill vacant teaching jobs in Wyoming, there are a comparatively large number of these graduates in the states surrounding Wyoming, such as Colorado, Utah, and Nebraska. This could provide a possible pool to recruit although, as shown in Appendix A, it is not necessarily just the need to replace a teacher with a teacher. According to Appendix A, teachers in Wyoming are required to have endorsements that indicate what grade levels and subjects they are qualified to teach. Because of this, there may need to be a focus on the degree programs and specific qualifications of new graduates. Also, as this chapter will discuss, there are other issues that may create problems for the supply system and recruitment efforts of teachers, including the workforce demands of other occupations and industries heavily populated with aging, highly educated workers.

Replacement Need by Occupation

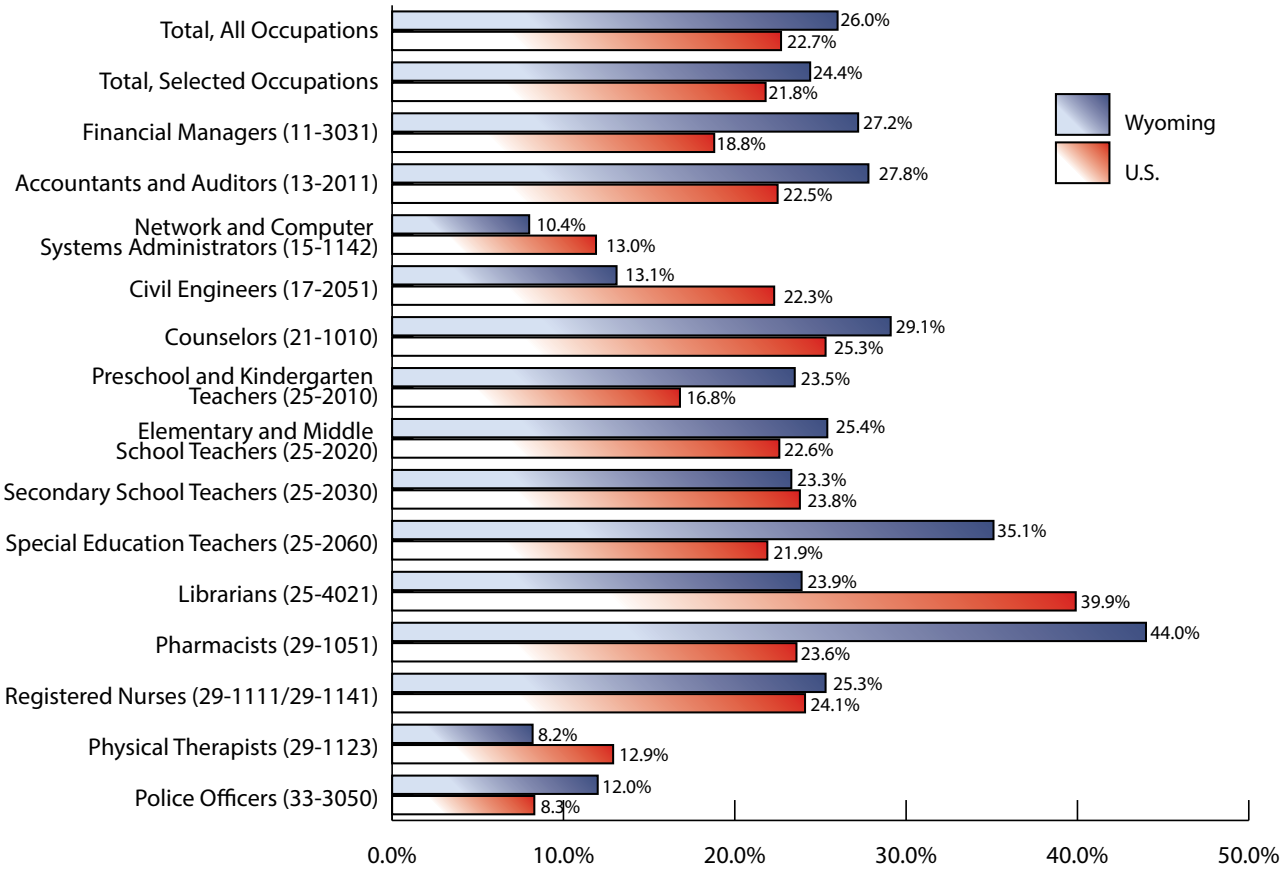
Figure 5-2 (see page 61) shows the percentage of employed workers age 55 and older for selected occupations in Wyoming and the U.S. based on estimates from the ACS program. Occupations were chosen based on similar education requirements as teaching occupations; a minimum of a bachelor's degree was generally required for all occupations, excluding registered nurses and police officers. The ACS is based on a sample so there are some issues with missing data. In particular, we know the number of jobs worked in any occupation based on the U.S. Bureau of Labor Statistics' (BLS) Occupational Employment Survey program. However, if no respondent in the ACS worked in a particular occupation, that occupation would not be available for estimation. The occupations in this analysis were selected because they comprised a sufficient proportion of the sample to make reliable estimates for comparison.

In all occupations, there was a greater proportion of workers age 55 and older in Wyoming (26.0%) than in the U.S. (22.7%). There was a greater percentage of workers age 55 and older in Wyoming than in the U.S. in nine of the selected

comparison occupations, as well. For example, there were more of these older workers among elementary and middle school teachers (25.4% compared to 22.6%), special education teachers (35.1% compared to 21.9%), pharmacists (44.0% compared to 23.6%), and accountants and auditors (27.8% compared to 22.5%). There were similar proportions of secondary school teachers age 55 and older in both Wyoming and the U.S. (23.3% compared to 23.8%), and there were greater proportions of older workers at the national level among civil engineers (22.3% compared to 13.1%), network and computer systems administrators (13.0% compared to 10.4%), and physical therapists (12.9% compared to 8.2%).

It should be noted that, while the data for the U.S. stayed relatively steady between 2010 and 2011, there were some very large percentage differences in the Wyoming data for these two years. For instance, the data showed 8.1% of preschool and kindergarten teachers were age 55 and older in 2010 compared to 23.5% in 2011. In 2010 the proportion of librarians age 55 and older was 49.5% compared to 23.9% in 2011. These very large differences are most likely due to a comparatively small sample size. Statistically, the larger a sample size is, the more stable the estimate will be.

Figure 5-2: Percentage of Employed Workers Age 55 and Older for Selected Occupations in Wyoming and the U.S., 2011



Source: American Community Survey, U.S. Census Bureau.

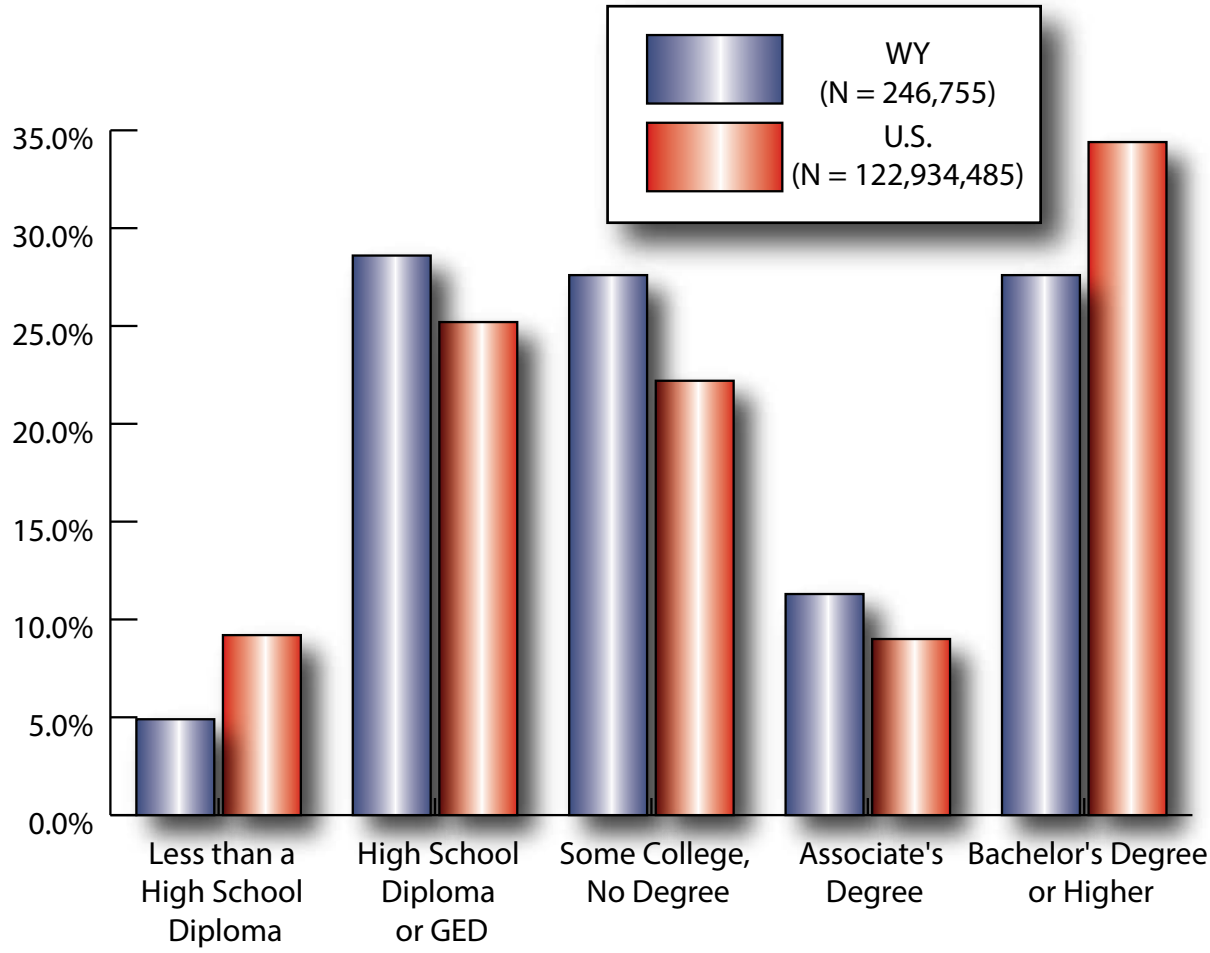
The preceding data suggest that, assuming other professional occupations show similar trends to these comparison occupations, those working in professional occupations are aging out of the workforce faster in Wyoming than in the nation as a whole. This creates a demand for educated workers, which places stress on educational institutions that create supply. Employers must recruit across larger geographies to replace retiring workers in several areas of the workforce. These factors increase competition for workers that could be filling vacant teaching positions.

Replacement Need by Industry and Education

Table 5-1 (see page 63) shows the estimated number and proportion of workers age 25 and older by industry and highest level of education attained for both Wyoming and the U.S. **Figure 5-3** more clearly illustrates the differences in educational attainment between Wyoming

(Text continued on page 64)

Figure 5-3: Education Level for Wyoming and the U.S. Employed Workers Age 25+, 2011 (3-Year Average)



Source: U.S. Census Bureau, American Community Survey (2011 3-Year Average)

Table 5-1: **Education Level by Industry, Wyoming and U.S. Workers Age 25 and Older, 2011 (3-Year Average)**

Industry	Less Than High School Diploma		High School Diploma or GED		Some College, No Degree		Associate's Degree		Bachelor's Degree or Higher		Total	
	N	Row %	N	Row %	N	Row %	N	Row %	N	Row %	N	Row %
Wyoming												
Natural Resources & Mining	1,846	6.0	11,553	37.7	8,748	28.6	3,109	10.2	5,351	17.5	30,607	100.0
Construction	1,624	8.4	8,786	45.7	4,958	25.8	1,625	8.5	2,235	11.6	19,228	100.0
Manufacturing	706	5.6	3,997	31.9	3,944	31.4	1,693	13.5	2,208	17.6	12,548	100.0
Wholesale Trade, Transportation, & Utilities	872	4.1	7,684	35.8	8,000	37.2	2,325	10.8	2,611	12.1	21,492	100.0
Retail Trade	1,894	8.0	8,303	35.1	7,668	32.4	2,557	10.8	3,238	13.7	23,660	100.0
Information	171	4.4	691	17.8	1,032	26.5	390	10.0	1,604	41.3	3,888	100.0
Financial Activities	137	1.2	3,091	28.1	3,234	29.4	1,105	10.1	3,427	31.2	10,994	100.0
Professional & Business Services	726	4.4	3,344	20.4	3,257	19.9	1,545	9.4	7,518	45.9	16,390	100.0
Educational Services	441	1.5	3,400	11.6	4,287	14.6	1,971	6.7	19,313	65.7	29,412	100.0
Health Care & Social Services	877	2.9	6,939	23.2	7,903	26.4	5,782	19.3	8,429	28.2	29,930	100.0
Leisure & Hospitality	1,990	11.4	6,030	34.5	5,207	29.8	1,151	6.6	3,097	17.7	17,475	100.0
Other Services, Except Public Administration	699	6.1	3,984	34.5	3,390	29.3	1,131	9.8	2,347	20.3	11,551	100.0
Public Administration	189	1.0	2,431	13.0	6,133	32.9	3,262	17.5	6,616	35.5	18,631	100.0
Unknown	0	0.0	417	43.9	229	24.1	126	13.3	177	18.7	949	100.0
Total	**12,172**	**4.9**	**70,650**	**28.6**	**67,990**	**27.6**	**27,772**	**11.3**	**68,171**	**27.6**	**246,755**	**100.0**
U.S.												
Natural Resources & Mining	612,342	26.3	783,269	33.6	405,191	17.4	142,623	6.1	387,223	16.6	2,330,648	100.0
Construction	1,646,272	20.3	3,120,350	38.5	1,820,640	22.4	525,030	6.5	1,002,580	12.4	8,114,872	100.0
Manufacturing	1,607,717	12.1	4,350,274	32.6	2,812,731	21.1	1,070,051	8.0	3,500,526	26.2	13,341,299	100.0
Wholesale Trade, Transportation, & Utilities	977,368	9.6	3,411,322	33.3	2,702,838	26.4	866,100	8.5	2,275,588	22.2	10,233,216	100.0
Retail Trade	1,188,250	10.1	4,064,268	34.5	3,112,527	26.5	984,346	8.4	2,416,236	20.5	11,765,627	100.0
Information	66,239	2.4	454,567	16.7	664,465	24.4	250,141	9.2	1,289,721	47.3	2,725,133	100.0
Financial Activities	249,094	2.9	1,602,166	18.4	2,159,998	24.8	774,718	8.9	3,912,551	45.0	8,698,527	100.0
Professional & Business Services	1,086,629	8.0	2,334,831	17.2	2,562,171	18.9	1,073,209	7.9	6,515,324	48.0	13,572,164	100.0
Educational Services	292,990	2.5	1,379,188	11.7	1,401,308	11.8	656,018	5.5	8,105,660	68.5	11,835,164	100.0
Health Care & Social Services	938,714	5.4	3,339,958	19.3	3,831,857	22.1	2,682,273	15.5	6,522,342	37.7	17,315,144	100.0
Leisure & Hospitality	1,540,885	18.1	2,605,200	30.6	2,047,625	24.0	613,657	7.2	1,716,723	20.1	8,524,090	100.0
Other Services, Except Public Administration	869,539	14.2	1,953,088	31.9	1,401,449	22.9	478,691	7.8	1,425,672	23.3	6,128,439	100.0
Public Administration	132,550	1.8	1,267,936	17.2	2,082,234	28.2	888,871	12.0	3,009,373	40.8	7,380,964	100.0
Unknown	101,432	10.5	304,147	31.4	243,637	25.1	79,144	8.2	240,838	24.8	969,198	100.0
Total	**11,310,021**	**9.2**	**30,970,564**	**25.2**	**27,248,671**	**22.2**	**11,084,872**	**9.0**	**42,320,357**	**34.4**	**122,934,485**	**100.0**

Source: U.S. Census Bureau, American Community Survey (2011 3-Year Average).

(Text continued from page 62)

and the U.S. for all workers combined. In the state, 28.6% of these workers had a high school diploma or GED, 27.6% had some college but no degree, and 27.6% had at least a bachelor's degree. In comparison, 25.2% of similar workers at the national level had a high school diploma or GED, 22.2% had some college but no degree, and 34.4% had at least a bachelor's degree. To summarize, workers in Wyoming tend to be less educated than at the national level, and those that are well educated tend to be concentrated in a few industries.

Although other tables in this report contain employment data specific to public schools, the data in tables 5-1 and 5-2 are categorized based on industrial classification (two-digit NAICS groups). This means that educational services includes all public school workers as well as those working in higher education institutions and will therefore show a greater number of workers.

As Table 5-1 shows, at the national level, the industries with the highest proportion of workers age 25 and older with at least a bachelor's degree include educational services (68.5%), professional and business services (48.0%), information (47.3%), and financial activities (45.0%). In Wyoming, the industries with the greatest proportion of workers age 25 and older with at least a bachelor's degree were similar, although the proportions were smaller. The industry with the highest proportion of these workers was educational services (65.7%), followed by professional and business services (45.9%), information (41.3%), and public administration (35.5%).

As shown in **Table 5-2**, similar industries also have higher proportions of female employees and workers age 55 and older. The proportion of female employees working in educational services during 2011 was 64.9% while the proportion of workers age 55 and older was 29.5%. The proportion of female employees working in information was 45.8% and in public administration it was 44.6%. The proportion of workers age 55 and older in these two industries was 21.0% and 25.2%, respectively. Complete demographics tables comparing gender, age, wages, and job tenure

Table 5-2: **Demographics of Wyoming Workers by Industry as a Percentage of Total Employment, 2011**

	Gender			
Industry	Female	Male	Nonresident[a]	Age 55 and Older
Natural Resources & Mining	10.7	78.0	3.4	15.2
Construction	8.2	66.9	24.9	12.2
Manufacturing	20.4	73.9	5.6	20.3
Wholesale Trade, Transportation, & Utilities	19.7	73.4	6.9	22.1
Retail Trade	49.2	42.3	8.6	16.9
Information	45.8	49.0	5.2	21.0
Financial Activities	58.9	36.4	4.7	22.6
Professional & Business Services	36.7	49.3	14.0	18.1
Educational Services	64.9	30.8	4.3	29.5
Health Care & Social Services	78.1	18.1	3.8	21.2
Leisure & Hospitality	43.9	34.2	21.9	8.5
Other Services, Except Public Administration	39.5	49.1	11.3	17.5
Public Administration	44.6	53.1	2.3	25.2
Unknown	44.5	51.3	4.2	22.0
Total	**39.8**	**48.8**	**11.4**	**18.0**

Source: Wyoming Wages by County, Industry, Age, & Gender, 2000-2012, Research & Planning, Wyoming Department of Workforce Services.

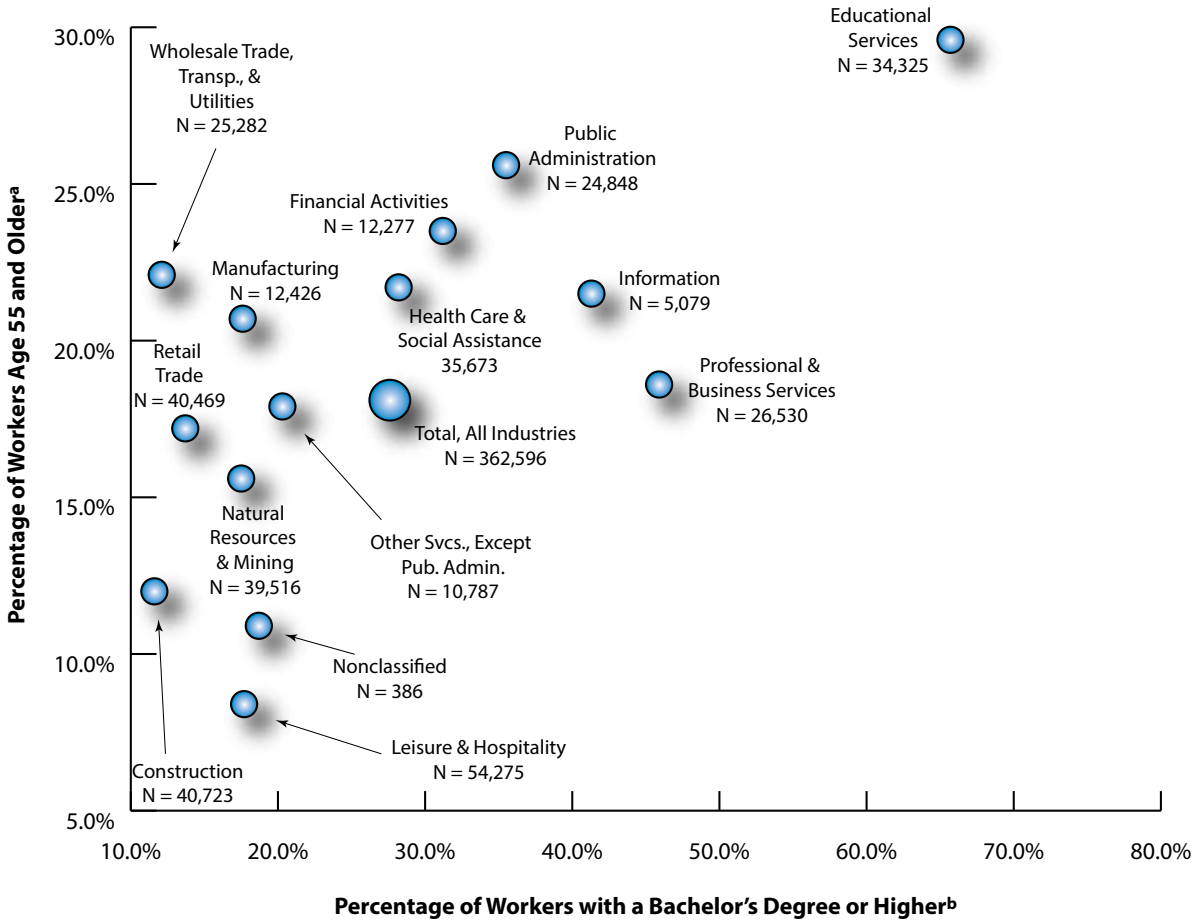
[a]Nonresidents are workers who do not have a Wyoming-issued driver's license and work less than four quarters in Wyoming (Jones, 2002). Demographic data are not available for these workers. More information is available at http://doe.state.wy.us/LMI/trends/0613/a1.htm.

for Wyoming workers are available for 2000-2012 at http://doe.state.wy.us/lmi/earnings_tables/2013/index.html.

Figure 5-4 is a combination of the data from Tables 5-2 and 5-3. It illustrates that the educational services industry has the highest proportion of workers age 55 and older and the highest proportion of workers with at least a bachelor's degree of all industries in Wyoming. As noted earlier, professional and business services, information, and public administration all have comparatively high proportions of workers age 55 and older and workers with bachelor's degrees, although not to the same extent as educational services.

As noted earlier, people working in professional occupations are aging out of the workforce faster in Wyoming than in the U.S. The data shown in this section suggest a similar trend at the industry level. Data from the ACS show that some industries, such as public administration and educational services, have a high proportion of employees with at least a bachelor's degree, and, according to R&P's

Figure 5-4: Percentage of Workers Age 55 and Older and Percentage of Workers with a Bachelor's Degree or Higher by Industry in Wyoming, 2011



[a]Source: Wyoming Wages by County, Industry, Age, & Gender, 2000-2012, Research & Planning, Wyoming Department of Workforce Services.
[b]Source: U.S. Census Bureau, American Community Survey (2011 3-Year Average).

Chapter 5

demographics tables, there is a large proportion of workers age 55 and older in those industries who will presumably be leaving the workforce within the next 10 years. Given the more rapid aging of the workforce in industries with workers holding post-high school degrees, circumstances may lead to significant competition for qualified employees.

Trends in the Current Supply System

Table 5-3 contains the number of degree completers or graduates, in select education-related degree programs in Wyoming, surrounding states, and nationally. A crosswalk comparing the Classification of Instructional Programs (CIP) codes from the National Center for Educational Statistics to the Standard Occupational Classification (SOC) codes from the U.S. Bureau of Labor Statistics was used to determine which CIP codes were related to preschool and kindergarten teachers (SOC code 25-2010), elementary and middle school teachers (SOC code 25-2020), secondary school teachers (SOC code 25-2030), and special education teachers (SOC code 25-2050). The data in this table are only for degree completers at institutions that offer primarily baccalaureate degrees or higher because the minimum level of higher education needed to become a teacher is a four-year degree.

In 2012, 289 education-related degrees were conferred at the University of Wyoming, the sole four-year degree granting institution in the state. This was a 20.9% increase from 2011 when 239 education degrees were conferred, and a 14.7% increase from 2009 when 252 education degrees were conferred. In comparison, there was an increase in the number of education degrees conferred from 2011 to 2012 in two of the six states surrounding Wyoming. There were 1,414 education degrees conferred in Idaho during 2012, an increase of 17.0% from 2011 (1,209) and an increase of 17.3% from 2009 (1,205). Similarly, Utah schools had an increase of 5.4% in education degrees conferred from 2011 (3,456) to 2012 (3,643) and an increase of 35.6% from 2009 to 2012 (2,687). Overall, the number

Table 5-3: **Number of Education Degrees Conferred by Institutions Granting Predominantly 4-Year Degrees, State and National, and Percent Change by Year, 2009-2012**

	2012	% Change, 2011-2012	2011	% Change, 2010-2011	2010	% Change, 2009-2010	2009	% Change, 2009-2012
Wyoming	289	20.9	239	-7.4	258	2.4	252	14.7
Nebraska	2,175	-3.3	2,250	17.2	1,919	-10.7	2,149	1.2
South Dakota	590	-16.4	706	6.5	663	8.5	611	-3.4
Idaho	1,414	17.0	1,209	-3.4	1,252	3.9	1,205	17.3
Montana	536	-9.5	592	12.1	528	-10.8	592	-9.5
Colorado	740	-2.2	757	5.7	716	-3.0	738	0.3
Utah	3,643	5.4	3,456	24.8	2,770	3.1	2,687	35.6
Regional Total	9,387	1.9	9,209	13.6	8,106	-1.6	8,234	14.0
U.S. Total	**174,396**	**-3.3**	**180,397**	**-1.3**	**182,739**	**1.2**	**180,533**	**-3.4**

Source: National Center for Education Statistics/Integrated Postsecondary Education System.

Note: CIP codes chosen based on crosswalk to SOC codes for kindergarten, elementary, middle school, secondary, and related special education teachers. Totals include both first- and second-major degrees conferred. Totals include graduates of institutions granting primarily baccalaureate degrees or higher only.

of education-related degrees conferred in the region had a small increase of 1.9% from 2011 (9,209) to 2012 (9,387) and they increased 14.0% from 2009 (8,234). At the national level, however, the number of these degrees decreased 3.3% from 2011 (180,397) to 2012 (174,396) and decreased 3.4% from 2009 (180,533).

Table 5-4 shows the ratio of teaching degrees to all degrees conferred by state and for the nation. Nationally, 6.0% of all degrees were in teaching related programs, but in Wyoming nearly one in ten degrees conferred (9.7%) were related to teaching. In the surrounding states, Nebraska and Idaho had similar ratios of teaching graduates to all graduates (9.7% and 9.3%, respectively) while the ratio of teacher graduates to all graduates in Colorado was significantly lower (1.5%). At the time this chapter was published, federal websites, such as the online IPEDS database site, were inaccessible due to a lack of federal funding. Because of this, supplementary data needed to determine why the ratio of education graduates to all graduates was so much lower in Colorado compared to Wyoming and other surrounding states was unavailable. As soon as these websites are accessible again, a *Wyoming Labor Force Trends* article will be published with possible explanations for these differences.

It is worth noting that the number of education degrees conferred by colleges and universities in Colorado may not be directly comparable to numbers from some other states. A review of websites at some large Colorado universities revealed that students aspiring to become elementary school teachers are required to complete a stated-approved major (e.g. biology, English, or mathematics) outside of education. It is possible that these majors would not be included in the counts presented in Tables 5-3 and 5-4.

Summary

In summary, there is a comparatively large proportion of workers in Wyoming nearing retirement age. Many of these workers are employed in occupations and industries requiring higher levels of education, including teachers. Colleges in

Table 5-4: **Number of Degrees Conferred in Institutions Granting Predominantly 4-Year Degrees or Higher in Teaching-Related Programs and All Programs, and Ratio of Teaching Degrees to All Degrees by State and National, 2009-2012**

	2012			2011			2010			2009		
	Teaching Degrees	All Degrees	Ratio	Teaching Degrees	All Degrees	Ratio	Teaching Degrees	All Degrees	Ratio	Teaching Degrees	All Degrees	Ratio
Wyoming	289	2,990	9.7	239	2,729	8.8	258	2,567	10.1	252	2,608	9.7
Nebraska	2,175	22,397	9.7	2,250	21,242	10.6	1,919	20,083	9.6	2,149	19,954	10.8
South Dakota	590	8,367	7.1	706	8,279	8.5	663	7,798	8.5	611	7,861	7.8
Idaho	1,414	15,235	9.3	1,209	13,992	8.6	1,252	14,228	8.8	1,205	14,006	8.6
Montana	536	8,370	6.4	592	8,219	7.2	528	7,429	7.1	592	7,468	7.9
Colorado	740	48,121	1.5	757	46,041	1.6	716	44,087	1.6	738	41,791	1.8
Utah	3,643	40,495	9.0	3456	37,182	9.3	2,770	33,227	8.3	2,687	32,206	8.3
Regional Total	9,387	145,975	6.4	9,209	137,684	6.7	8,106	129,419	6.3	8,234	125,894	6.5
U.S.	**174,396**	**2,925,095**	**6.0**	**180,397**	**2,834,818**	**6.4**	**182,739**	**2,716,241**	**6.7**	**180,533**	**2,612,954**	**6.9**

Source: National Center for Education Statistics/Integrated Postsecondary Education System.

Note: CIP codes chosen based on crosswalk to SOC codes for kindergarten, elementary, middle school, secondary, and related special education teachers. Totals include both first- and second-major degrees conferred. Totals include graduates of institutions granting primarily baccalaureate degrees or higher only.

Wyoming have experienced an increase in graduates from education related degree programs, but that number is small compared to surrounding states and may not be enough to fulfill the state's replacement need over time. Recruitment from these surrounding states, such as Colorado, Utah, Nebraska, and Montana may be an option in filling vacant positions, but factors such as degree program, endorsements, and qualifications will also be a factor. Also, due to the aging trends in so many occupations requiring higher education, there could be competition for these workers.

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