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Employment and Wages, Oil and Gas Extraction by Region 1996 to 2001

Brief Excerpt from the Technical Appendix of "The ES-202: ***Where are the Jobs? What do they Pay? 1999 Annual Covered Employment and Wages.***"

This annual publication of the Department of Employment summarizes employing units, employment, and wage data of employers subject to the Wyoming Employment Security Law, (Wyoming Statutes 27-3-101 through 27-3-704) and Federal civilian workers covered by the Unemployment Compensation for Federal Employees (UCFE) program. In 1999, 88 percent of total employment in Wyoming was covered by the Unemployment Insurance (UI) Law.

Data on UI covered Employing Units, Employment, and Wages are compiled from Employer's Quarterly Contributions Reports. These reports are supplemented by two reports, the Industry Verification Statement and the Multiple Worksite Report. Together, these three sources of data are referred to as the "ES-202" report. This volume includes statewide information for 1999 annual average employment, total payroll, and average annual wages by division, region, and county; 1999 summary data by quarter; 1999 detail statewide by major division, two- and three-digit Standard Industrial Classification (SIC) code; 1999 major industry; technical appendices; and short SIC codes and titles.

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For a full documentation of the data used for this section refer to the following Internet link. http://lmi.state.wy.us/toc_202.htm

Description of Tables and Figures in this section

Table 1 and Figures 1 and 2 represent the average quarterly employment (jobs) and the average quarterly wage from 1996Q1 to 2001Q4 for Oil and Gas Extraction (SIC 13) by region.

Figure 1: Contrasting the employment by sub-state area during this time frame demonstrates the impact of the coalbed methane industry in the Northeast region.

- Figure 1 shows the employment levels for Oil and Gas over time. As can be seen, most regions experience some yearly cyclical changes in employment. Job levels in all regions are fairly stable from the first quarter

of 1996 to the first quarter of 1999. All regions experienced job growth with the exception of the Northwest.

- After the third quarter of 1999 the Northeast, in particular, shows fairly dramatic growth. From below 1,500 jobs to over 3,000 jobs by the third quarter of 2001. Basically, a doubling in employment in this time period. We assume that the bulk of this employment increase in Oil and Gas Extraction is related to growth in coal bed methane.

Table 1 and Figure 2 present Average Quarterly Wages for Oil and Gas Extraction by year, quarter, and region.

- As can be seen in the graph, average quarterly wages have increased over time for Oil and Gas extraction. However, average quarterly wages for the Northeast Region are generally lower than the other regions.
- The lower wages in the Northeast Region may be a by-product associated with the occupational composition of Oil and Gas Extraction. According to the United States Geological Survey (USGS) Fact Sheet of October, 2000.
 - o "In addition, much of the coal, and thus much of the methane, lies at shallow depths, making wells easy to drill and inexpensive to complete."
 - o Further, "Exploration costs for coal-bed methane are low, and the wells are cost effective to drill. Methane occurs in most coals, and the location of the Nation's coal resources is already well known."
- The first of these two factors "ease of drilling" requires a less experienced extraction labor force. The second however is more likely to influence the average wage within Oil and Gas Extraction as most occupations involved in exploration require post-secondary education. Thus, with fewer skilled jobs in exploration we anticipate lower wages.

Figure 3 shows the distribution of employment in Oil and Gas Extraction by region 1996 versus 2001. Figure 3 demonstrates the shift in employment of SIC 13 from predominance in the Central and Southwest regions in 1996 to the Northeast region in 2001.

Table 1: Average Quarterly Jobs and Wages for Oil and Gas Extraction (SIC 13) by Year, Quarter and Region

year	qtr	Multi-County		Central		Northeast		Northwest		Southeast		Southwest		Total	
		Average Quarterly Jobs	Average Quarterly Wage	Average Quarterly Jobs	Average Quarterly Wage	Average Quarterly Jobs	Average Quarterly Wage	Average Quarterly Jobs	Average Quarterly Wage	Average Quarterly Jobs	Average Quarterly Wage	Average Quarterly Jobs	Average Quarterly Wage	Average Quarterly Jobs	Average Quarterly Wage
1990	1	595	8,784	2,521	7,328	1,826	6,878	1,391	8,005	44	4,778	2,033	7,839	8,410	7,556
	2	545	7,026	2,586	7,166	1,923	6,659	1,487	7,436	52	4,651	1,983	7,923	8,576	7,250
	3	629	7,581	2,861	7,317	2,091	7,004	1,617	7,494	57	4,280	2,084	8,284	9,339	7,492
	4	732	7,924	2,769	8,298	2,089	7,332	1,623	8,410	68	4,800	2,149	8,765	9,431	8,155
1991	1	681	6,444	2,579	7,694	1,772	7,113	1,491	8,275	67	5,564	2,131	8,466	8,722	7,750
	2	364	7,045	2,623	8,067	1,903	6,825	1,545	8,060	66	4,873	2,244	8,041	8,746	7,722
	3	435	7,243	2,638	8,047	1,964	7,077	1,590	8,003	65	5,756	2,454	8,571	9,145	7,917
	4	436	9,940	2,563	9,011	1,837	7,639	1,582	8,391	60	6,094	2,332	9,264	8,810	8,707
1992	1	317	12,329	2,416	8,351	1,606	6,790	1,301	8,673	37	5,542	2,287	8,746	7,964	8,348
	2	285	9,463	2,377	8,475	1,629	6,827	1,279	8,542	42	5,784	2,298	8,434	7,909	8,156
	3	450	7,287	2,490	8,316	1,707	6,987	1,249	9,055	56	5,373	2,438	8,664	8,390	8,182
	4	526	9,161	2,558	9,419	1,832	8,062	1,245	9,138	71	4,831	2,596	9,740	8,829	9,140
1993	1	419	8,171	2,234	8,254	1,598	6,949	1,170	8,845	63	4,791	2,539	9,023	8,022	8,292
	2	441	7,738	2,169	8,346	1,631	6,696	1,234	8,706	86	4,823	2,455	8,832	8,016	8,143
	3	642	7,261	2,550	8,445	1,947	7,058	1,412	8,607	116	4,160	2,862	8,825	9,529	8,167
	4	657	8,604	2,513	9,565	1,970	7,486	1,396	9,448	93	5,207	2,904	9,692	9,533	9,049
1994	1	911	7,737	2,210	8,302	1,650	7,204	1,137	8,963	73	4,607	2,511	9,265	8,492	8,370
	2	813	8,481	2,168	8,602	1,745	6,728	1,151	9,756	55	5,464	2,581	9,178	8,514	8,517
	3	950	8,791	2,274	8,911	1,915	7,186	1,161	9,968	72	5,959	2,581	9,549	8,954	8,827
	4	1,046	8,624	2,360	8,868	1,922	7,569	1,108	10,223	86	4,987	2,545	9,848	9,066	8,968
1995	1	862	8,052	2,092	8,828	1,298	7,188	1,076	9,825	63	6,166	2,391	9,755	7,783	8,870
	2	787	8,763	2,111	8,127	1,248	6,865	1,088	9,636	59	6,777	2,357	10,179	7,649	8,823
	3	919	8,240	2,140	8,294	1,308	7,116	1,157	9,161	65	6,951	2,364	9,211	7,953	8,482
	4	847	9,249	2,086	9,404	1,275	7,455	1,100	10,202	63	5,762	2,247	10,335	7,619	9,420
1996	1	733	8,448	1,927	8,748	1,082	6,787	1,030	10,186	56	5,712	2,111	10,744	6,939	9,207
	2	674	9,139	1,891	8,278	1,166	6,905	1,119	9,344	55	5,777	2,124	10,537	7,029	8,966
	3	1,003	7,498	2,069	8,357	1,232	7,219	1,202	9,390	50	6,040	2,242	9,979	7,798	8,677
	4	955	8,721	2,026	10,337	1,259	7,934	1,427	9,746	62	5,412	2,288	10,978	8,018	9,807
1997	1	883	9,312	1,881	9,755	1,227	7,588	1,443	9,450	60	5,539	2,174	12,137	7,668	9,942
	2	921	8,883	2,047	9,490	1,272	7,938	1,538	10,177	56	5,028	2,224	10,906	8,058	9,666
	3	1,037	9,441	2,253	8,736	1,433	7,491	1,710	9,369	48	5,368	2,421	10,469	8,901	9,192
	4	1,078	9,642	2,291	10,263	1,439	8,720	1,684	10,163	54	5,095	2,455	11,483	9,000	10,225
1998	1	1,152	10,825	2,222	9,829	1,379	7,639	1,585	9,856	61	5,484	2,344	11,450	8,743	10,024
	2	1,055	9,548	2,114	8,830	1,352	7,586	1,493	10,406	61	6,248	2,305	10,919	8,381	9,556
	3	1,045	10,552	2,250	9,077	1,432	7,966	1,483	10,169	60	6,022	2,478	10,454	8,748	9,626
	4	982	11,530	2,071	10,328	1,347	8,810	1,330	11,049	57	5,875	2,395	11,650	8,182	10,695
1999	1	1,358	10,785	1,712	9,121	1,121	8,189	1,051	9,860	64	4,918	2,099	11,764	7,406	10,103
	2	1,224	10,978	1,727	8,982	1,221	8,026	1,031	10,074	61	6,036	2,111	12,622	7,374	10,325
	3	1,303	11,854	1,971	8,925	1,492	8,720	1,181	9,861	61	5,993	2,156	11,378	8,165	10,116
	4	1,352	12,651	2,094	11,132	1,698	9,755	1,221	11,058	67	5,630	2,171	13,006	8,603	11,519
2000	1	1,587	11,623	1,992	9,661	1,794	9,027	1,176	10,059	57	5,979	2,077	14,870	8,683	11,164
	2	1,550	14,132	1,962	10,107	1,913	9,847	1,201	10,282	57	5,541	2,102	12,470	8,786	11,320
	3	1,711	11,886	2,190	9,580	2,110	9,788	1,293	10,025	50	5,476	2,301	12,616	9,655	10,796
	4	1,896	13,151	2,284	10,284	2,217	10,894	1,302	12,829	64	7,070	2,367	13,152	10,130	19,834
2001	1	2,014	13,215	2,312	11,329	2,496	10,023	1,287	11,565	62	8,135	2,423	15,431	10,594	12,328
	2	2,169	14,597	2,451	10,701	3,001	10,695	1,361	11,047	67	8,313	2,606	12,521	11,654	11,858
	3	2,460	13,040	2,570	10,757	3,235	10,078	1,426	10,546	78	8,242	2,801	12,578	12,569	11,395
	4	2,546	14,801	2,602	12,096	3,148	11,475	1,397	12,152	82	8,834	2,787	13,413	12,562	12,766

* The average quarterly wage for the Central Region in 2000q4 was \$45,332, this extreme outlier was removed from Table 1 and Figure 2.

Figure 1: Average Quarterly Jobs, Oil and Gas Extraction (SIC 13) by Year, Quarter and Region

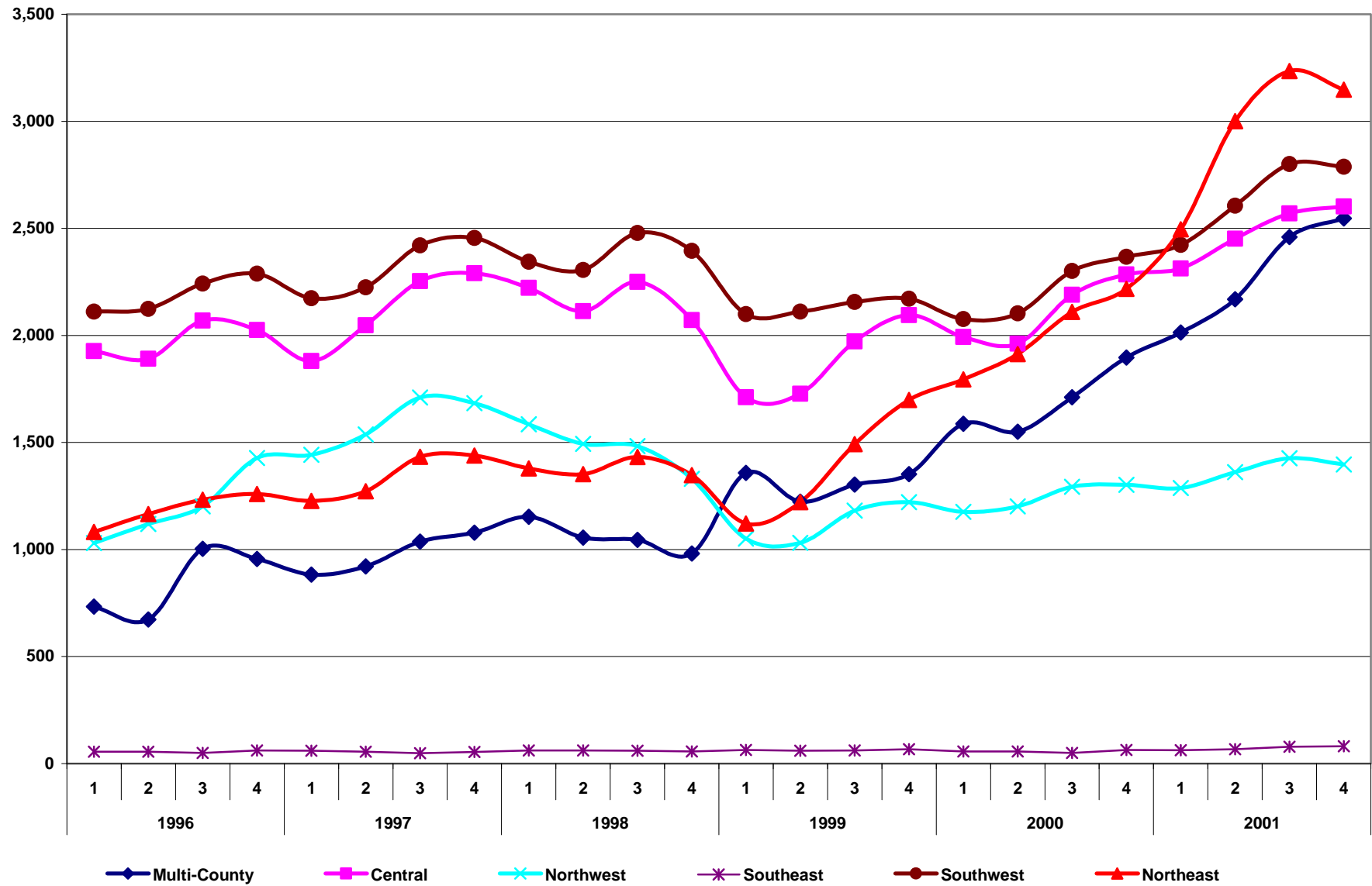


Figure 2: Average Quarterly Wage, Oil and Gas Extraction (SIC 13) by Year, Quarter and Region

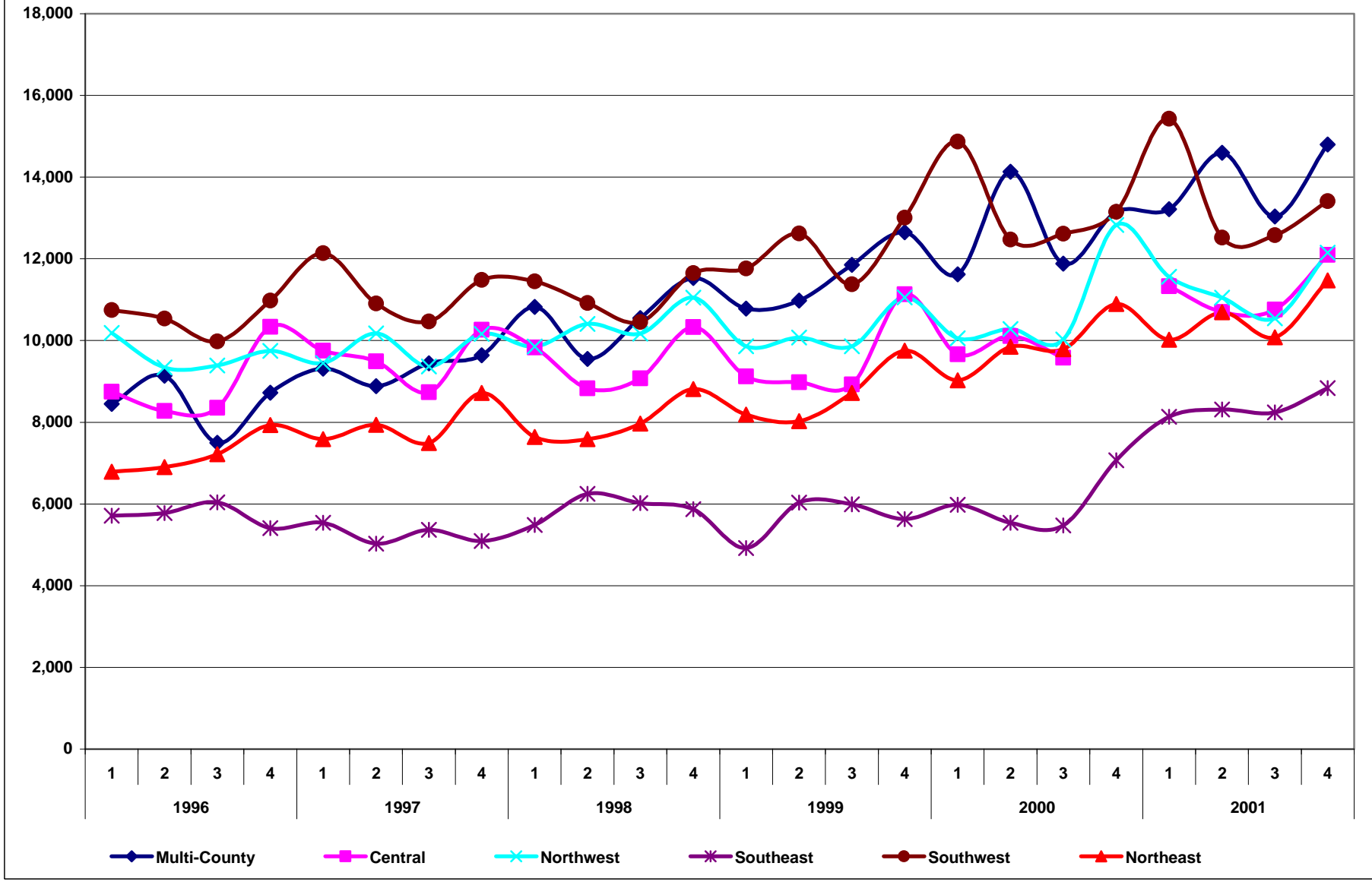
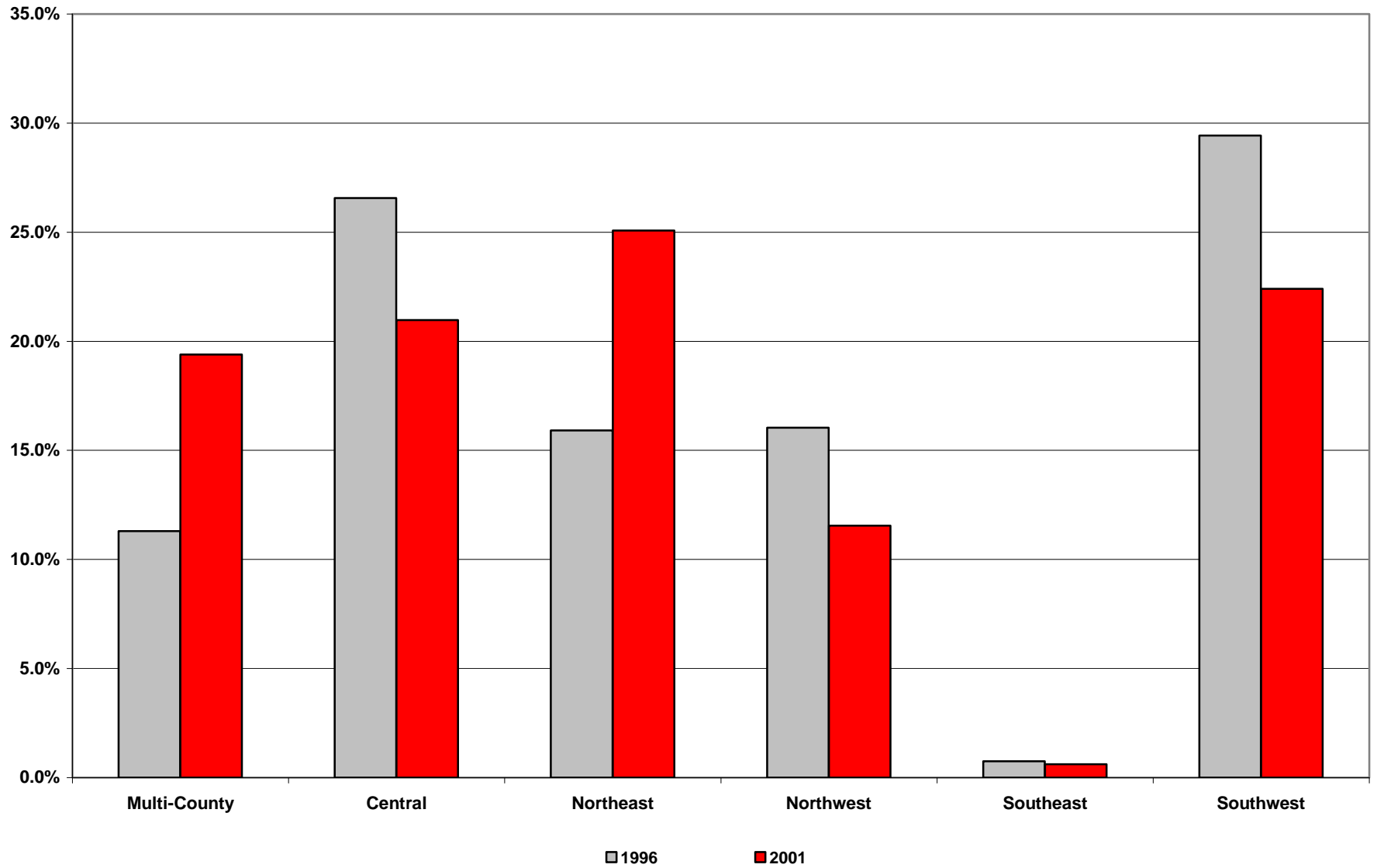


Table 2: Percent Distribution of Jobs in Oil and Gas Extraction 1996 versus 2001 by Region

	Multi-County	Central	Northeast	Northwest	Southeast	Southwest
1996	11.3%	26.6%	15.9%	16.0%	0.7%	29.4%
2001	19.4%	21.0%	25.1%	11.5%	0.6%	22.4%

Figure 3: Percent Distribution Statewide of Jobs, Oil and Gas Extraction 1996 versus 2001 by Region



Exit (Turnover) and Flow Rates, Oil and Gas Extraction by Region 1996 to 2001

Brief Excerpt from a working paper distributed at the Symposium on LMI Applications of Wage Records for Workforce Development, "Turnover Analyses; Definitions, Process, and Quantification."

Turnover is the general term used to describe the churning that occurs in the labor market. In more specific terms, turnover analysis assigns a category representing an individual's relationship with an employer at a time point (i.e. were they just hired or on their way out). While there are some variations in the collection of Wage Records (WR) from state to state, this database is particularly well suited for tracking individual-employer interactions across time. Knowing an individual received wages from an employer in a year and quarter has value, but only offers a snapshot of the individual's interactions with the employer. By combining several years of quarterly WR data to create a time series, it is possible to assign a value describing the individual-employer interaction relative to the quarters prior and subsequent.

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For a full documentation of the data used for this section refer to the following Internet link. <http://lmi.state.wy.us/staff/Turnover.pdf>

Table 3 and Figures 4, 5 and 6 apply the methodology described in the above citation to the Oil and Gas Extraction Industry by region.

Figures 4 and 5 show the exit rates (number of individuals leaving an employer in the quarter divided by all employment activity, see above documentation) by region in SIC 13 and display the expected seasonal patterns. The Multi-County and Southeast regions in general display the highest exit rates. However, referring to Table 1 the Southeast region has a low number of jobs in SIC 13 which inflates the turnover rate in comparison to the other regions. Further, the Multi-County region represents employers that operated establishments in more than one county but chose not to break out employment by county. For example, a drilling company based in Natrona County that does spot drilling in Campbell, but not enough to designate an individual unit to that county.

Figure 6 shows that although the exit rate (turnover) across regions fluctuates between 15 and 35 percent throughout analysis period, beginning in 1999Q1 a few regions (Northeast and Central) experience 6 consecutive quarters of positive flow rates. This means that there were more individuals entering (hires) than exiting employment.

Table 3: Exit and Flow Rate, Oil and Gas Extraction (SIC 13) by Year, Quarter and Region

year	qtr	Central		Northeast		Northwest		Southeast		Southwest		Multi-County		Total	
		Exit Rate	Flow Rate	Exit Rate	Flow Rate	Exit Rate	Flow Rate	Exit Rate	Flow Rate	Exit Rate	Flow Rate	Exit Rate	Flow Rate	Exit Rate	Flow Rate
1996	1	19.1%	-3.7%	22.9%	-3.5%	15.7%	-3.3%	31.9%	-6.2%	17.9%	-5.0%	48.3%	-10.8%	21.4%	-4.6%
1996	2	16.4%	5.1%	24.9%	7.1%	19.1%	7.1%	47.9%	-11.1%	19.7%	1.4%	28.5%	2.3%	20.6%	4.4%
1996	3	20.1%	6.3%	26.7%	1.5%	22.1%	4.8%	35.1%	9.9%	20.2%	0.6%	31.8%	15.3%	22.6%	4.4%
1996	4	26.8%	-4.6%	29.3%	0.4%	28.9%	-2.6%	33.6%	10.0%	33.7%	-7.9%	49.7%	-8.3%	31.3%	-4.4%
1996	1	20.1%	0.0%	26.5%	2.9%	36.5%	-15.8%	46.2%	-13.2%	19.6%	3.7%	35.2%	-5.9%	25.6%	-2.1%
1997	2	18.9%	4.9%	22.5%	8.1%	22.9%	8.9%	41.3%	2.2%	25.4%	-2.4%	34.8%	1.1%	23.2%	4.1%
1997	3	22.0%	6.8%	26.8%	2.2%	27.2%	19.4%	36.7%	11.9%	23.3%	11.1%	38.7%	17.8%	25.6%	10.6%
1997	4	27.7%	-4.1%	35.0%	-9.4%	26.7%	-3.1%	39.3%	7.1%	20.7%	4.6%	36.7%	0.4%	27.7%	-2.2%
1996	1	25.1%	-2.7%	26.6%	0.9%	22.3%	3.8%	34.0%	5.8%	20.8%	0.9%	42.3%	-14.6%	24.7%	-0.4%
1998	2	21.6%	0.2%	23.2%	1.8%	20.0%	-4.2%	36.3%	-1.8%	16.6%	1.3%	37.9%	-9.6%	21.1%	-0.6%
1998	3	23.0%	-0.7%	23.9%	-0.8%	23.4%	-3.9%	36.0%	-1.0%	18.8%	2.7%	37.0%	8.5%	22.9%	0.1%
1998	4	29.4%	-12.7%	35.5%	-15.1%	27.6%	-10.7%	50.5%	-22.7%	26.0%	-9.3%	51.8%	-6.9%	30.8%	-11.4%
1999	1	27.3%	-12.7%	26.5%	-2.6%	26.6%	-11.6%	42.3%	10.3%	21.5%	-2.8%	43.4%	-10.7%	26.2%	-7.2%
1999	2	17.5%	6.8%	20.8%	13.7%	17.1%	4.5%	28.9%	3.6%	19.5%	-0.5%	21.5%	25.9%	19.0%	6.5%
1999	3	18.5%	12.9%	27.3%	9.9%	20.3%	13.0%	28.4%	11.6%	18.5%	6.6%	30.3%	16.5%	21.6%	10.8%
1999	4	25.1%	2.2%	30.2%	6.7%	25.0%	0.0%	46.8%	0.0%	20.4%	0.4%	38.0%	-7.1%	26.1%	1.6%
2000	1	21.9%	1.9%	30.0%	2.3%	17.5%	1.4%	31.3%	8.3%	21.8%	-1.1%	34.4%	-9.4%	23.8%	0.5%
2000	2	19.1%	1.5%	25.0%	5.4%	16.7%	3.3%	40.0%	2.7%	16.5%	2.0%	22.1%	10.6%	19.8%	3.4%
2000	3	20.1%	6.2%	29.0%	4.9%	18.9%	2.5%	36.2%	8.6%	20.7%	7.6%	27.9%	10.6%	22.8%	6.0%
2000	4	27.1%	-2.8%	32.9%	-2.4%	23.8%	1.8%	37.8%	11.8%	30.8%	-9.2%	41.8%	-5.3%	30.0%	-3.7%
2001	1	23.0%	-0.4%	28.7%	2.6%	24.1%	-2.5%	29.6%	30.0%	28.4%	-3.8%	43.3%	18.3%	28.1%	1.7%
2001	2	20.7%	4.6%	26.3%	5.7%	22.7%	4.6%	30.7%	15.4%	21.7%	10.7%	40.2%	26.6%	25.8%	10.0%
2001	3	22.1%	-6.0%	30.8%	-9.4%	23.5%	-6.1%	34.7%	-17.1%	21.4%	-5.1%	44.2%	22.0%	30.1%	1.0%

Figure 4: Exit Rate (Turnover), Oil and Gas Extraction (SIC 13) by Year, Quarter and Region

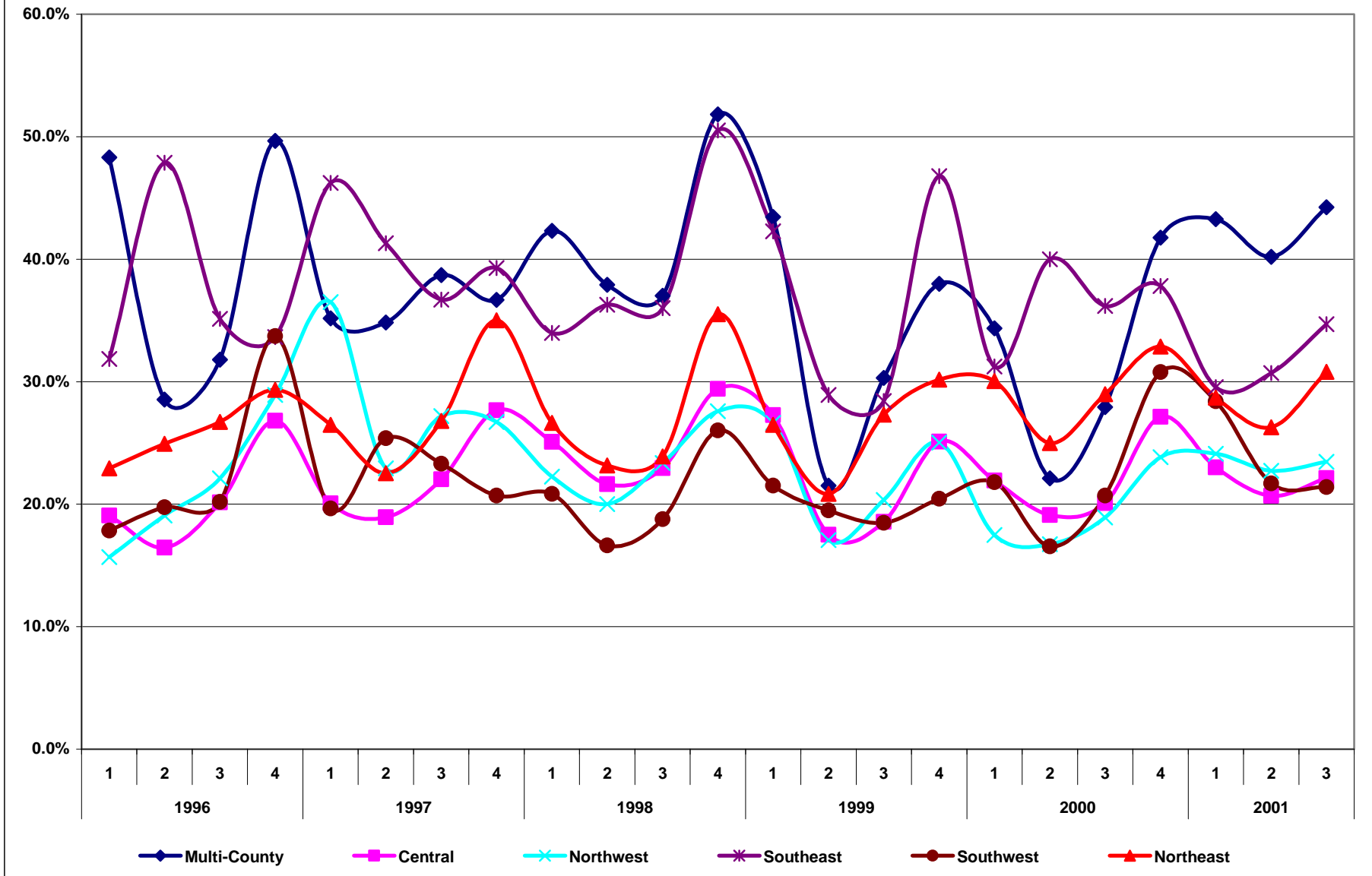


Figure 5: Difference Between Region and Statewide Exit Rate, Oil and Gas Extraction (SIC 13) by Year and Quarter

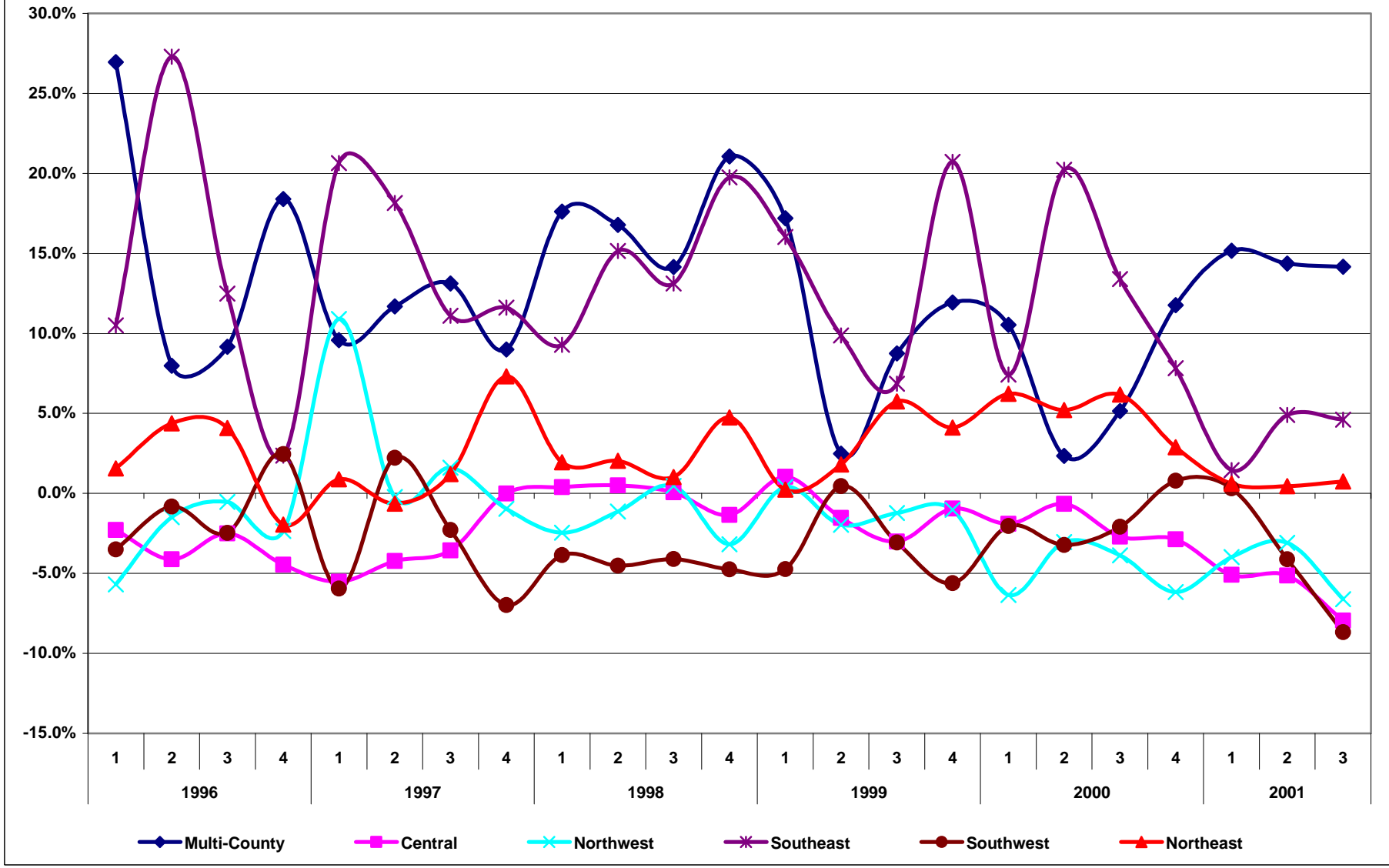
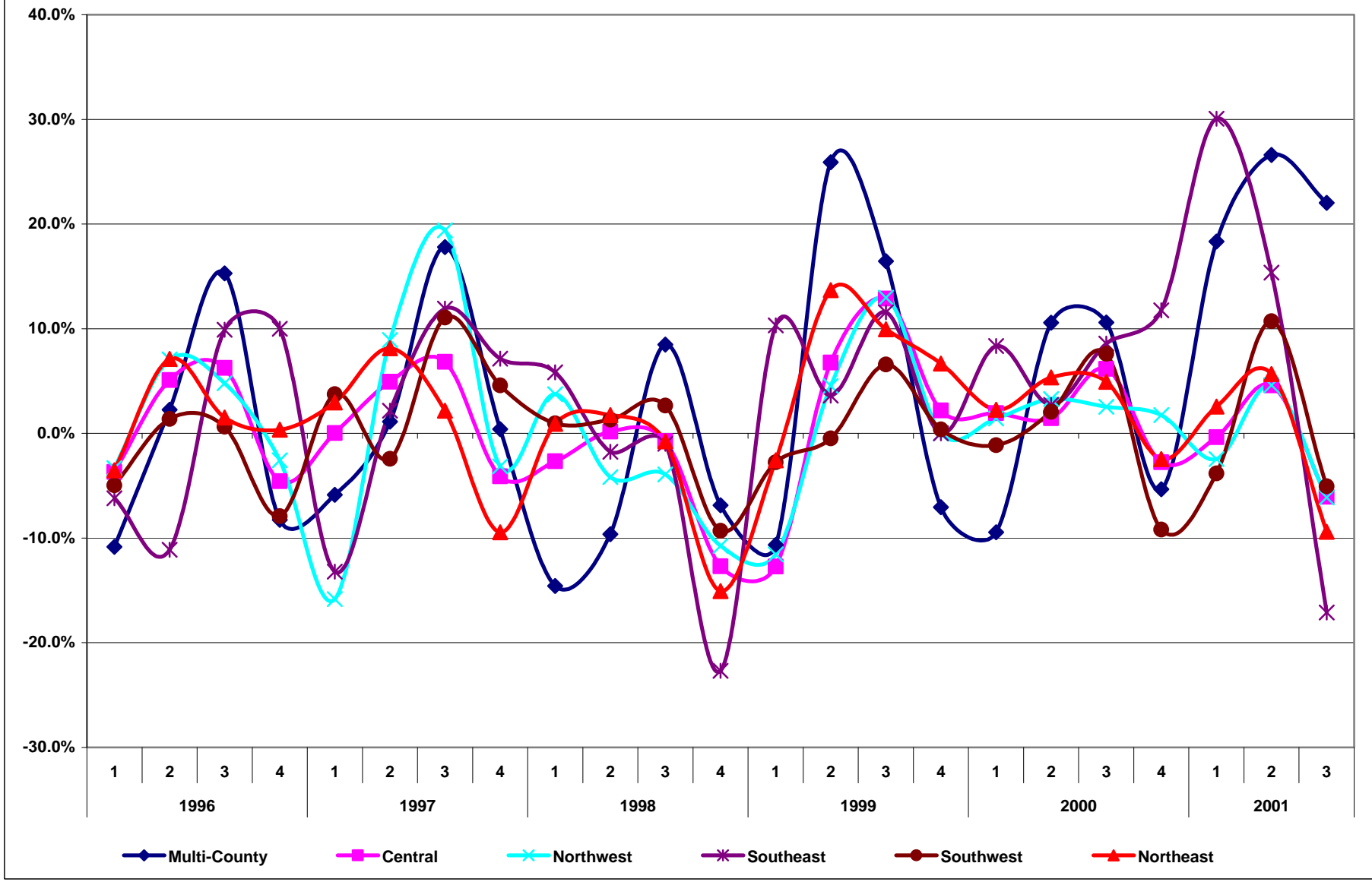


Figure 6: Flow Rate, Oil and Gas Extraction (SIC 13) by Year, Quarter and Region



Typical Education / Experience Level of Jobs in Oil and Gas Extraction and All Industries

The data presented in this section are a combination of two resources. The first is the "The Matrix: Customized Industrial and Occupational Staffing Patterns & Wages" available on our web site at <http://lmi.state.wy.us/staffing/Staffing.htm>. Staffing patterns allow us to determine the typical distribution of occupations within a two digit Industry. The second source is provided by the Bureau of Labor Statistics and gives the typical education and experience level of an occupation. A brief excerpt is provided below.

- ? **Education or training categories.** Occupations are classified into one of eleven categories listed below based on analysis of the occupation's most significant source of education or training according to these principles:
- An occupation is placed into the category that best describes the education or training needed by most workers to become fully qualified.
 - Postsecondary awards, if generally needed for entry into the occupation, take precedence over work-related training even though additional skills or experience may be needed for a worker to become fully qualified.
 - The length of time an average worker generally needs to become fully qualified through a combination of on-the-job training and experience is used to categorize occupations in which a postsecondary award generally is not needed for entry.

Postsecondary awards

First professional degree. Completion of the degree usually requires at least 3 years of full-time academic study beyond a bachelor's degree.

Doctoral degree. Completion of a Ph.D. or other doctoral degree usually requires at least 3 years of full-time academic study beyond a bachelor's degree.

Master's degree. Completion of the degree usually requires 1 or 2 years of full-time academic study beyond a bachelor's degree.

Bachelor's or higher degree, plus work experience. Most occupations in this category are management occupations. All require experience in a related non-management position for which a bachelor's or higher degree

is usually required.

Associate degree. Completion of the degree usually requires at least 2 years of full-time academic study.

Postsecondary vocational award. Some programs last only a few weeks while others may last more than a year. Programs lead to a certificate or other award but not a degree.

Work-related training

Work experience in a related occupation. Many occupations requiring work experience are first-line supervisors/managers of service, sales and related, production, or other occupations, or are management occupations.

Long-term on-the-job training. More than 12 months of on-the-job training or combined work experience and formal classroom instruction are needed for workers to develop the skills necessary to be fully qualified. This category includes formal and informal apprenticeships that may last up to 5 years. Long-term on-the-job training also includes intensive occupation-specific, employer-sponsored programs that workers must successfully complete. These include fire and police academies and schools for air traffic controllers and flight attendants. In other occupations—insurance sales and securities sales, for example—trainees take formal courses, often provided on the job site, to prepare for the required licensing exams. Individuals undergoing training generally are considered to be employed in the occupation. Also included in this category is the development of a natural ability—such as that possessed by musicians, athletes, actors, and other entertainers—that must be cultivated over several years, frequently in a nonwork setting.

Moderate-term on-the-job training. Skills needed to be fully qualified can be acquired during 1 to 12 months of combined on-the-job experience and informal training.

Short-term on-the-job training. Skills needed to be fully qualified can be acquired during a short demonstration of job duties or during 1 month or less of on-the-job experience or instruction.

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For a full documentation of the data used for this section refer to the following Internet link. <http://stats.bls.gov/asp/oep/noeted/empnumb.asp>

Description of Tables and Figure

Table 4 and figure 5: The majority of the occupations within Oil and Gas Extraction require Moderate Term on-the-job training. Relatively few jobs (less than 10 percent) require any post-secondary education. However, a review of Table 4 demonstrates that those with Moderate Term OJT in Oil and Gas typically earn a higher average annual wage than those (with all industries included) with Postsecondary vocational / Associates Degree and are actually closer in earnings to those with Bachelor's degrees or above.

Table 5: Shows the top 5 occupations within the specified education level of Oil and Gas Extraction.

Table 4: Percent Distribution by Typical Education / Experience Level in Wyoming for All Industries versus Oil and Gas Extraction (SIC

Typical Education / Experience Level	Percent of Employment	Average Annual Wage US 1998	Average Annual Wage Wyoming 1998
All Industries			
Short-term on-the-job-training	42.1%	18,435	16,870
Moderate-term on-the-job training	15.3%	27,449	24,763
Long-term on-the-job training	10.5%	29,368	29,235
Work experience in a related occupation	7.2%	35,725	32,617
Postsecondary vocational / Associates Degree	6.0%	34,324	28,547
Bachelor's degree / Masters / PhD / Professional	18.9%	48,194	39,387
Oil and Gas Extraction (SIC 13)			
Short-term on-the-job-training	14.8%	22,068	24,722
Moderate-term on-the-job training	44.3%	30,230	32,775
Long-term on-the-job training	14.1%	34,048	36,347
Work experience in a related occupation	14.8%	40,446	40,474
Postsecondary Vocational / Associates Degree	2.4%	39,391	34,079
Bachelor's degree / Masters / PhD / Professional	9.5%	57,208	47,282

Figure 7: Percent Distribution in Wyoming by Typical Education / Experience Level All Industries versus Oil and Gas Extraction (SIC 13)

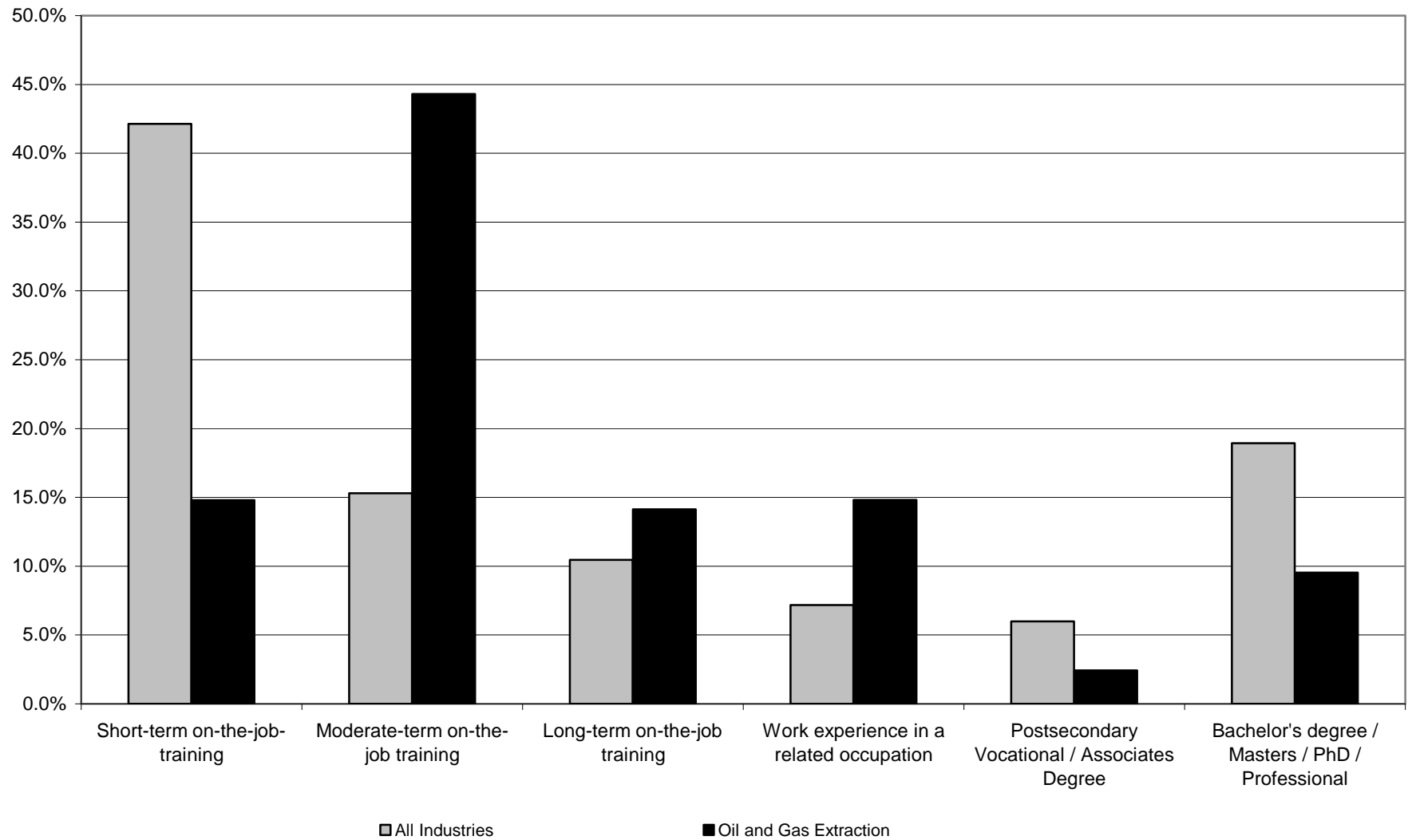


Table 5: Top 5 Occupations Employment within Typical Education / Experience Level in the Oil and Gas Extraction Industry

Typical Education / Experience Level	Occupational Title	Percent of SIC 13 Employment	Average Annual Wage US 1998	Average Annual Wage Wyoming 1998
Short-term on-the-job-training	Roustabouts	10.8%	21,630	26,200
	General Office Clerks	1.8%	20,920	18,000
	Truck Drivers, Heavy Or Tractor-trailer	0.9%	29,290	26,500
	Other Helpers, Laborers, And Material Movers, Hand	0.5%	20,070	17,660
	Industrial Truck And Tractor Operators	0.4%	25,130	29,330
Moderate-term on-the-job training	All Other Extractive Workers, Except Helpers	16.4%	31,310	34,210
	Rotary Drill Operators, Oil And Gas Extraction	5.5%	36,560	50,150
	Service Unit Operators	5.3%	24,840	24,650
	Wellhead Pumpers	3.9%	32,880	32,830
	Secretaries, Except Legal And Medical	1.3%	24,670	19,440
Long-term on-the-job training	Gas Plant Operators	6.1%	40,160	41,600
	Machinery Maintenance Mechanics	1.8%	32,630	33,490
	All Other Precision Workers	1.5%	25,570	24,060
	Welders And Cutters	1.1%	27,420	31,280
	Maintenance Repairers, General Utility	1.0%	25,200	25,980
Work experience in a related occupation	First-line Supervisors And Managers/supervisors - Construction Trades And Extractive Workers	8.1%	42,310	41,850
	First-line Supervisors And Managers/supervisors - Sales And Related Workers	1.6%	35,990	28,300
	All Other First-line Supervisors And Managers/supervisors - Production, Construction, Maintenance, And Related Workers	1.6%	39,010	48,980
	First-line Supervisors And Managers/supervisors - Clerical And Administrative Support Workers	1.1%	33,990	27,960
	Mining, Quarrying, And Oil And Gas Well Drilling Managers	0.9%	63,020	66,810
Postsecondary vocational / Associates Degree	Petroleum Technicians And Technologists	1.5%	41,860	36,720
	All Other Engineering And Related Technicians And Technologists	0.2%	39,840	36,610
	Drafters	0.2%	34,540	28,140
	Electrical And Electronic Engineering Technicians And Technologists	0.2%	38,110	28,220
Bachelor's degree / Masters / PhD / Professional	All Other Health Professionals, Paraprofessionals, And Technicians	0.2%	32,040	26,100
	General Managers And Top Executives	2.7%	62,570	45,600
	Petroleum Engineers	1.8%	70,090	63,430
	All Other Management Support Workers	1.0%	41,180	33,880
	Accountants And Auditors	0.9%	41,880	35,810
	All Other Managers And Administrators	0.7%	53,130	43,440

Data Prepared by
Wyoming Department of Employment
Research and Planning
6/5/2002
<http://lmi.state.wy.us>

Future Research Pending Publication in Wyoming Labor Force Trends, Summer 2002

The methodology and data provided in this section are currently under development but will soon be published in "Wyoming's Labor Force Trends". The following Internet link points to a listing of Trends issues and contents.

<http://lmi.state.wy.us/backiss.htm>

Table 6 and Figures 8 and 9 take advantage of R&P's interstate wage records agreements in an attempt to identify the source of the labor for an expanding Oil and Gas industry.

Table 6: Number and Average Quarterly Wage of Individuals Transitioning from 1999 to 2000 from Another Industry or State to Wyoming's Oil and Gas Extraction Industry by State of Origin

State of Origin	Number	Percent	Average Quarterly Wage
CO	242	4.7%	7,291
ID	40	0.8%	6,836
NE	38	0.7%	5,941
NM	36	0.7%	7,903
SD	106	2.1%	7,090
TX	179	3.5%	10,522
UT	189	3.7%	7,609
WY	2,262	43.9%	6,379
Unknown	2,057	39.9%	6,005
Total	5,149	100.0%	6,487

Figure 8: Individuals Transitioning from 1999 to 2000 from Another Industry or State to Wyoming's Oil and Gas Extraction Industry by State of Origin

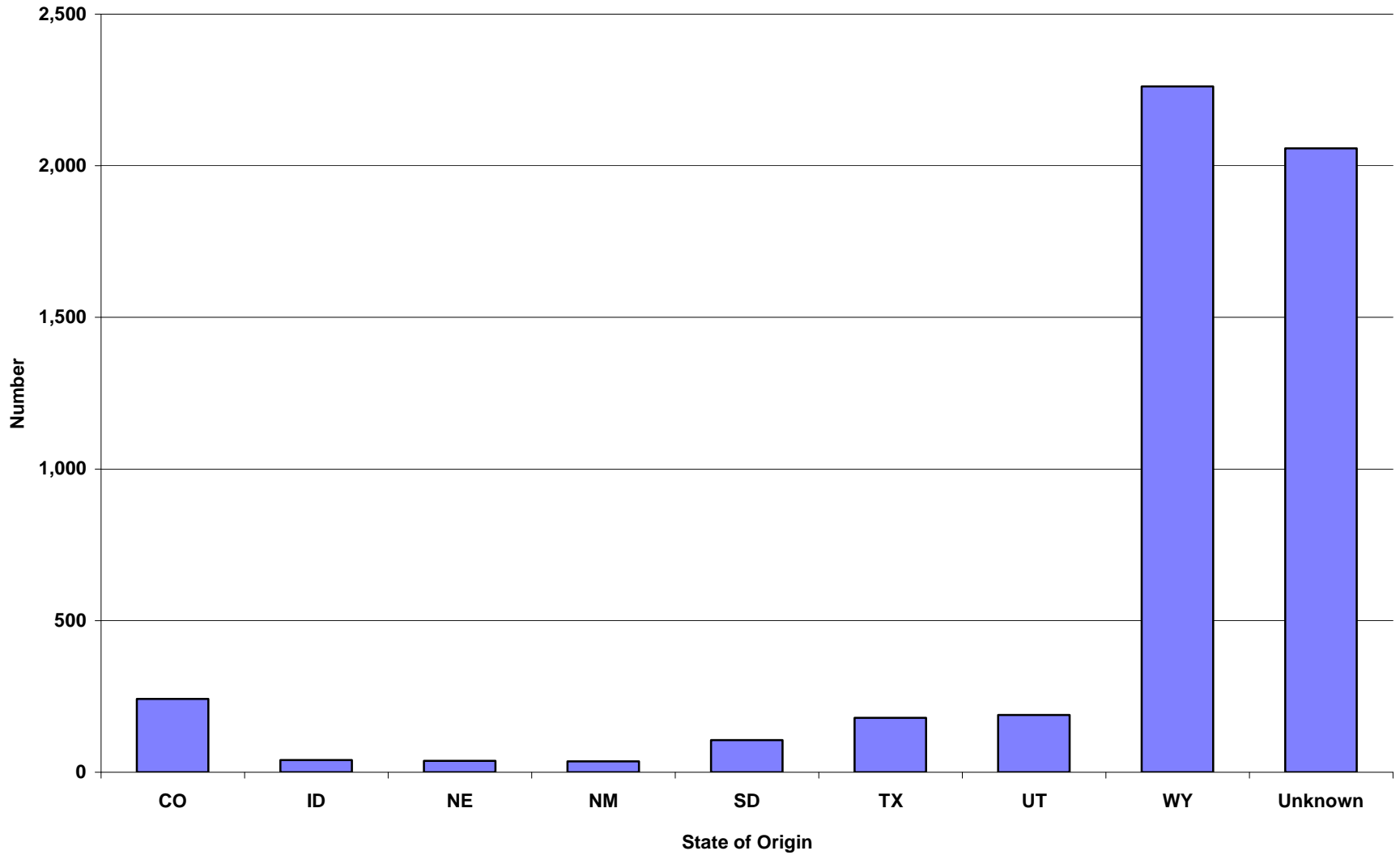
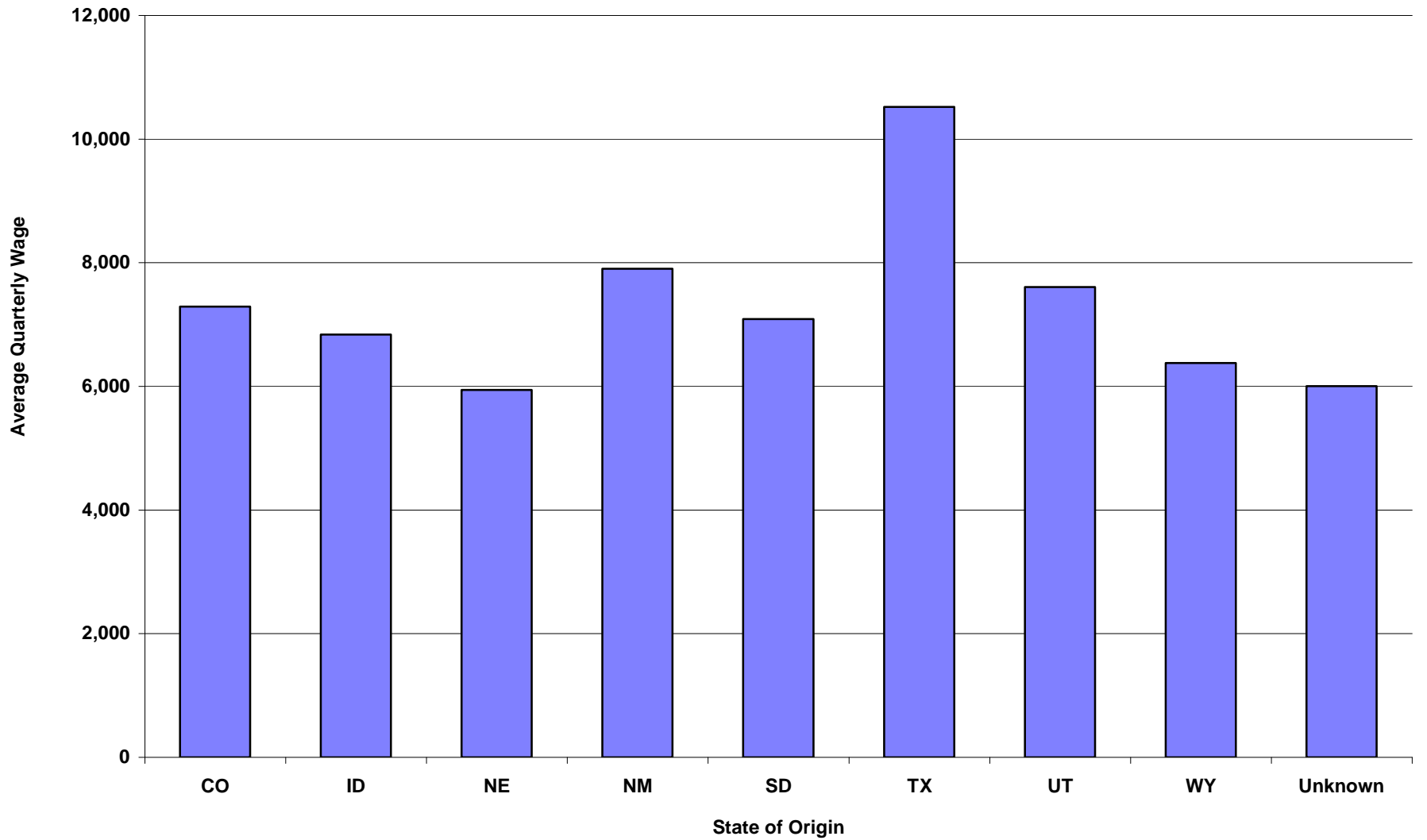


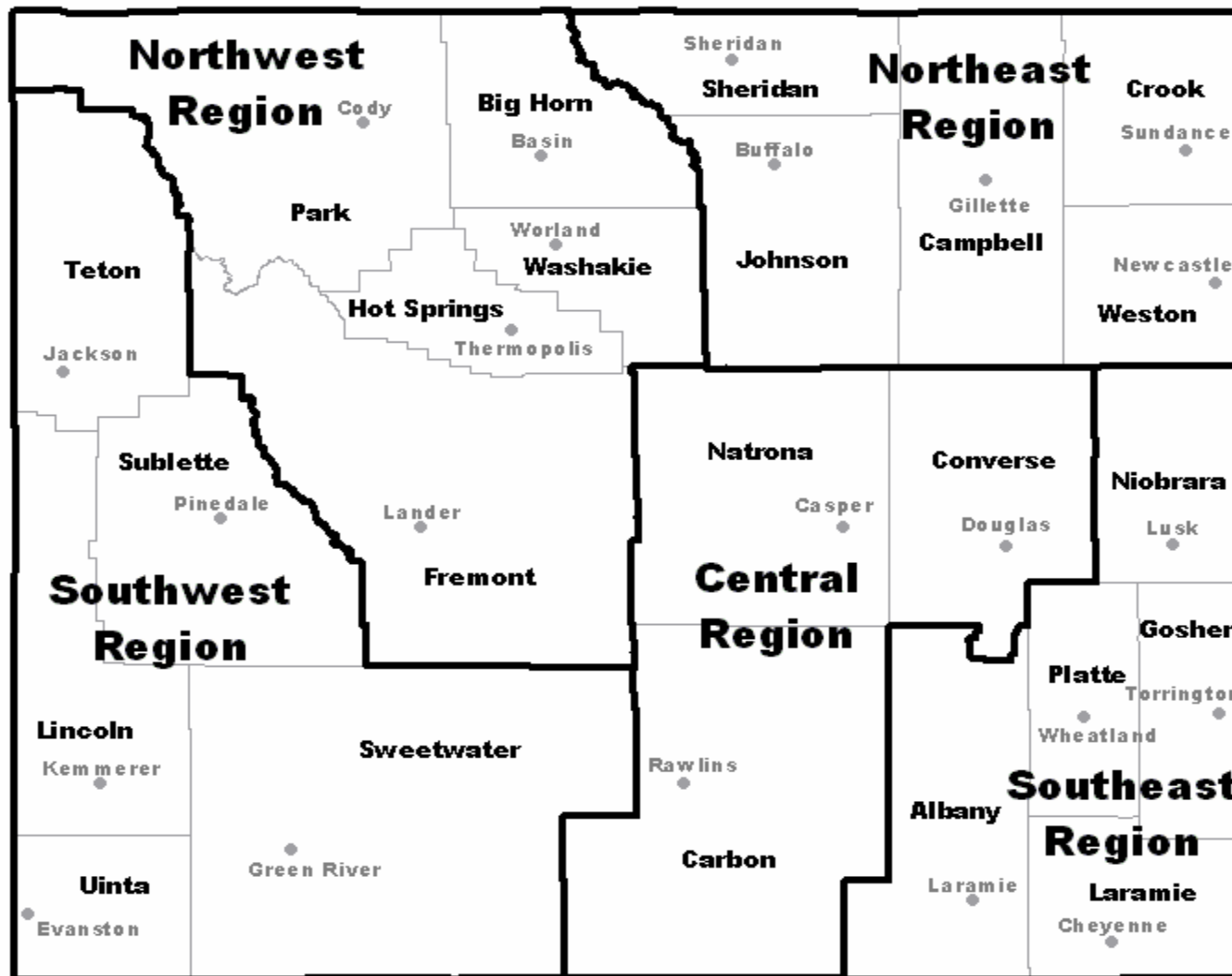
Figure 9: Average Quarterly Wage in 2000 of Individuals Transitioning from 1999 to 2000 from Another Industry or State to Wyoming's Oil and Gas Extraction Industry by State of Origin



Data Prepared by
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Addendum Information

Addendum Figure 1: Regional Definitions



Addendum Table 1: Exit Rate by Year and Quarter by Sub-Industry 1996q1 to 2000q3

Industry	Sub-Industry	1996q1	1996q2	1996q3	1996q4	1997q1	1997q2	1997q3	1997q4	1998q1	1998q2	1998q3	1998q4	1999q1	1999q2	1999q3	1999q4	2000q1	2000q2	2000q3	2000q4	2001q1	2001q2	2001q3
01 Agriculture, Forestry, Fishing		17.9%	27.7%	37.7%	38.4%	18.6%	28.1%	37.4%	39.9%	17.8%	28.8%	35.8%	42.8%	22.4%	28.6%	38.0%	38.9%	20.3%	27.4%	36.5%	38.9%	20.1%	29.6%	39.4%
01 Agriculture, Forestry, Fishing Total		17.9%	27.7%	37.7%	38.4%	18.6%	28.1%	37.4%	39.9%	17.8%	28.8%	35.8%	42.8%	22.4%	28.6%	38.0%	38.9%	20.3%	27.4%	36.5%	38.9%	20.1%	29.6%	39.4%
02 Mining		8.1%	13.5%	12.2%	12.9%	7.5%	9.7%	17.6%	12.7%	12.6%	12.3%	24.1%	14.4%	15.5%	12.2%	23.4%	24.1%	33.6%	28.0%	30.2%	27.3%	14.5%	23.3%	21.0%
02 Mining Total		13.9%	13.0%	16.6%	25.3%	17.4%	16.4%	22.7%	19.6%	16.8%	16.9%	17.6%	22.6%	17.6%	17.7%	17.0%	19.5%	17.3%	14.9%	18.7%	22.5%	20.1%	19.0%	25.2%
03 Construction		29.2%	31.9%	38.7%	39.6%	26.2%	29.2%	36.1%	38.0%	29.7%	31.9%	38.2%	41.7%	31.0%	28.7%	37.1%	35.5%	27.6%	27.8%	34.2%	35.9%	30.0%	34.4%	39.6%
03 Construction Total		27.5%	32.5%	40.0%	58.0%	23.8%	32.8%	45.9%	50.7%	25.5%	36.6%	40.9%	48.8%	27.2%	38.7%	44.6%	51.7%	30.7%	38.0%	42.0%	51.8%	31.8%	36.9%	43.8%
04 Manufacturing		15.0%	17.3%	22.4%	17.8%	15.1%	17.6%	21.0%	20.9%	16.4%	17.6%	21.3%	21.0%	15.8%	19.5%	20.7%	21.7%	19.3%	19.8%	23.6%	24.6%	20.3%	25.5%	28.7%
04 Manufacturing Total		14.4%	16.0%	19.1%	18.5%	14.1%	14.2%	17.8%	20.6%	13.7%	14.6%	20.2%	20.5%	16.3%	16.1%	25.3%	18.2%	17.7%	17.4%	20.5%	23.1%	19.1%	28.3%	27.7%
05 TCPU		18.3%	19.4%	22.8%	24.3%	20.8%	18.5%	22.1%	23.9%	19.2%	21.3%	23.2%	27.0%	22.3%	20.4%	23.7%	24.8%	20.5%	19.8%	20.7%	23.8%	25.0%	26.9%	31.8%
05 TCPU Total		13.9%	14.6%	17.7%	18.2%	15.6%	13.6%	16.7%	21.1%	14.4%	16.9%	17.3%	21.6%	18.8%	16.4%	18.2%	18.2%	15.2%	14.7%	15.8%	19.0%	20.5%	22.7%	26.9%
06 Wholesale Trade		15.5%	12.8%	15.1%	14.4%	12.2%	15.0%	17.7%	16.1%	12.8%	13.8%	17.9%	19.7%	15.6%	17.1%	17.6%	15.3%	17.0%	14.0%	14.7%	13.7%	17.2%	15.6%	22.3%
06 Wholesale Trade Total		14.4%	14.8%	17.2%	16.6%	14.7%	16.4%	19.0%	18.9%	14.5%	15.7%	19.4%	22.6%	15.6%	18.6%	20.2%	17.8%	17.0%	16.1%	17.6%	16.2%	17.2%	18.2%	24.3%
07 Retail Trade		23.2%	26.5%	35.5%	29.1%	23.5%	26.6%	33.8%	30.0%	24.1%	27.9%	35.9%	36.6%	26.7%	31.4%	35.5%	30.9%	26.4%	27.2%	34.7%	30.9%	23.7%	31.5%	40.9%
07 Retail Trade Total		18.0%	20.0%	28.9%	27.2%	16.9%	18.1%	28.5%	35.0%	17.6%	22.7%	43.0%	24.4%	18.5%	35.1%	36.5%	24.2%	20.6%	17.5%	28.3%	27.1%	20.3%	20.1%	28.8%
08 FIRE		10.1%	9.7%	13.3%	12.3%	10.2%	10.5%	13.1%	12.0%	11.0%	11.5%	14.4%	14.9%	15.1%	14.0%	13.2%	12.6%	13.4%	12.2%	18.8%	17.0%	13.5%	15.0%	18.8%
08 FIRE Total		9.5%	9.7%	12.6%	13.9%	10.3%	11.3%	11.6%	13.2%	9.6%	11.6%	14.0%	14.1%	12.3%	13.1%	14.1%	15.3%	8.3%	12.5%	14.8%	13.2%	11.6%	15.5%	16.5%
09 Services		19.6%	21.5%	27.9%	25.9%	19.1%	24.2%	31.1%	26.6%	21.9%	22.9%	32.7%	31.9%	24.9%	23.4%	28.6%	26.3%	19.2%	23.2%	25.3%	24.8%	20.4%	17.2%	30.6%
09 Services Total		12.1%	12.6%	16.7%	15.9%	12.2%	14.1%	17.1%	15.6%	13.0%	14.3%	18.8%	18.6%	16.6%	16.1%	17.2%	16.4%	13.5%	14.9%	19.4%	17.9%	14.6%	17.7%	21.1%
10 Government		25.5%	26.7%	48.3%	46.9%	29.1%	23.6%	48.6%	47.6%	27.2%	27.1%	58.0%	47.0%	27.4%	26.2%	49.1%	46.0%	31.4%	27.1%	49.2%	47.8%	26.9%	30.0%	52.4%
10 Government Total		21.8%	25.5%	25.5%	27.2%	20.5%	27.8%	24.8%	28.0%	20.9%	28.3%	25.4%	27.4%	25.9%	29.7%	27.9%	26.6%	22.3%	30.8%	28.9%	26.3%	25.0%	35.2%	36.3%
11 Social Services		33.8%	37.7%	47.1%	48.2%	32.0%	36.1%	45.1%	43.3%	37.1%	37.2%	45.9%	47.4%	33.6%	42.9%	43.3%	42.1%	34.5%	38.7%	43.4%	41.8%	36.1%	44.1%	43.4%
11 Social Services Total		21.4%	24.0%	26.7%	24.2%	20.9%	21.5%	23.9%	24.4%	22.7%	25.0%	25.9%	29.5%	26.4%	26.4%	28.3%	25.0%	21.8%	26.2%	25.6%	23.5%	25.5%	31.0%	29.0%
12 N/A		19.2%	18.5%	23.8%	21.0%	18.7%	18.8%	22.0%	21.6%	20.3%	22.1%	23.3%	25.9%	18.3%	23.9%	21.2%	25.8%	20.4%	21.5%	23.1%	27.0%	23.7%	24.0%	35.5%
12 N/A Total		21.9%	24.6%	34.9%	21.8%	23.1%	23.8%	34.9%	22.5%	25.0%	25.6%	34.5%	28.2%	29.0%	29.7%	36.3%	31.0%	21.0%	26.6%	33.0%	23.2%	24.6%	34.3%	37.0%
Grand Total		22.9%	41.5%	50.8%	40.0%	26.1%	34.4%	48.4%	37.1%	27.1%	36.2%	48.0%	40.9%	26.3%	35.0%	47.7%	36.2%	25.0%	38.0%	45.6%	37.6%	24.9%	41.9%	53.4%
01 Agriculture, Forestry, Fishing		14.7%	17.0%	16.7%	16.7%	13.0%	14.5%	17.1%	15.4%	14.8%	19.5%	19.3%	20.7%	16.8%	20.3%	19.6%	17.7%	18.7%	15.7%	18.6%	18.5%	18.3%	25.4%	23.8%
01 Agriculture, Forestry, Fishing Total		14.6%	15.6%	16.9%	16.7%	12.6%	16.2%	16.5%	15.8%	13.2%	14.9%	16.7%	20.2%	15.8%	15.4%	18.0%	17.0%	14.4%	14.5%	19.5%	20.1%	16.9%	19.0%	21.5%
02 Mining		17.4%	18.8%	37.7%	21.3%	15.8%	21.7%	37.3%	22.7%	19.1%	23.3%	34.9%	34.3%	25.1%	23.2%	46.1%	22.7%	24.2%	25.3%	33.5%	32.8%	22.9%	33.7%	35.1%
02 Mining Total		15.7%	20.4%	24.4%	21.5%	16.0%	21.7%	24.3%	18.1%	15.7%	22.7%	22.6%	21.9%	21.9%	22.1%	25.1%	19.8%	22.0%	23.7%	23.1%	21.8%	23.5%	28.1%	31.0%
03 Construction		10.4%	17.2%	38.6%	26.8%	11.7%	53.8%	37.7%	34.3%	21.7%	9.8%	34.8%	30.2%	13.1%	15.5%	35.7%	25.0%	13.1%	11.0%	37.5%	26.0%	11.4%	13.6%	36.7%
03 Construction Total		20.0%	22.9%	37.1%	24.1%	24.3%	24.7%	33.4%	24.6%	18.7%	22.9%	35.4%	24.6%	23.0%	23.3%	34.2%	22.0%	20.9%	27.3%	32.2%	25.3%	28.0%	27.8%	41.7%
04 Manufacturing		15.3%	20.1%	21.2%	22.5%	15.6%	19.9%	20.1%	21.9%	16.2%	21.3%	21.6%	24.4%	19.0%	30.0%	25.3%	25.3%	19.7%	25.5%	23.5%	22.8%	18.3%	27.1%	30.8%
04 Manufacturing Total		18.5%	17.9%	27.6%	28.3%	15.7%	19.6%	27.4%	18.5%	20.0%	30.6%	26.2%	24.2%	20.5%	28.6%	28.0%	21.7%	22.4%	25.4%	31.8%	17.7%	26.9%	33.6%	
05 TCPU		11.4%	21.1%	16.4%	30.6%	17.1%	15.3%	16.2%	29.1%	24.8%	16.1%	17.5%	23.6%	29.8%	11.5%	9.5%	22.0%	19.7%	21.7%	16.7%	20.2%	29.5%	20.5%	39.7%
05 TCPU Total		20.8%	25.6%	35.1%	31.2%	21.0%	23.9%	34.3%	29.9%	22.3%	26.3%	35.4%	33.2%	24.2%	28.2%	35.4%	30.5%	24.7%	27.1%	34.4%	31.3%	25.4%	32.0%	38.6%
06 Wholesale Trade		4.8%	7.5%	7.3%	6.1%	3.8%	5.7%	7.3%	5.6%	4.7%	6.8%	8.1%	6.0%	7.3%	6.0%	6.2%	6.1%	6.2%	5.7%	8.7%	5.9%	5.6%	5.8%	7.8%
06 Wholesale Trade Total		4.3%	9.2%	14.9%	5.4%	7.1%	9.4%	15.7%	10.2%	5.4%	9.2%	17.0%	7.3%	8.2%	8.7%	19.7%	6.9%	7.6%	10.2%	18.0%	8.0%	8.7%	12.0%	21.2%
07 Retail Trade		11.2%	12.1%	25.7%	20.3%	9.5%	11.5%	25.6%	12.9%	11.4%	13.4%	28.5%	17.8%	12.0%	13.0%	27.4%	13.6%	15.1%	14.0%	31.2%	13.0%	16.6%	15.0%	29.9%
07 Retail Trade Total		9.3%	19.7%	9.9%	11.3%	8.3%	18.2%	11.2%	10.1%	9.3%	21.0%	12.7%	13.2%	10.1%	26.0%	11.8%	10.0%	11.0%	12.0%	10.3%	20.3%	20.1%	25.5%	
08 FIRE		8.5%	15.5%	13.9%	11.8%	7.8%	14.3%	14.4%	10.1%	8.7%	16.4%	16.2%	12.5%	9.9%	19.2%	15.6%	9.9%	10.8%	16.6%	16.5%	10.0%	16.4%	15.9%	23.3%
08 FIRE Total		33.1%	23.3%	29.6%	49.9%	31.7%	23.0%	30.8%	58.6%	34.7%	21.5%	30.3%	52.8%	18.4%	36.3%	22.4%	53.6%	17.4%	27.5%	34.2%	55.5%	49.1%	30.5%	61.6%
09 Services		33.1%	23.3%	29.6%	49.9%	31.7%	23.0%	30.8%	58.6%	34.7%	21.5%	30.3%	52.8%	18.4%	36.3%	22.4%	53.6%	17.4%	27.5%	34.2%	55.5%	49.1%	30.5%	61.6%
09 Services Total		17.3%	21.6%	27.3%	25.2%	17.5%	21.3%	27.4%	24.7%	18.2%	22.9%	28.2%	28.1%	20.2%	25.2%	28.7%	25.0%	20.4%	23.1%	27.9%	25.6%	22.7%	26.8%	33.5%

