

The Perfect Storm



Employment and Jobs Outlook to 2014
September 2007

The Perfect Storm

is a publication of the
Community Service Council of Greater Tulsa,
based on the work of the Long Range Planning Committee

February 2009

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Community Service Council of Greater Tulsa

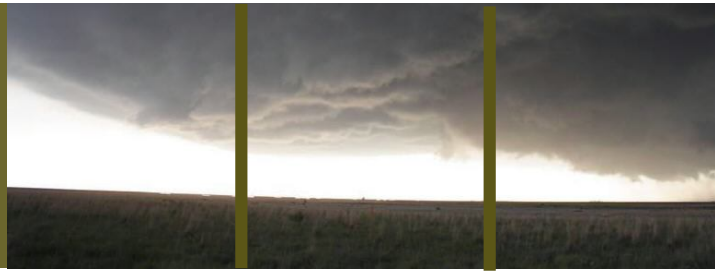
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This monograph is one in a series produced in conjunction with the Perfect Storm visual presentation available at the Council's website, www.csctulsa.org.

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The Perfect Storm



The “Perfect Storm” surviving and possibly even thriving will require a dramatically new framework of thinking. We have no choice.

The Community Service Council of Greater Tulsa, Inc. provides leadership in community-based planning and mobilization of resources to address health and human service needs in much of Eastern Oklahoma. During the past several months, the Council has analyzed a wide view of global, national and local developments, their interfacing with each other, and their possible impact on the future. This analysis will guide the Council’s strategic thinking for itself and for the broader community.

The analysis reveals that the developments and forces in play are so powerful and numerous that it is likely a “perfect storm” effect may be imminent or possible upon us in some aspects. This conclusion led the Council to additional study which indicated research focused on an individual critical issue (e.g., education, labor force, aging, immigration, food and water supplies) commonly predict some version of a “perfect storm” of unprecedented challenges affecting their particular critical issue. Based on these predictions, the Council took a second, closer look at this storm effects, which will possibly be comprised of converging, individual perfect storms and concluded we may be in for a “super” perfect storm.

Understanding the magnitude and relevance of this phenomenon and its significant to the Council’s work and the Tulsa community is the Council’s most critical step in its long rang planning. The second step would be a new framework of thinking, based on the likely results of the anticipated perfect storm.

Employment and Jobs Outlook to 2014

Overview

Employment is determined by the amount demanded of various goods and services, among other factors. Greater demand for health care services, for example, is expected due to the aging of the baby boomers and therefore greater employment of health care professionals is expected. The types of goods and services demanded determine the industry composition of employment, and the resulting demand for certain skills within industries determines the occupational composition of employment.

Numbers on employment represent the number of persons on establishments payrolls employed either full- or part-time. Therefore, persons working for two establishments would be counted for each establishment. Self-employed workers are also included. Consequently, employment cannot be interpreted as the number of workers since some workers hold more than one job.

The Overall Employment Projections section of this report discusses the size of total United States employment historically, currently, and projected to 2014 and then presents the percent growth in employment by state. The Employment Projections by Educational Training section shows how the employment trends vary by education (high school degree or less, some college, bachelor's degree or higher) and by other education and training categories. The Employment Projections by Occupation and Employment by Industry sections discuss how employment trends vary by occupation and industry. Wages and Benefits presents information on how wages and benefits have changed over time and how they vary by education and gender. Other Continued Changes in Employment discusses other changes in employment such as the increase in contracting and self-employment.

Projected employment is frequently analyzed in what follows by both numeric change over time and percentage change. It is possible for one of these to be small and the other to be

large. Specifically, as we'll discuss below, the number of jobs held by a worker with a high school degree or less is projected to grow by the largest numeric change from 2004 to 2014 when compared to some college and bachelor degree jobs. However, high school degree or less jobs are projected to grow at the slowest percentage. As a simple illustration to make this point more clear, consider one person who had \$10,000 invested in the bank at the beginning of the year and \$10,500 at the end of the year. Another person had \$100 invested in the bank at the beginning of the year and \$110 at the end of the year. The first person had the larger numeric change of \$500 versus \$100, however s/he had a smaller percentage change of 5% versus 10%. In this case, a smaller percentage of a much larger number equates to a larger numeric change.

Illustrative Example of Numeric and Percentage Change

	\$ in Bank		Change	
	Beginning of Year	End of Year	Number	Percent
Person 1	\$10,000	\$10,500	\$500	5%
Person 2	\$100	\$110	\$100	10%

This brief summarizes publications on the employment outlook through 2014. The main publications are written by the Bureau of Labor Statistics (BLS) and the Oklahoma Employment Security Commission. In November 2007, the BLS projections through 2016 are expected to be released.

Key Findings

Education Attainment: The share of United States jobs filled by people with a college degree is expected to increase from 24% in 2004 to 26% in 2014. This change is because the percentage growth in the number of jobs for those with a college degree (19% from 2004 to 2014) is expected to exceed this percentage growth for those with less education (13% for those with some college and 10% for those with a high school degree or less). However, because jobs for those with a high school degree or less represent almost half of overall jobs, these jobs are expected to have a slightly larger numeric increase from 2004 to 2014, adding 6.9 million of the 18.9 million jobs, than jobs filled by people with college degrees.

Occupational Group: Across the 10 major occupational groups, the two groups expected to have the largest numeric and percentage change from 2004 to 2014 are Professional and Related Occupations and Service Occupations, which are on the opposite ends of the educational attainment and earnings spectrum. Specifically, average hourly earnings are almost \$30 for Professional and Related Occupations and \$11 for Service Occupations. These groups currently make up 39% of all jobs and this is expected to increase to 41%.

Detailed Occupational Group: The 30 detailed occupational groups with the largest numeric change, adding about 8.8 million jobs, tend to be less-skilled, low-wage jobs such as a retail salespersons and customer service representatives while the 30 groups with the largest percentage growth tend to be higher-skilled, high-wage jobs such as physician assistants and data communications analysts.

Industry Group: The long-term shift from goods-producing to service-producing employment is expected to continue with Professional and Business Services – such as legal, accounting,

administrative and support services - and Health Care and Social Assistance – including private hospitals, nursing and residential care facilities, and individual and family services – being the major industry groups projected to account for almost half of the numeric growth from 2004 – 2014. These two groups also fall right behind Educational Services in leading percentage growth.

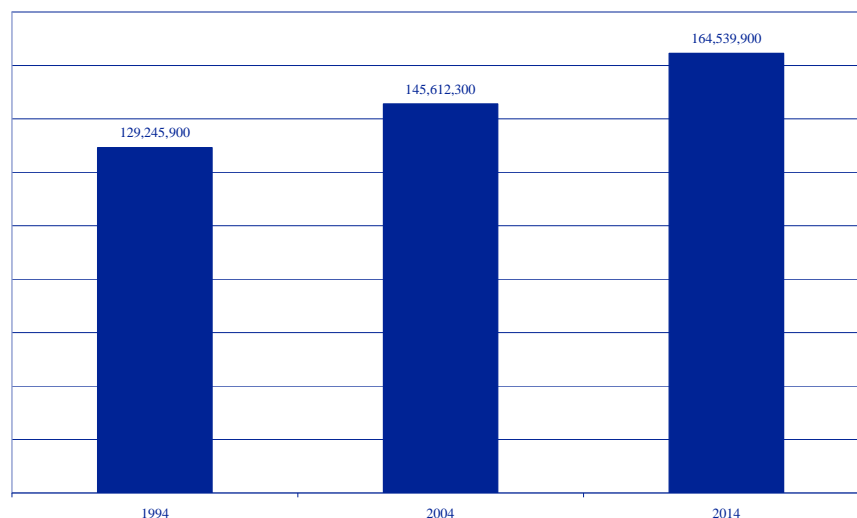
Wages and Benefits: Inflation-adjusted wages for those with college degrees are likely to continue their historical rise while those for workers with some college or more are likely to continue to stagnant or even decrease. The stagnation of wages of workers with less education has several causes, including the shift of available less-skilled jobs away from high-wage manufacturing to lower-wage service industries, a decrease in unionization, a relative decrease in demand for less-skilled workers, and erosion in the value of the federal minimum wage. Employers are less likely to provide health care and pension coverage for their employees than they used to be. For those who still receive coverage, they are often paying a larger share of costs, in the case of health care, or have lower quality pension plans.

Overall Employment Projections

Projections

United States employment was roughly 145.6 million in 2004 and is projected to increase 13% from 2004 to 2014 to then total 164.5 million. Consequently, 18.9 million new jobs are expected to be added to the United States economy. This growth rate roughly equals the growth rate experienced from 1994 to 2004 and is slightly higher than the 11.9% growth rate expected for Oklahoma. Oklahoma’s employment is expected to grow from 1.7 million in 2007 to 1.8 million in 2014. The 145.6 million United States jobs are filled by 138 million people 16 years or older, implying that about 7 million people hold multiple jobs.

Figure 1. United States Employment, 1994, 2004 and Projected 2014



Source: "Industry output and employment projections to 2014," Monthly Labor Review, November 2005

Oklahoma is projected to be the 29th fastest growing state in terms of employment when compared to the 47 states with available data, as shown in the table below. The state to grow the fastest, Nevada, is expected to grow much faster than all other states.

Table 1. Percent Growth in Employment by State

Rank	State	Percent Change	Rank	State	Percent Change
1	Nevada	42%	25	South Dakota	12%
2	Utah	31%	26	Kentucky	12%
3	Colorado	28%	27	Iowa	12%
4	Arizona	28%	28	Minnesota	12%
5	Wyoming	25%	29	Oklahoma	11%
6	Idaho	23%	30	Wisconsin	11%
7	Florida	20%	31	Rhode Island	10%
8	Arkansas	19%	32	Nebraska	10%
9	Georgia	18%	33	New Jersey	9%
10	Montana	17%	34	Indiana	9%
11	New Hampshire	16%	35	Illinois	8%
12	North Carolina	16%	36	Connecticut	8%
13	California	16%	37	North Dakota	8%
14	South Carolina	16%	38	Missouri	8%
15	Tennessee	15%	39	Vermont	8%
16	Washington	15%	40	Maine	7%
17	Alabama	14%	41	Michigan	7%
18	Alaska	14%	42	Massachusetts	7%
19	Maryland	14%	43	Ohio	7%
20	Oregon	14%	44	New York	7%
21	New Mexico	14%	45	Louisiana	6%
22	Mississippi	14%	46	Pennsylvania	6%
23	Hawaii	13%	47	West Virginia	6%
24	Delaware	13%			

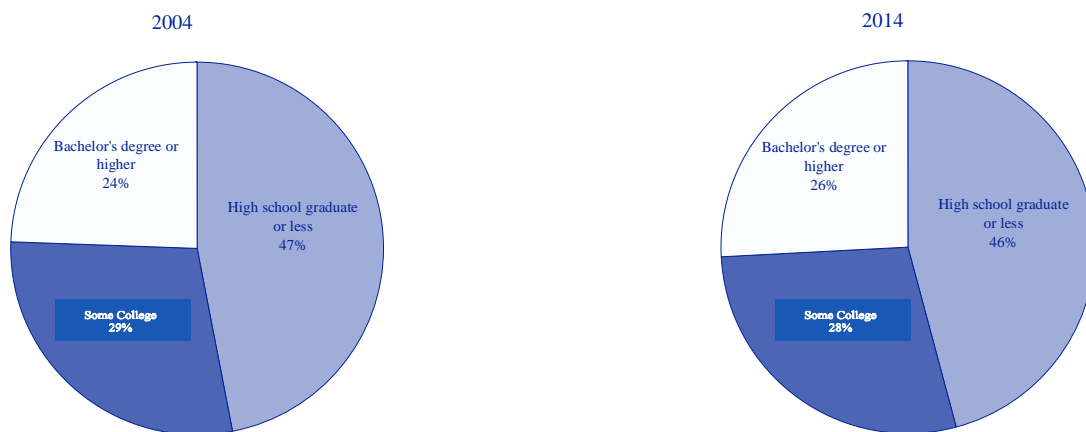
Source: "Industry output and employment projections to 2014," Monthly Labor Review, November 2005

Employment Projections by Education and Training

Employment by the Educational Attainment of Workers

Roughly 24% of the jobs in the United States are filled by people with a bachelor's degree or higher and this is projected to increase by two percentage point through 2014. While relatively more jobs will be for higher-skilled workers, relatively fewer jobs will be for lesser-skilled workers but this change is very small. From the early 1970s to now, however, there has been a huge shift to a more educated workforce in that only 15% of the workers had a bachelor's degree or higher in 1973. "Some college" jobs are for those with attended some college or hold an associate's degree.

Figure 2. United States Employment in 2004 and 2014 by Education



Source: Table I-2, "Chapter I. Education and Training Classification Systems", Occupational Projections and Training Data, 2006-2007

Given the slight projected change to more education as shown above, this implies that the percent growth from 2004 to 2014 of jobs held by those with a bachelor's degree or more is larger than that of jobs held by those less education. As shown in the next table, the projected growth rate of bachelor's degree or higher jobs is 19% while the growth rate of high school degree jobs is about 10%. However, because total employment for those with a high school degree or less is so much larger than that for those with a college degree, a smaller growth percentage does not translate into a smaller numeric change. In other words, the actual number of jobs created from 2004 to 2014 for those with a high school degree or less is larger than the number created for those with a college degree.

Table 2. Employment by Educational Attainment

Educational Attainment	Employment (in 1000s)		Change (in 1000s)	
	2004	2014	Number	Percent
High school graduate or less	68,530	75,463	6,933	10.1%
Some college	41,526	46,772	5,246	12.6%
Bachelor's degree or higher	35,556	42,315	6,759	19.0%

Source: "Chapter I. Education and Training Classification Systems", Occupational Projections and Training Data, 2006-2007

While jobs for those with some college are starting to make up a larger share of total jobs, they do not pay much more than jobs for those with high school degrees. In 2005, the average hourly wage of jobs for those with some college was \$15.89 while it was \$14.14 for those with a high school degree, a 12% differential. In comparison, jobs for those with a college degree earn about 75% than jobs for those with a high school degree.

Employment by the Educational Attainment Clusters of Occupations

The projections by the educational attainment of workers were calculated based on the Bureau of Labor Statistics' Educational Attainment Cluster System, which places each detailed occupation into one of six education clusters based on the educational attainment of 25 to 44 year olds in those occupations. This system is completely data driven and allows for the existence of several educational attainment pathways into an occupation. For example, occupations with 60% or more of the employees having a high school degree or less and less than 20% have some college are placed into the high school cluster. However, occupations with 60% or more having a high school degree and 20% or more having some college are placed in the high school/some college cluster. The available classifications for each occupation are (1) high school, (2) high school/some college, (3) some college, (4) high school/some college/college, (5) some college/college, and (6) college.

As shown in the next table, almost 47% of the jobs in the United States are in high school/some college occupations. In these occupations, 20% or more of workers have a high school degree or less and 20% or more of workers have some college, yet less than 20% have a college degree. A slight shift is projected to occupations requiring more education and away from occupations requiring less education. For example, high school/some college occupations are projected to represent one percentage point fewer jobs in 2014 yet some college/college occupations are projected to represent one more percentage point. Similarly, high school occupations are projected to make up a smaller share of overall employment changing from 13.2% to 12.8% while college occupations are projected to make up a larger share changing from 11.6% to 12.4%. These findings are similar to those shown by education attainment of workers in that an increased demand for more educated workers is expected yet this change is not large.

Table 3. Employment by Educational Attainment Cluster

	Employment (in 1000s)		Percent Distribution		Change in Number (in 1000s)	Percentage Change
	2004	2014	2004	2014	2004-2014	
High school occupations	19,164	21,100	13.2%	12.8%	1,936	10.1%
High school/some college occupations	67,944	74,671	46.7%	45.4%	6,727	9.9%
Some college occupations	218	279	0.1%	0.2%	61	28.0%
High school/some college/college occupations	24,894	28,019	17.1%	17.0%	3,125	12.6%
Some college/college occupations	16,470	20,031	11.3%	12.2%	3,561	21.6%
College occupations	16,922	20,440	11.6%	12.4%	3,518	20.8%

Source: "Chapter I. Education and Training Classification Systems", Occupational Projections and Training Data, 2006-2007

The percent change from 2004 to 2014 in high school/some college occupations is smaller than that for all the other clusters; this is consistent with the expectation that occupations requiring less education will represent fewer jobs in the future. However, because high school/some college occupations represent such a large portion of total employment, a smaller growth percentage does not translate into a smaller numeric change. In other words, the actual number of jobs created from 2004 to 2014 for high school/some college occupations is larger than the number created for all the other clusters.

Employment by the Education and Training Categories of Occupations

The BLS also uses the Education and Training System, which places each detailed occupation into one of the 11 education or training categories based on the level of education or training generally required or attained by people in those occupations. Consequently, this system does not allow for multiple pathways into an occupation however it does address the knowledge and skills acquired outside the formal education system. Available data and interviews with a variety of sources are used to determine how an occupation should be classified.

Jobs classified as either short-term on-the-job training or moderate-term on-the-job training account for over half of total employment, and their cumulative share is expected to decrease by over one percentage point by 2014. This is similar to the story from the preceding section showing that jobs filled by high school workers will make up a smaller share of employment over time since, as shown in Table 4, the large bulk of short- and medium-term on-the-job training jobs are high school/some college jobs. Occupations requiring a bachelor's degree or more are expected to comprise a larger portion of jobs over time.

Table 4. Employment by Education and Training Categories

	Employment (in 1000s)		Percent Distribution		Change in Number (in 1000s)	Percentage Change
	2004	2014	2004	2014		
Short-term on-the-job training	51,783	57,694	35.6%	35.1%	5,911	11.4%
Moderate-term on-the-job training	28,949	31,415	19.9%	19.1%	2,466	8.5%
Long-term on-the-job training	11,025	11,982	7.6%	7.3%	957	8.7%
Work experience in a related occupation	11,057	12,114	7.6%	7.4%	1,057	9.6%
Postsecondary vocational award	7,913	9,317	5.4%	5.7%	1,404	17.7%
Associate degree	5,409	6,768	3.7%	4.1%	1,359	25.1%
Bachelor's degree	17,039	20,378	11.7%	12.4%	3,339	19.6%
Bachelor's or higher degree plus work experience	6,501	7,583	4.5%	4.6%	1,082	16.6%
Master's degree	2,147	2,553	1.5%	1.6%	406	18.9%
Doctoral degree	1,939	2,533	1.3%	1.5%	594	30.6%
First professional degree	1,849	2,203	1.3%	1.3%	354	19.1%

Source: Table I-3 and I-4, "Chapter I. Education and Training Classification Systems", Occupational Projections and Training Data, 2006-2007

Jobs for individuals with postsecondary vocational awards and associate degrees are expected to increase by almost 18% and 25%, respectively, from 2004 to 2014. Given that these jobs pay much better than most other jobs for individuals with a high school degree or less or even some college and the degrees can be relatively inexpensive, this can be an attractive option for many individuals. Vocational schools and community colleges should expect an increase in demand for their programs.

Table 5 translates this classification system to the educational attainment cluster system in 2004. Specifically, for each of the 11 education or training categories, it shows the distribution across the educational attainment clusters. For example, over 60 percent of the short-term on-the-job training jobs are high school/some college occupations. The same is true of moderate-term and long-term on-the-job-training jobs.

Table 5. Employment by Education and Training Categories

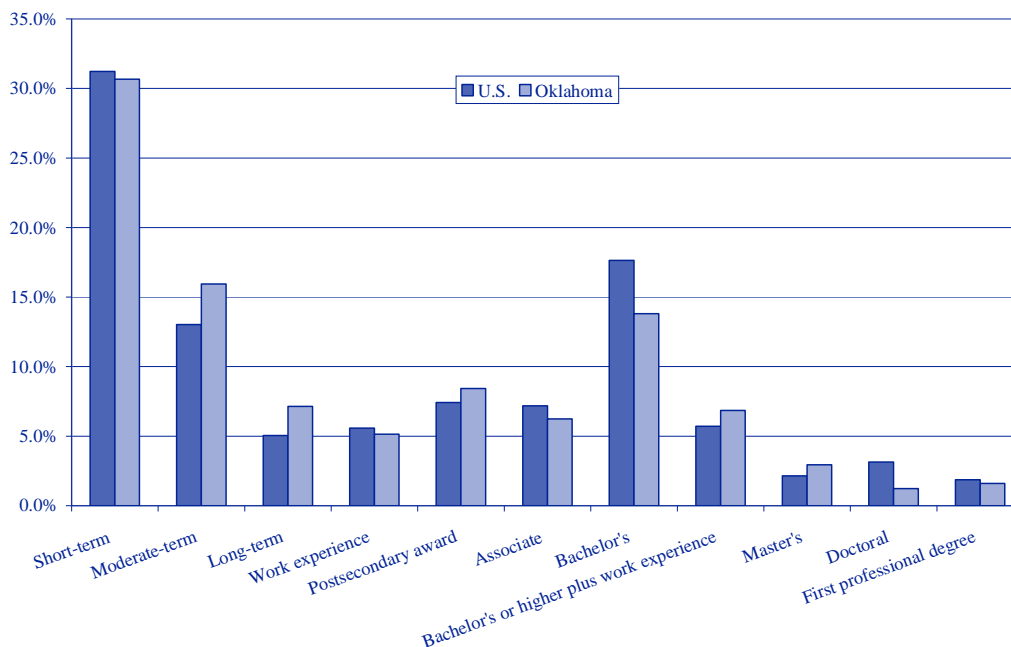
	HS	HS/SC	SC	HS/SC/C	SC/C	C
Short-term	25.0%	61.0%	0.0%	13.3%	0.7%	0.0%
Moderate-term	15.2%	63.7%	0.0%	18.5%	2.5%	0.0%
Long-term	15.2%	65.5%	0.0%	8.0%	10.6%	0.7%
Work experience	1.4%	36.4%	0.0%	57.2%	5.0%	0.0%
Postsecondary award	0.0%	70.6%	2.4%	17.5%	8.3%	1.1%
Associate	0.0%	15.7%	0.4%	7.1%	76.8%	0.0%
Bachelor's	0.0%	0.0%	0.0%	10.3%	35.5%	54.2%
Bachelor's or higher plus work experience	0.0%	3.4%	0.0%	29.0%	41.2%	26.3%
Master's	0.0%	0.0%	0.0%	0.0%	5.0%	95.0%
Doctoral	0.0%	0.0%	0.0%	0.0%	1.1%	98.9%
First professional degree	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%

Source: Table I-4, "Chapter I. Education and Training Classification Systems", Occupational Projections and Training Data, 2006-2007

Projected Employment by Education and Training Categories: United States versus Oklahoma

Relative to the United States, Oklahoma is projected to add fewer bachelor degree jobs and more moderate-term and long-term on-the-job training jobs. The figure below compares the distribution of new jobs by education and training category in the United States and Oklahoma. Bachelor degree and doctoral degree jobs account for a much smaller portion of new jobs in Oklahoma than in the United States while moderate-term and long-term on-the-job training jobs account for a larger portion.

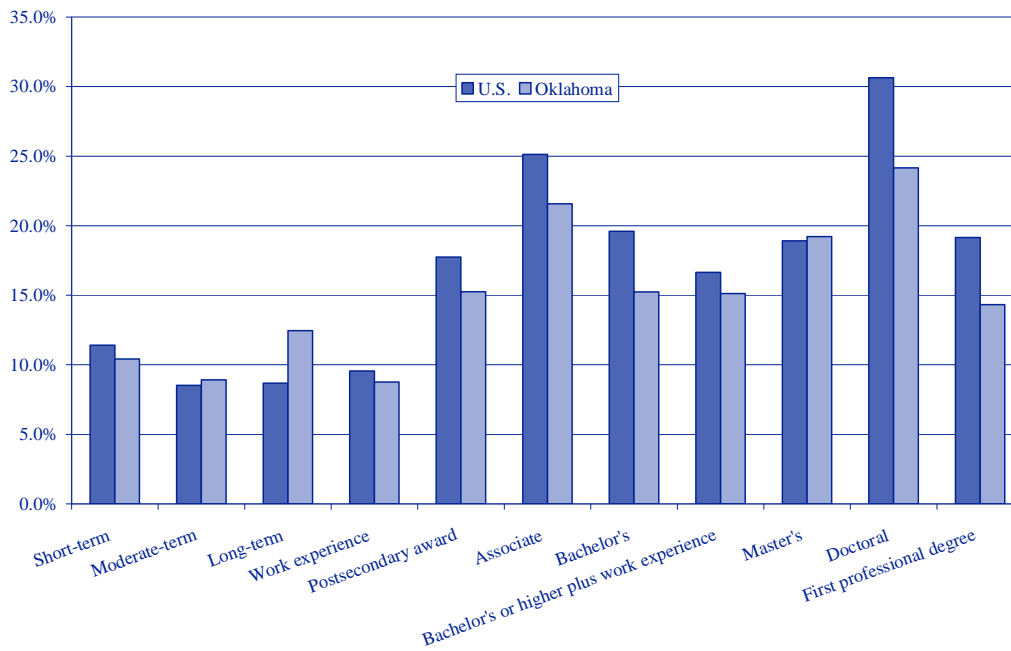
Figure 3. Distribution of Numeric Growth in Employment from 2004 to 2014 by Education and Training Category



Source: "Chapter I. Education and Training Classification Systems", Occupational Projections and Training Data, 2006-2007, Table I-4, and Oklahoma Employment Outlook 2014, Table 8

The percent growth by education and training classification in the United States compared to Oklahoma is shown in the figure below. Bachelor degree jobs are predicted to increase nearly 20% in the United States, yet this increase is projected to be only 15% in Oklahoma. Similarly doctoral degree jobs are increasing much slower in Oklahoma. On the other hand, long-term on-the-job training jobs are increasing at a faster rate in Oklahoma.

Figure 4. Percent Growth from 2004 to 2014 by Education and Training Category



Source: "Chapter I. Education and Training Classification Systems", Occupational Projections and Training Data, 2006-2007, Table I-4, and Oklahoma Employment Outlook 2014, Table 8

Employment Projections by Occupation

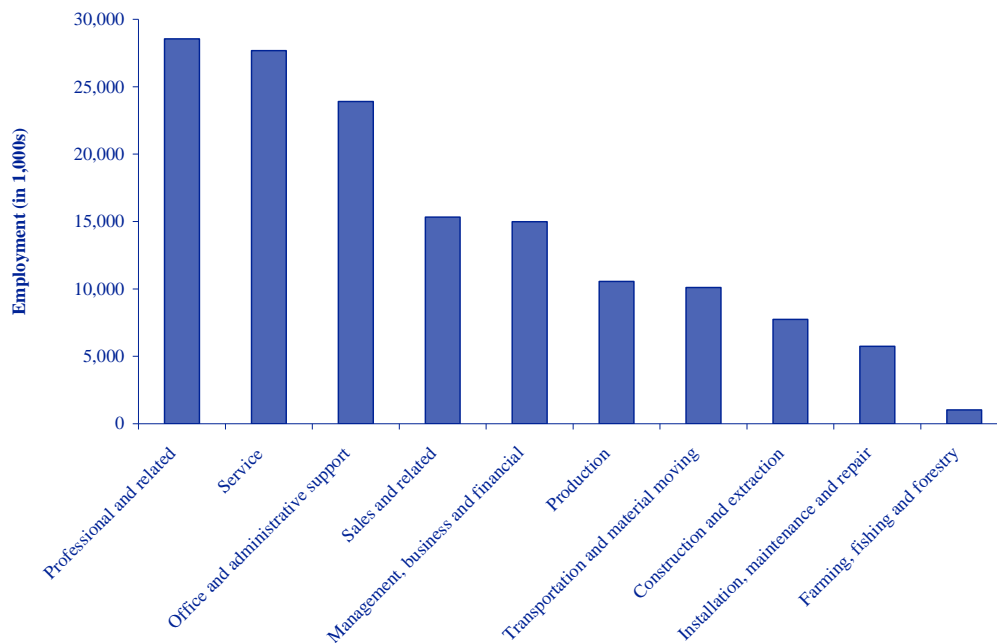
Each occupation has been assigned into a major occupational group and into a detailed occupational group. There are 10 major occupational groups and about 750 detailed occupations. This section examines how many occupations are in each major occupational group and how this is projected to change and also examines which detailed occupations are the fastest growing in terms of both numeric and percentage change. Occupations include all primary and secondary jobs for wage and salary, self-employed, and unpaid family workers.

The demand for workers in specific occupations is partially due to employment growth in that occupation and partially due to the need to replace those who leave their jobs to enter other occupations, those who retire, or those who leave the labor force. Job openings resulting from replacement needs often exceed job openings due to employment growth. While nearly 19 million new jobs are to be created from 2004-2014, 54.7 million job openings are expected. The numbers shown in this paper only reflect job openings due to employment growth.

Change by Major Occupational Groups

Among the 10 major occupational groups, the largest groups in terms of total United States employment are Professional and Related Occupations and Service Occupations – each making up about 30 million of jobs and each accounting for roughly 20 percent of jobs. Professional and Related Occupations typically includes workers who are highly skilled; some examples are physical therapists, engineering technicians, lawyers, photographers, desktop publishers, computer software engineers, and teachers. Specifically, 30% of the occupations in Professional and Related Occupations are in education, training, and library fields and an additional 24% are in healthcare practitioner and technical fields. Service Occupations includes workers who assist the public, many of whom have little education; some examples are police, cooks, nursing aids, flight attendants, child care workers, and cosmetologists. Thirty-nine percent of the occupations in Service Occupations are in food preparation and serving related fields and 20% are in building and grounds cleaning and maintenance. In summary, these two major occupational groups are on the opposite ends of the educational attainment and earnings spectrum.

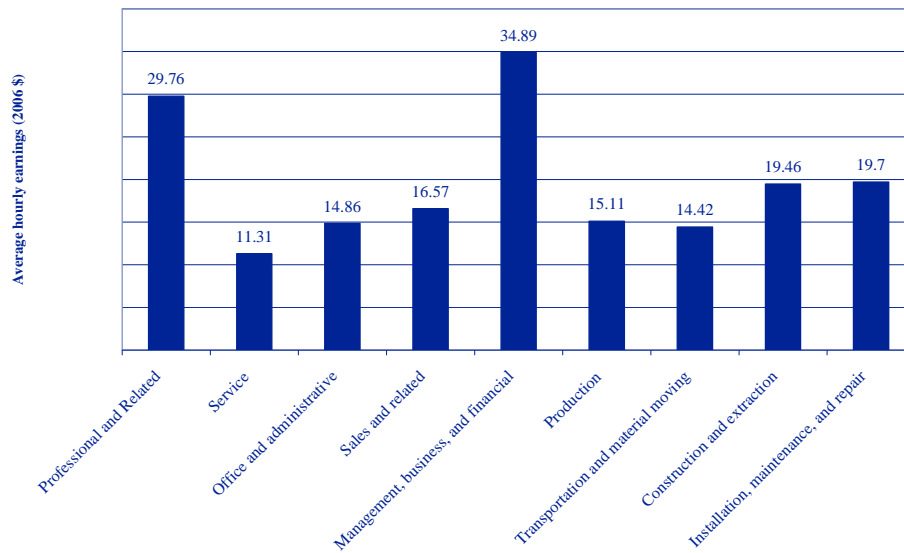
Figure 5. United States Employment in 2004 by Major Occupational Group



Source: "Occupational employment projections to 2014," Monthly Labor Review, November 2005.

Earnings vary tremendously by occupation, with the earnings of workers in Professional and related occupations being more than double the earnings of workers in Service occupations. These differences are due to many reasons, including different required skills.

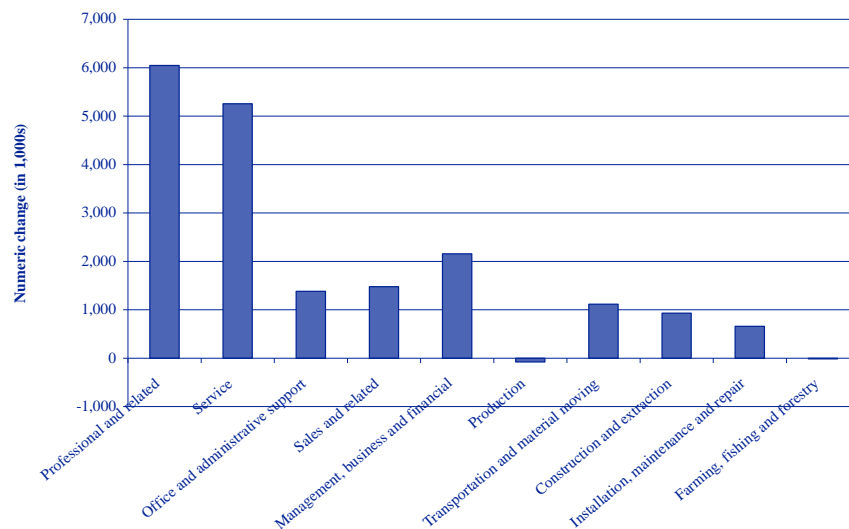
Figure 6. Average Hourly Earnings for Civilian Workers by Occupation in 2006



Source: "National Compensation Survey: Occupational Wages in the United States," United States Department of Labor, June 2006.

These two largest major occupational groups – Professional and Related Occupations and Service Occupations - are the ones expected to have the largest numeric change from 2004 to 2014. Professional and Related Occupations is expected to increase from representing 20% of jobs to 21% by adding more than 6 million jobs and Service Occupations is expected to increase from representing 19% of jobs to 20% by adding more than 5 million jobs. Therefore, these two groups combined will account for more than 11 million of the 19 million new jobs created. As shown below, the other occupational groups are increasing at less than half of these numbers and employment is expected to decrease for Production and Farming, Fishing, and Forestry Occupations.

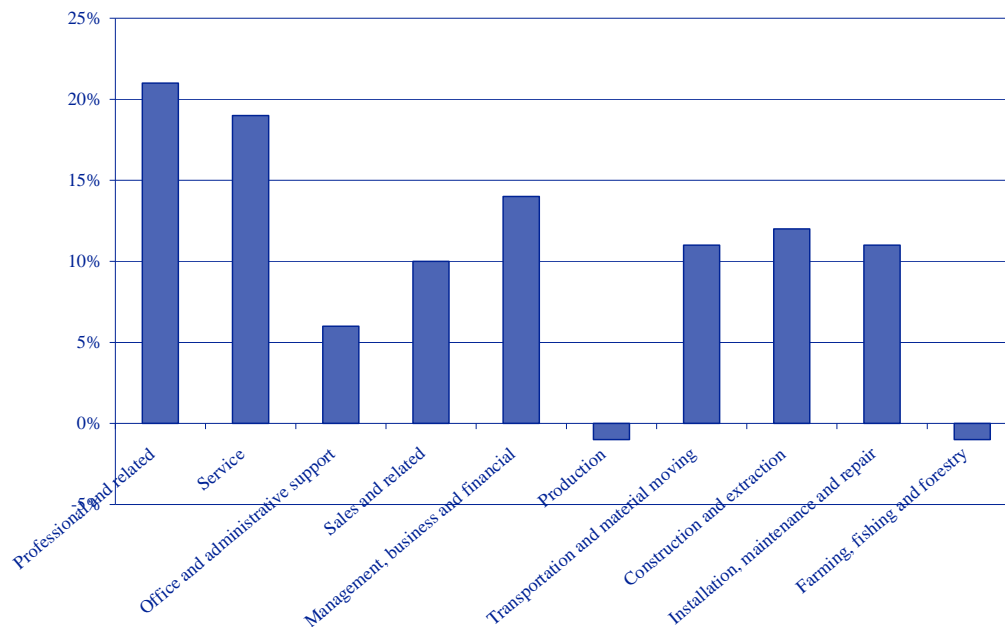
Figure 7. Numeric Growth in Employment from 2004 to 2014 by Major Occupational Group



Source: "Occupational employment projections to 2014," Monthly Labor Review, November 2005.

Looking within these two major occupational groups, over half of the numeric increase in Professional and Related Occupations comes from healthcare practitioners and technical occupations and education, training, and library occupations. Over half of the growth in Service Occupations comes from food preparation and serving related occupations and health care support occupations. Unlike the projections from the previous section, this story is simpler in that the groups with the largest numeric increase are also the groups with the largest percentage in-

Figure 8. Percentage Growth in Employment from 2004 to 2014 by Major Occupational Group

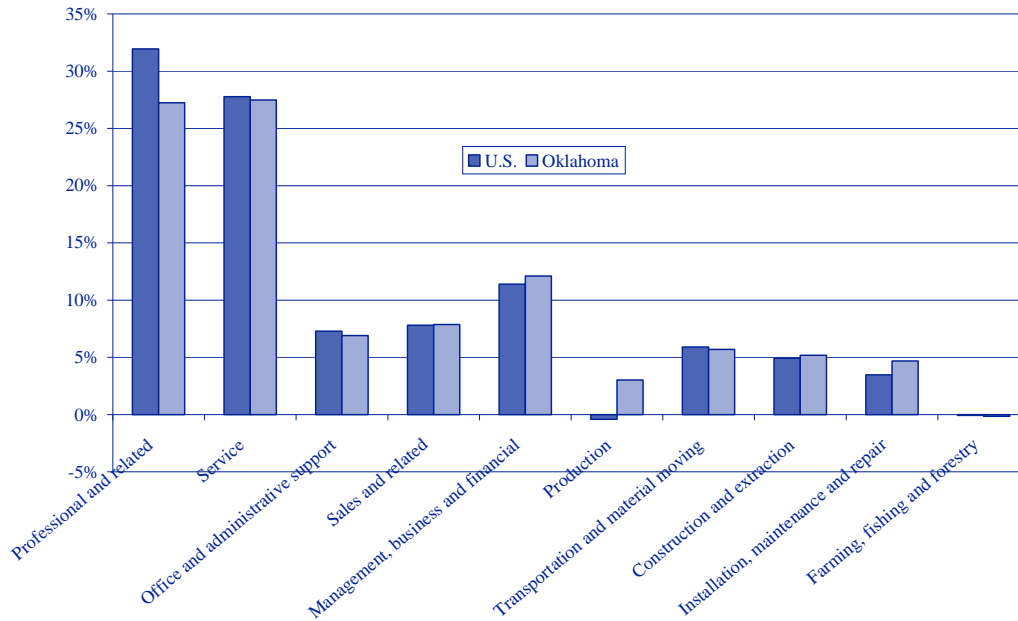


Source: "Occupational employment projections to 2014," Monthly Labor Review, November 2005.

Change by Major Occupational Groups: United States Versus Oklahoma

The two major occupational groups with the largest numeric increase in the United States are also the ones in Oklahoma, as shown below. Both Professional and Related Occupations and Service Occupations each account for about 27% of the numeric growth in Oklahoma. However, relative to the United States, Oklahoma's numeric growth is smaller in Professional and Related Occupations – the group that tends to require higher skill.

Figure 9. Distribution of Numeric Growth in Employment from 2004 to 2014 by Major Occupational Group



Source: "Occupational employment projections to 2014," Monthly Labor Review, November 2005 and Oklahoma Employment Outlook, 2014.

Change by Detailed Occupational Groups

The 30 detailed occupations with the largest numeric growth account for 8.8 million new jobs, which is almost half of the total job growth of 19 million jobs. These occupations, as shown below, represent 8 of the 10 major occupational groups. Over half of them are in the high school/some college educational attainment cluster and half are classified as short-term on-the-job training. Consequently, the jobs with the largest numeric job growth tend to be less-skilled jobs. Only 4 of the 30 fastest growing occupations require a college degree. These occupations that are growing by a large number also tend to already be relatively large since they accounted for almost 47 million of the 146 million jobs in 2004. Given that median annual earnings over all employment was \$28,570 in 2004, most of the occupations listed below are low or very low wage jobs.

Table 6. Detailed Occupations with the Largest Numeric Job Growth

Detailed Occupation Group	Major Occupation Group	Employment (in 1000s)		Change (in 1000s)		Educational Attainment Cluster	Education and Training Classification	Median Annual Earnings
		2004	2014	#	%			
Retail salespersons	Sales and related	4,256	4,992	736	17.3%	HS/SC/C	Short-term on-the-job training	\$18,680
Registered nurses	Professional and Related	2,394	3,096	702	29.3%	SC/C	Associates	\$52,330
Postsecondary teachers	Professional and Related	1,628	2,153	525	32.2%	C	Doctoral degree	\$51,800
Customer service representatives	Office and administrative support	2,063	2,534	471	22.8%	HS/SC/C	Moderate-term on-the-job training	\$27,020
Janitors and cleaners, except maids and housekeeping cleaners	Service and Related	2,374	2,813	439	18.5%	HS	Short-term on-the-job training	\$18,790
Waiters and waitresses	Service and Related	2,252	2,627	375	16.7%	HS/SC	Short-term on-the-job training	\$14,050
Combined food preparation and serving workers, including fast food	Service and Related	2,150	2,516	366	17.0%	HS/SC	Short-term on-the-job training	\$14,690
Home health aides	Service and Related	624	974	350	56.1%	HS/SC	Short-term on-the-job training	\$18,330
Nursing aides, orderlies, and attendants	Service and Related	1,455	1,781	326	22.4%	HS/SC	Postsecondary vocational award	\$20,980
General and operations managers	Management, Business, and Financial	1,807	2,115	308	17.0%	HS/SC/C	Bachelor's degree plus work experience	\$77,420
Personal and home care aides	Service and Related	701	988	287	40.9%	HS/SC	Short-term on-the-job training	\$16,900
Elementary school teachers, except special education	Professional and Related	1,457	1,722	265	18.2%	C	Bachelor's degree	\$43,160
Accountants and auditors	Management, Business, and Financial	1,176	1,440	264	22.4%	C	Bachelor's degree	\$50,770
Office clerks, general	Office and administrative support	3,138	3,401	263	8.4%	HS/SC	Short-term on-the-job training	\$22,770
Laborers and freight, stock, and material movers, hand	Transportation and material moving	2,430	2,678	248	10.2%	HS/SC	Short-term on-the-job training	\$20,120
Receptionists and information clerks	Office and administrative support	1,133	1,379	246	21.7%	HS/SC	Short-term on-the-job training	\$21,830

Detailed Occupation Group	Major Occupation Group	Employment (in 1000s)		Change (in 1000s)		Educational Attainment Cluster	Education and Training Classification	Median Annual Earnings
Landscaping and grounds keeping workers	Service and Related	1,177	1,407	230	19.5%	HS	Short-term on-the-job training	\$20,420
Truck drivers, heavy and tractor-trailor	Transportation and material moving	1,738	1,962	224	12.9%	HS/SC	Moderate-term on-the-job training	\$33,520
Computer software engineers, applications	Professional and Related	460	682	222	48.3%	C	Bachelor's degree	\$74,980
Maintenance and repair workers, general	Installation, maintenance and repair	1,332	1,533	201	15.1%	HS/SC	Moderate-term on-the-job training	\$30,710
Medical assistants	Service and Related	387	589	202	52.2%	HS/SC	Moderate-term on-the-job training	\$24,610
Executive secretaries and administrative assistants	Office and administrative support	1,547	1,739	192	12.4%	HS/SC	Moderate-term on-the-job training	\$34,970
Sales representatives, wholesale and manufacturing, except technical and scientific products	Sales and related	1,454	1,641	187	12.9%	HS/SC/C	Moderate-term on-the-job training	\$45,400
Carpenters	Construction and extraction	1,349	1,535	186	13.8%	HS/SC	Long-term on-the-job training	\$34,900
Teacher assistants	Professional and Related	1,296	1,478	182	14.0%	HS/SC	Short-term on-the-job training	\$19,410
Child care workers	Service and Related	1,280	1,456	176	13.8%	HS/SC	Short-term on-the-job training	\$16,760
Food preparation workers	Service and Related	889	1,064	175	19.7%	HS	Short-term on-the-job training	\$16,710
Maids and housekeeping cleaners	Service and Related	1,422	1,587	165	11.6%	HS	Short-term on-the-job training	\$16,900
Truck drivers, light or delivery services	Transportation and material moving	1,042	1,206	164	15.7%	HS/SC	Short-term on-the-job training	\$24,540
Computer systems analyst	Professional and Related	487	640	153	31.4%	SC/C	Bachelor's degree	\$66,460

Source: "Occupational employment projections to 2014," Monthly Labor Review, November 2005.

The 30 detailed occupations with the largest percentage growth tend to be very different from the occupations with the largest numeric growth; only 5 detailed occupations are listed on both tables and they are home health aides, medical assistants, computer software engineers (applications), personal and home care aides, and postsecondary teachers. Twenty-two of the 30 are in the some college/college or the college educational attainment cluster. Sixteen of these 30 occupations are health-related, reflecting an aging population that requires more

health care, a wealthier nation that can afford more health care, and advances in medical technology that permit more health problems to be treated. While these jobs are predicted to grow by almost 40 percent from 2004 to 2014, they only account for 2.8 of the 18.9 million new jobs. Therefore, although these jobs are growing quickly, they are not growing by a large number.

Table .: Detailed Occupations with the Largest Percentage Job Growth

Detailed Occupation Group	Major Occupation Group	Employment (in 1000s)		Change (in 1000s)		Educational Attainment Cluster	Education and Training Classification	Median Annual Earnings
		2004	2014	#	%			
Home health aides	Service and Related	624	974	350	56.1%	HS/SC	Short-term on-the-job training	18,330
Network systems and data communications analysts	Professional and Related	231	357	126	54.5%	SC/C	Bachelor's degree	60,600
Medical assistants	Service and Related	387	589	202	52.2%	HS/SC	Moderate-term on-the-job training	24,610
Physician assistants	Service and Related	62	93	31	50.0%	SC/C	Bachelor's degree	69,410
Computer software engineers, applications	Professional and Related	460	682	222	48.3%	C	Bachelor's degree	74,980
Physical therapist assistants	Service and Related	59	85	26	44.1%	SC/C	Associate degree	37,890
Dental hygienists	Service and Related	158	226	68	43.0%	SC/C	Associate degree	58,350
Computer software engineers, systems software	Professional and Related	340	486	146	42.9%	C	Bachelor's degree	79,740
Dental assistants	Service and Related	267	382	115	43.1%	HS/SC	Moderate-term on-the-job training	28,330
Personal and home care aides	Service and Related	701	988	287	40.9%	HS/SC	Short-term on-the-job training	16,900
Network and computer systems administrators	Professional and Related	278	385	107	38.5%	SC/C	Bachelor's degree	58,190
Database administrators	Professional and Related	104	144	40	38.5%	C	Bachelor's degree	60,650
Physical therapists	Service and Related	155	211	56	36.1%	C	Master's degree	60,180
Forensic science technicians	Professional and Related	10	13	3	30.0%	HS/SC/C	Associate degree	44,010
Veterinary technologists and technicians	Service and Related	60	81	21	35.0%	HS/SC	Associate degree	24,940
Diagnostic medical sonographers	Service and Related	42	57	15	35.7%	SC/C	Associate degree	52,490

Detailed Occupation Group	Major Occupation Group	Employment (in 1000s)		Change (in 1000s)		Educational Attainment Cluster	Education and Training Classification	Median Annual Earnings
Physical therapist aides	Service and Related	43	57	14	32.6%	SC/C	Short-term on-the-job training	21,380
Occupational therapist assistants	Service and Related	21	29	8	38.1%	SC/C	Associate degree	38,430
Medical scientists, except epidemiologists	Service and Related	72	97	25	34.7%	C	Doctoral degree	61,320
Occupational therapists	Service and Related	92	123	31	33.7%	C	Master's degree	54,660
Preschool teachers, except special education	Professional and Related	431	573	142	32.9%	HS/SC/C	Postsecondary vocational award	20,980
Cardiovascular technologists and technicians	Service and Related	45	60	15	33.3%	SC/C	Associate degree	38,690
Postsecondary teachers	Professional and Related	1,628	2,153	525	32.2%	C	Doctoral degree	51,800
Hydrologists	Professional and Related	8	11	3	37.5%	C	Master's degree	61,510
Computer systems analysts	Professional and Related	487	640	153	31.4%	SC/C	Bachelor's degree	66,460
Hazardous materials removal workers	Construction and extraction	38	50	12	31.6%	HS/SC	Moderate-term on-the-job training	33,320
Biomedical engineers	Professional and Related	10	13	3	30.0%	SC/C	Bachelor's degree	67,690
Employment, recruitment, and placement specialists	Management, Business, and Financial	182	237	55	30.2%	SC/C	Bachelor's degree	41,190
Environmental engineers	Professional and Related	49	64	15	30.6%	C	Bachelor's degree	66,480
Paralegals and legal assistants	Professional and Related	224	291	67	29.9%	SC/C	Associate degree	39,130

Source: "Occupational employment projections to 2014," Monthly Labor Review, November 2005.

Change by Detailed Occupational Groups: United States versus Oklahoma

The 30 detailed occupation groups with the largest numeric growth in Oklahoma are very similar to this list for the United States; 23 of these groups are on both lists. Some differences are that non-special education preschool teachers are on the Oklahoma list yet not on the United States list are Landscaping and grounds keeping workers are on the United States list yet not on the Oklahoma list.

Table 8. Detailed Occupations with the Largest Numeric Growth in Oklahoma and United States

Detailed Occupation Group	OK Rank	US Rank
Retail salespersons	1	1
Customer service representatives	2	4
Registered nurses	3	2
Postsecondary teachers	4	3
General and operations managers	5	10
Combined food preparation and serving workers, including fast food	6	7
Janitors and cleaners, except maids and housekeeping cleaners	7	5
Personal and home care aides	8	11
Waiters and waitresses	9	6
Nursing aides, orderlies, and attendants	10	9
Home health aides	11	8
Truck drivers, heavy and tractor-trailor	12	18
Medical assistants	13	21
Maintenance and repair workers, general	14	20
Office clerks, general	15	14
Preschool teachers, except special education	16	
Receptionists and information clerks	17	16
Accountants and auditors	18	13
Elementary school teachers, except special education	19	12
Laborers and freight, stock, and material movers, hand	20	15
Team assembler	21	
Cooks, fast food	22	
Child care workers	23	26
Truck drivers, light or delivery services	24	29
Executive secretaries and administrative assistants	25	22
Police and sheriff's patrol officers	26	
Licensed practical and licensed vocational nurses	27	
Maids and housekeeping cleaners	28	28
Automotive service technicians and mechanics	29	
Cashiers, except gaming	30	
Landscaping and grounds keeping workers		17
Computer software engineers, applications		19
Sales representatives, wholesale and manufacturing, except technical and scientific products		23
Carpenters		24
Teacher assistants		25
Food preparation workers		27
Computer systems analyst		30

Source: "Occupational employment projections to 2014," Monthly Labor Review, November 2005 and Oklahoma Employment Outlook, 2014.

Similar to the previous table, there are many similarities between the Oklahoma and United States lists showing the 30 detailed occupational groups with the largest percentage growth; 18 groups are on both lists. Three of the 12 groups on the Oklahoma list that are not on the United States list are related to Gaming. Also, the Social and human service assistants group is on the Oklahoma list but not on the United States list. Social and human service assistants generally provide direct and indirect client services in a variety of fields such as nursing, mental health, physical health, and social work. Six of the 12 groups on the United States list that are not on the Oklahoma list are health related, such as Occupational and Physical therapists.

Table .: Detailed Occupations with the Largest Percentage Growth in Oklahoma and United States.

Detailed Occupation Group	OK Rank	US Rank
Network systems and data communications analysts	1	2
Home health aides	2	1
Environmental engineers	3	29
Medical assistants	4	3
Dental hygienists	5	7
Veterinary technologists and technicians	6	15
Personal and home care aides	7	10
Physician assistants	8	4
Dental assistants	9	9
Computer software engineers, applications	10	5
Physical therapist assistants	11	6
Computer software engineers, systems software	12	8
Forensic science technicians	13	14
Database administrators	14	12
Gaming dealers	15	
Network and computer systems administrators	16	11
Environmental engineering technicians	17	
Museum technicians and conservators	18	
Financial examiners	19	
Curators	20	
Preschool teachers, except special education	21	21
Athletic trainers	22	
Gaming managers	23	
Medical scientists, except epidemiologists	24	19
Veterinarians	25	
Gaming supervisors	26	
Nonfarm animal caretakers	27	
Pharmacy technicians	28	
Social and human service assistants	29	
Biomedical engineers	30	27
Physical therapists		13
Diagnostic medical sonographers		16
Physical therapist aides		17
Occupational therapist assistants		18
Occupational therapists		20
Cardiovascular technologists and technicians		22
Postsecondary teachers		23
Hydrologists		24
Computer systems analysts		25
Hazardous materials removal workers		26
Employment, recruitment, and placement specialists		28
Paralegals and legal assistants		30

Source: "Occupational employment projections to 2014," Monthly Labor Review, November 2005 and Oklahoma Employment Outlook, 2014.

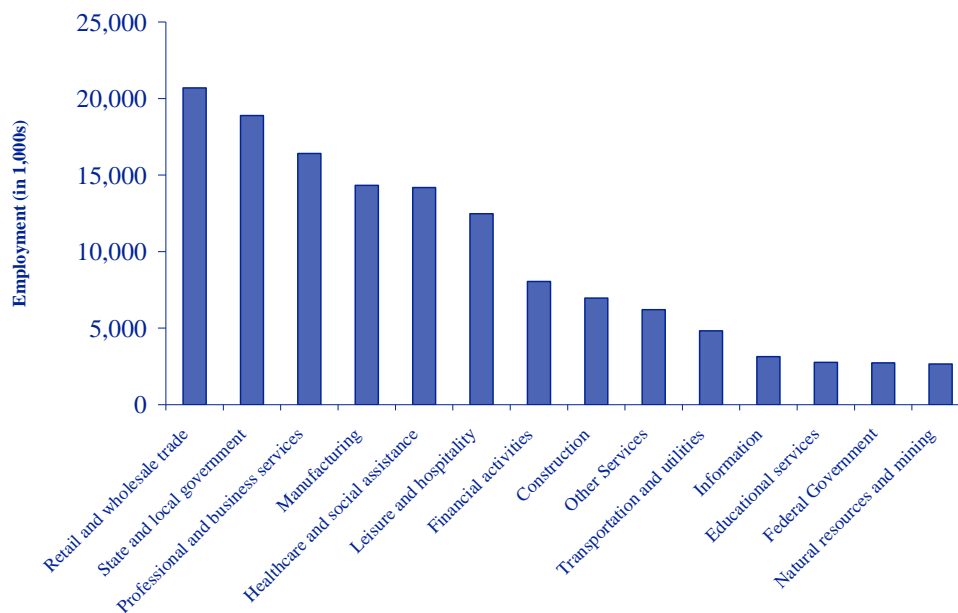
Employment by Industry

Workers are grouped into one of 14 major industry groups and almost 300 detailed industry groups according to the type of good produced or service provided by the establishment in which they work. Everyone who works in a hospital, for example, is part of the hospital industry regardless of his or her duties. Three of the 14 major industry groups are classified as goods-producing, which include Mining, Construction, and Manufacturing. The remaining 11 industry groups are classified as service-producing. This section examines how many workers are in each industry group and how this is projected to change both numerically and in terms of percentage. Only primary wage and salary jobs are included in these counts, except for in the agriculture industry where self-employed and unpaid family workers are also included. This differs from the prior sections, where primary and secondary jobs for wage and salary, self-employed, and unpaid family workers are all included.

Change by Major Industry Group

Service-providing industries, rather than goods-producing industries, account for roughly four out of five jobs in the United States economy. As shown in Figure 10, the largest industry groups in 2004 were Retail and wholesale trade, State and local government, and Professional and business services. Retail and wholesale trade include, for example, workers working for convenience and clothing stores and grocery and paper product wholesalers. State and Local Government includes establishments that administer government programs and provide for public safety. Professional and business services includes temporary help firms, consulting services, computer systems design companies, and waste management establishments.

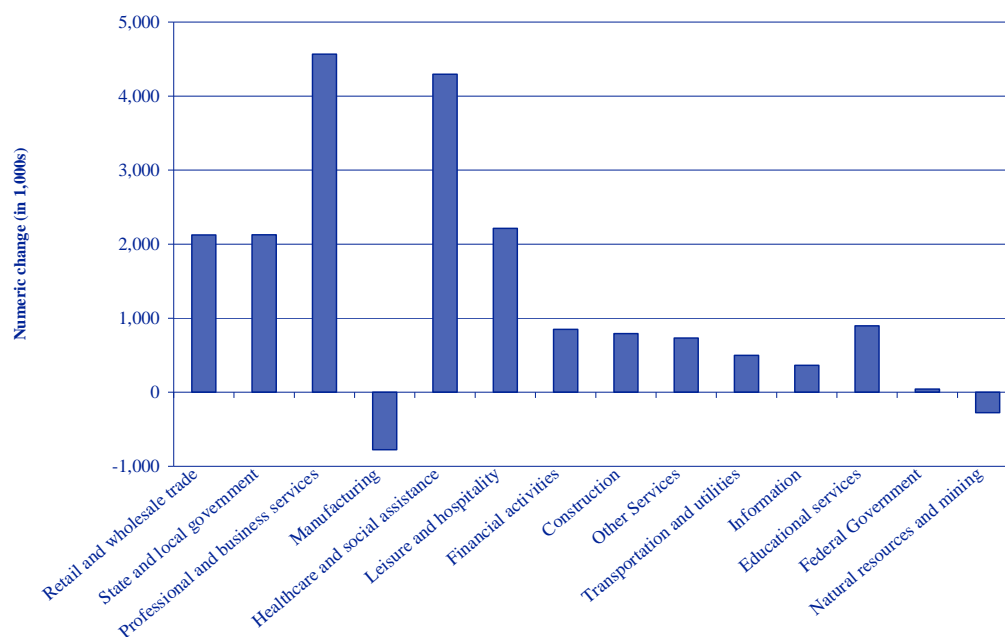
Figure 10. Employment in 2004 by Major Industry Group



Source: "Industry output and employment projections to 2014," Monthly Labor Review, November 2005.

The major industry groups projected to have the largest numeric growth include Professional and Business services and Health care and social assistance, accounting for almost 9 million of the 18 million jobs expected to be created from 2004 to 2014. As shown in Figure 11, the other industry groups are increasing at less than half of these numbers. Professional and business services is expected to move from representing 11% of jobs to 13%, while Health care and social assistance is expected to move from representing 10% to 11% of jobs. Construction is the only goods-producing sector expected to exhibit positive employment growth, adding 0.8 million jobs, yet these gains are expected to be almost completely offset by the decrease in employment in manufacturing. However, the growth in Construction is less than one-third the growth experienced from 1994-2004.

Figure 11. Numeric Growth in Employment from 2004 to 2014 by Major Industry Group

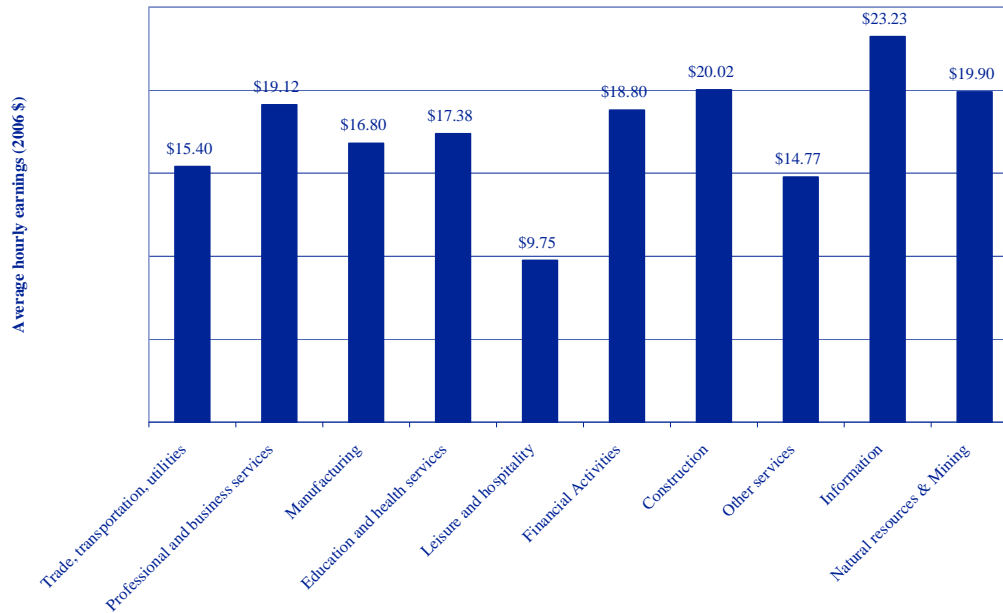


Source: "Industry output and employment projections to 2014," Monthly Labor Review, November 2005.

The number of jobs in manufacturing is expected to decline, causing it to decrease from representing about 10% of jobs in 2004 to 8% by 2014. This continues an historical trend downward that began occurring in the mid-1950s when manufacturing made up about one-third of employment. The decrease in jobs from 2004 to 2014, however, is small compared to the 2.7 million manufacturing jobs lost from 1994 to 2004. Productivity growth and mounting competition from lower-cost foreign manufacturers have driven this decline in large part. While manufacturing experiences this decline, however, it is being transformed from a lower-skilled industry into a higher skilled one. Indeed, high-skill manufacturing occupations have risen 37% since the 1980s. This is primarily due to technology advances promoting development of high-skilled jobs.

Earnings by industry vary dramatically, as shown in Figure 12. The industry groups with large numerical increases - Professional and business services and Education and health services - pay above average among production and nonsupervisory workers, who represent 80% of all employment.

Figure 12. Average Hourly Earnings of Production and Nonsupervisory Workers on Private Nonfarm Payrolls by Industry in 2006

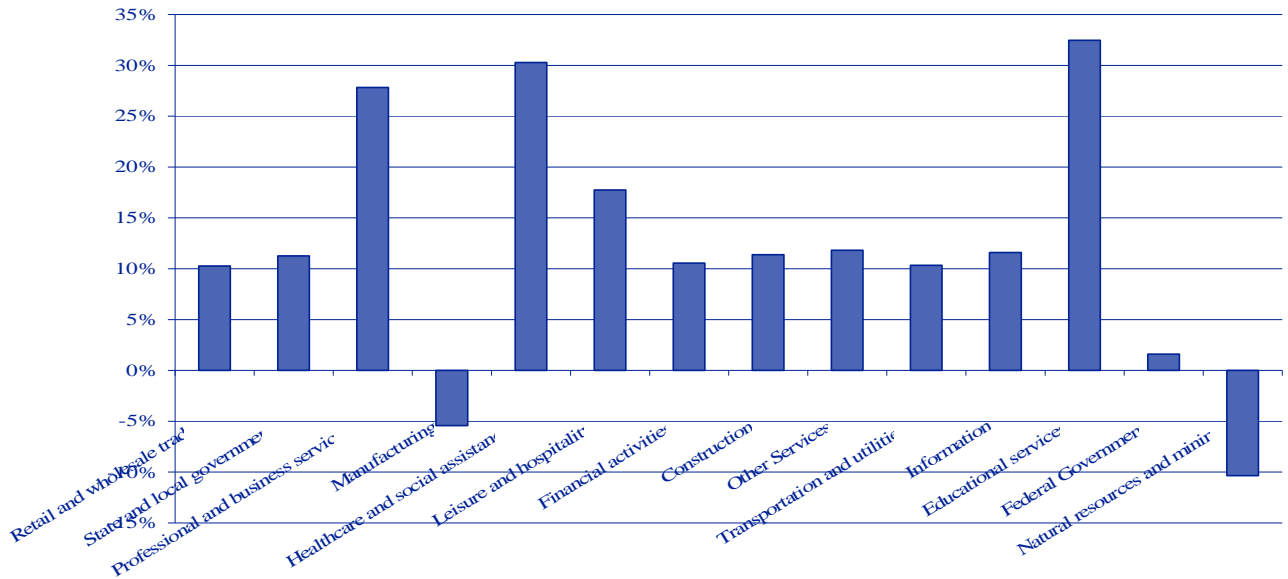


Source: Historical Hours and Earnings, B-2. Average hours and earnings of production or nonsupervisory workers on private nonfarm payrolls by major industry, 1964 to date. Bureau of Labor Statistics, <ftp://146.142.4.23/pub/suppl/empsit.ceseeb2.txt>

Even though manufacturing is not a high-paying industry across workers of all education levels, it is for workers with a high school degree or less. Consequently, the loss of lower-skilled manufacturing jobs has resulted in fewer good paying jobs for the lower-skilled. See Section on Wages and Benefits for a list of occupations for those with less than a bachelor's degree that pay above median annual earnings and are expected to grow relatively quickly in terms of numeric employment.

The two industry groups growing by the largest number - Professional and business services and Health care and social assistance - also represent the second and third fastest growing industries, growing by 32% and 30% from 2004 to 2014, respectively, as shown in Figure 13. One catalyst for the Professional and business service industry is the increases in demand for temporary staffing services, as flexible work arrangements and schedules continue to proliferate and businesses make their staffing patterns more responsive to market changes. The fastest growing industry is projected to be Educational services, growing at 32%. This sector includes private education at the elementary through college levels and professional and trade schools. Most of the growth is due to private junior colleges, colleges, universities, and professional schools. While it may grow quickly, this sector is not large - Educational services are only expected to represent 2% of all jobs in 2014. Natural resources and mining and Manufacturing are expected to decrease by 10% and 5% respectively.

Figure 13. Percentage Growth in Employment from 2004 to 2014 by Major Industry Group

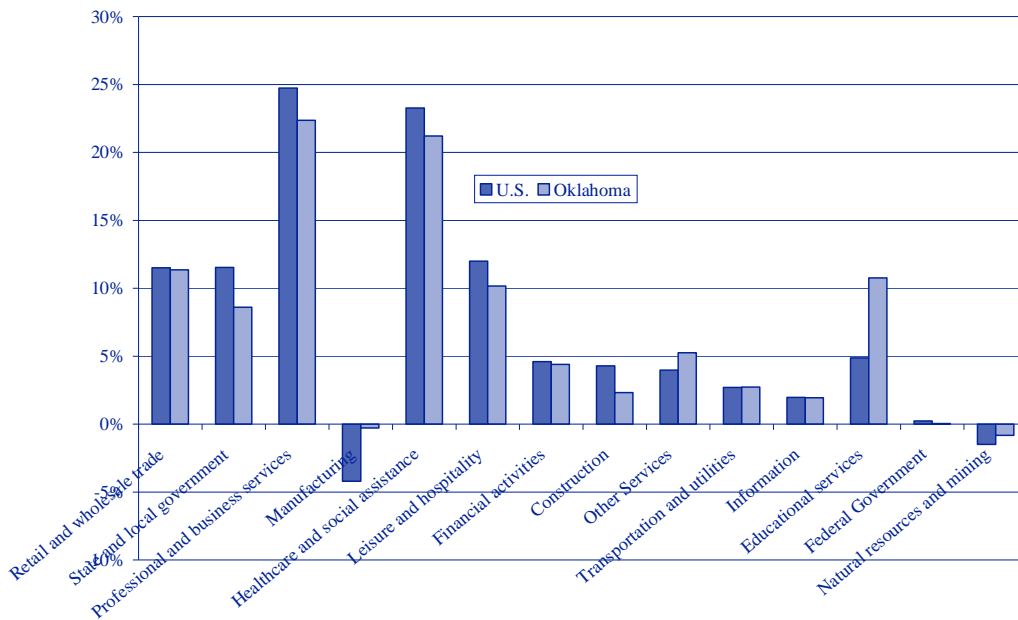


Source: "Industry output and employment projections to 2014," Monthly Labor Review, November 2005.

Change by Major Industry Groups: United States versus Oklahoma

The two major industry groups with the largest numeric increase in the United States are also the ones in Oklahoma, as shown in Figure 14. Both Professional and business services and Healthcare and social services each account for more than 20% of the numeric growth in Oklahoma. However, relative to the United States, Oklahoma’s numeric growth is smaller in these two groups. A much larger share of the new jobs are projected to be in Educational services for Oklahoma than for the United States.

Figure 14. Distribution of Numeric Growth in Employment from 2004 to 2014 by Major Industry Group



Source: "Industry output and employment projections to 2014," Monthly Labor Review, November 2005 and Oklahoma Employment Outlook, 2014

Change by Detailed Industry Group

The 10 detailed industries with the largest numeric growth account for 7.3 million new jobs, which is over one-third of the total job growth of 19 million jobs. These industries, as shown below, represent 6 of the 14 major occupational groups. Employment services, the detailed industry group with the largest numeric increase of 1.6 million jobs, is growing due to the increases in demand for temporary staffing services, as flexible work arrangements and schedules continue to proliferate and businesses make their staffing patterns more responsive to market changes. Local government industries, while they are growing by a large number, are not growing by a large percentage.

Table 10. Detailed Industries with the Largest Numeric Growth

Detailed Industry Group	Major Industry Group	Employment (in 1000s)		Change (in 1000s)	
		2004	2014	#	%
Employment services	Professional and business services	3,470	5,050	1,580	45.5%
Local government, educational services	State and local government	7,763	8,546	783	10.1%
Local government excluding education and hospitals	State and local government	5,486	6,249	764	13.9%
Offices of physicians	Healthcare and social assistance	2,054	2,813	760	37.0%
Full-service restaurants	Leisure and hospitality	4,226	4,928	701	16.6%
General medical and surgical hospitals, private	Healthcare and social assistance	4,051	4,669	618	15.3%
Limited-service eating places	Leisure and hospitality	3,727	4,319	592	15.9%
Home health care services	Healthcare and social assistance	773	1,310	537	69.5%
Colleges, universities, and professional schools, private	Educational services	1,378	1,850	472	34.3%
Management, scientific, and technical consulting services	Professional and business services	779	1,250	471	60.5%

Source: "Industry output and employment projections to 2014," Monthly Labor Review, November 2005

Two detailed industry groups with the largest numeric growth – Home health care services and Management, scientific, and technical consulting services - are also in the top fastest growing detailed industries measured by percentage growth. The fastest growing detailed industry is private educational support services. Home health care services, expected to grow nearly 70% from 2004 to 2014, provides in-home services such as Nursing and Physical therapy. The growth in this industry is due to the aging of our population, many of whom will want to remain at home even though they have functional disabilities. Five other detailed industries are part of the healthcare industry and their growth is also largely due to the aging of our population. The growth in Management, scientific, and technical consulting services is attributed to economic development and growing business complexity so that businesses need advice on a number of issues.

Table 1.: Detailed Industries with the Largest Percentage Growth

Detailed Industry Group	Major Industry Group	Employment (in 1000s)		Change (in 1000s)	
		2004	2014	#	%
Educational support services, private	Educational services	67	120	53	79.1%
Home health care services	Healthcare and social assistance	773	1,310	537	69.5%
Software publishers	Information	239	400	161	67.6%
Management, scientific, and technical consulting services	Professional and business services	779	1,250	471	60.5%
Community care facilities for the elderly	Healthcare and social assistance	583	902	320	54.8%
Outpatient care centers, except mental health and substance abuse	Healthcare and social assistance	298	447	149	49.9%
Residential mental health and substance abuse facilities	Healthcare and social assistance	154	231	77	49.9%
Offices of all other health practitioners	Healthcare and social assistance	72	107	35	49.2%
Residential mental retardation facilities	Healthcare and social assistance	337	497	160	47.3%
Facilities support services	Professional and business services	116	170	54	47.1%

Source: "Industry output and employment projections to 2014," Monthly Labor Review, November 2005

Wages and Benefits

The same sources of data for the prior sections have not projected wages or total compensation into the future. They have however projected which occupations are likely to be considered "hot jobs" in that they pay above median wages now and they are projected to experience a large percentage increase. This information, however, does not inform us on the level of future wages for those "hot jobs" or for jobs overall. To provide some context regarding projected wages and benefits, some historical information is now presented.

Many factors affect the amount that a worker is paid, including worker characteristics, job characteristics, and various labor market policies such as the minimum wage. Important worker characteristics are educational attainment, years of experience, hours of work, job tenure, and union membership. Important job characteristics are occupation and industry. (See prior sections for a presentation of wages by major occupational groups and industry groups.) Worker characteristics such as gender and race are also correlated with wages to the extent that factors that impact wages, such as skill levels, are distributed differently across genders or races, or discrimination exists in the labor market.

To examine wages over time, wages are typically adjusted for inflation. These inflation-adjusted wages are called real wages. This adjustment makes more meaningful comparisons over time. For example, while unadjusted wages have risen over time, this does not imply that people are better off than they used to be since the prices of goods and services have increased. In order to make comparisons of how well off people are over time, real wages are analyzed.

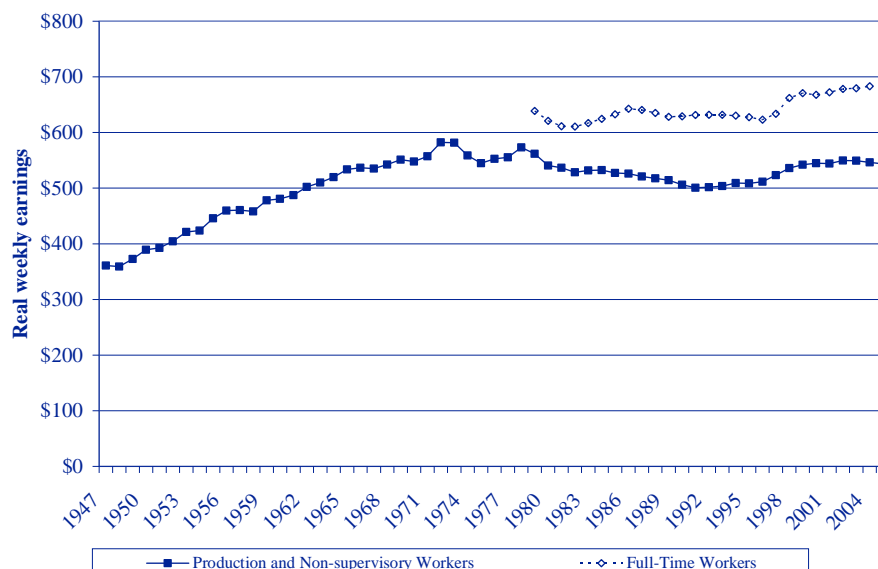
Both averages and medians are used to create a metric to examine wages. The average is the arithmetic calculation of summing all wage values across all workers and dividing by the number of workers. The median represents the value at which half of workers earn less than this amount and half earn more. These two measures differ from each other if some workers have extreme minimum or maximum values. For example, if 9 people earn \$20,000 per year and 1 earns \$5 million, then the average is \$518,000 yet the median is \$20,000.

In discussing the pay for workers, both wages and earnings are terms used. Earnings usually refer to total earnings before any deductions and including overtime payments and lump sum bonuses. Wages typically represent total earnings before deductions yet excluding overtime pay and lump sum bonuses.

Historical Wages Overall

As shown below, average real wages of production and nonsupervisory workers increased continuously from 1947, the first year of available data, through 1972 yet have not exceeded their 1972 amounts through 2005. These workers, who represent 80% of all wage and salary employment, have experienced recent wage increases beginning in 1993 with the bulk of the increase occurring from 1997 to 1999 when wages rose almost 6 percent that made up for wage decreases through the 1980s. These data are somewhat consistent with the data on median earnings of full-time wage and salary workers whose earnings have increased about 7 percent in recent years.

Figure 15. Average Weekly Earnings of Production and Nonsupervisory Workers and Median Usual Weekly Earnings for Full-Time Wage and Salary Workers



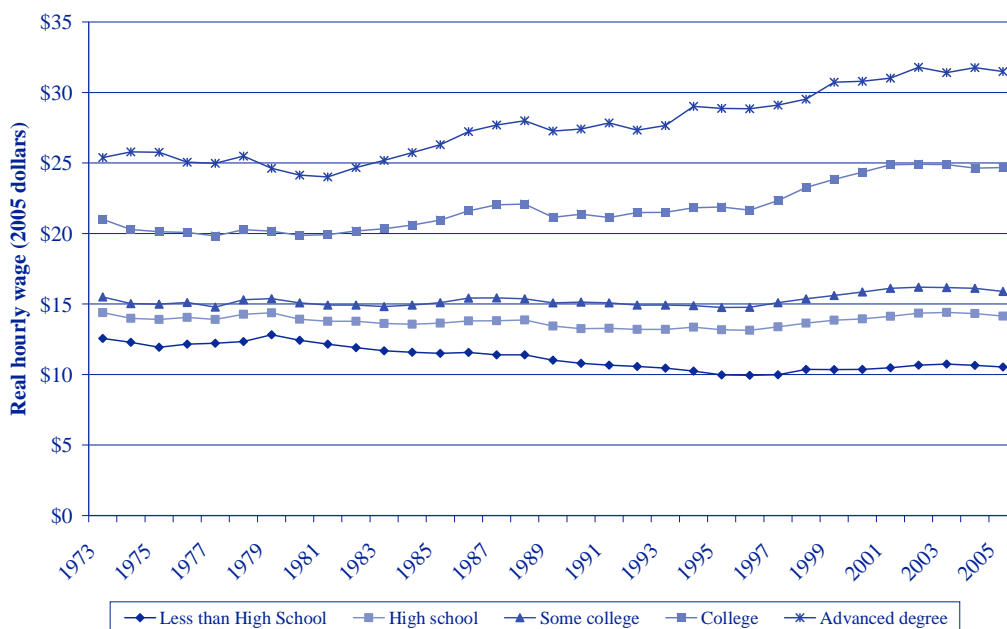
Source: Economic Policy Institute, http://www.epi.org/content.cfm/datazone_dznational

In theory, wages should be correlated with productivity, which is the growth of the output of goods and services per hour worked. For example, one would think that a worker who can produce two times the amount in one hour that he did the prior year deserves a raise in pay. Over the 1995 to 2005 period, wages have not kept up with productivity. Instead, productivity has surged, growing 33%, with most of this increase occurring since 2001. Real wages, however, have not increased since 2001.

Historical Wages by Educational Attainment

As shown in Figure 16, workers with more education earn more on average than workers with less education and this differential has been increasing over time. In 1979, workers with college degrees made less than 50% more than workers with a high school degree. This percentage differential was almost 75% in 2005. Moreover, this is occurring while real wages of those with less education have stagnated or even declined over time. This picture well describes the increasing income inequality. Given that this is a long-term trend, this increasing inequality is likely to continue.

Figure 16. Real Hourly Wage for All by Education

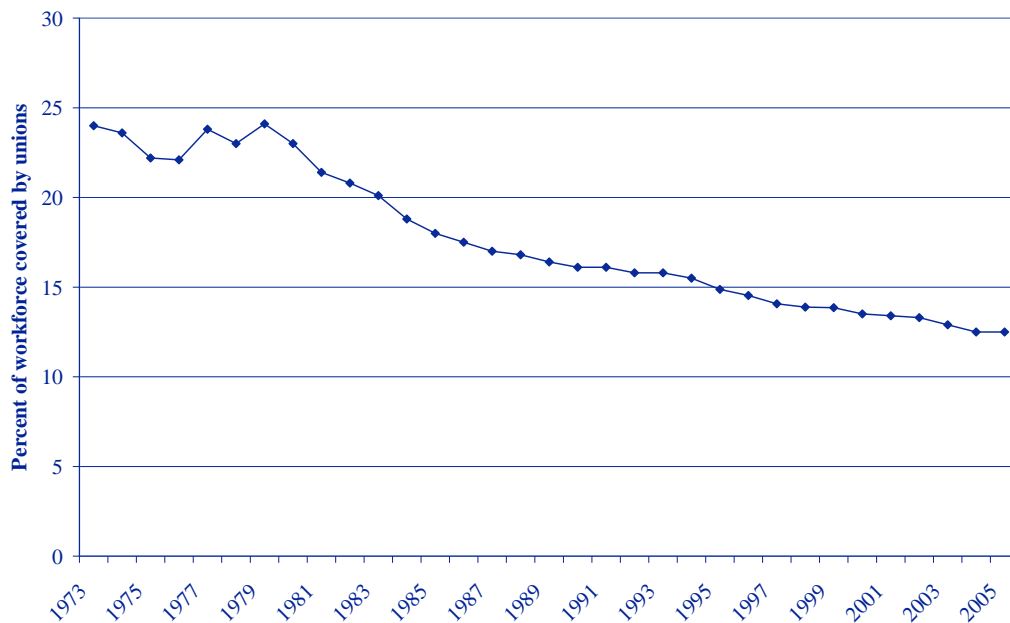


Source: Economic Policy Institute, http://www.epi.org/content.cfm/datazone_dznational

The stagnation of wages of workers with less education has several causes. One factor is the shift of less educated workers away from high-wage manufacturing to lower-wage service industries. Some of this shift is due to increased trade and the Economic Policy Institute cites that 77% of the jobs lost to trade from 1994 to 2000 were held by those without college degrees yet half of these jobs paid in the top half of the wage scale. A second factor is the decline in unionization since union workers tend to earn more than nonunion members and union membership has declined more for the low skill group. Additionally, there has been a decreased demand for less-skilled workers in every industry and erosion in the value of the federal minimum wage.

Unionization has decreased from almost one-fourth of workers being union members in the 1970s to about 12% today. As support of de-unionization causing a relative decrease in less-skilled workers wages, David Card found that the de-unionization that occurred from 1973 to 1993 accounted for 15-20% of the rise in male wage inequality yet accounts for very little rise in female wage inequality. Given that de-unionization continued from 1993 through today, it is likely to further explain the increasing inequality.

Figure 17. Percent of the United States Workforce Covered by Unions



Source: Economic Policy Institute, http://www.epi.org/content.cfm/datazone_dznational

Better Paying Jobs for those without College Degrees

Given that the wages of less-skilled workers are low in both relative and absolute value, many ask what occupations are out there for less-skilled workers that pay well. This section details the occupations for lower levels of education or training that are expected to have the largest numeric change from 2004 to 2014 and pay above median earnings.

Most of the growth jobs that are classified as short-or-moderate term on-the-job training occupations do not pay well, however there are a few that do. These jobs, which typically only require a high school degree or less or some college, include truck drivers, maintenance and repair workers, executive secretaries, and sales representatives for wholesale and manufacturing industries.

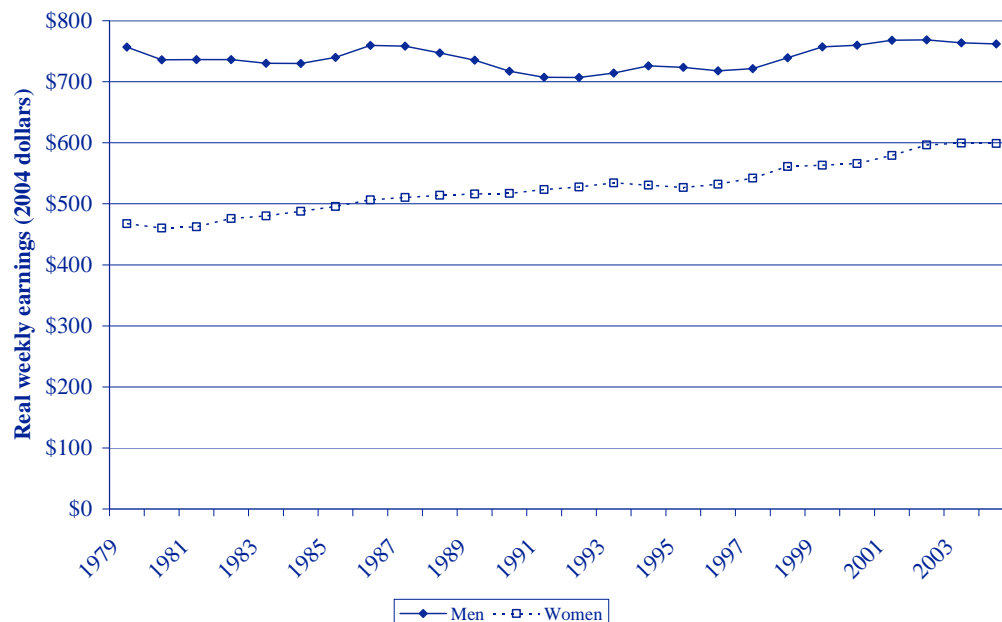
Contrary to above, most growth jobs that are classified as long-term on-the job training jobs or jobs requiring work experience do pay well. These occupations include carpenters, first-line supervisors and managers of many types of workers, police and sheriff's patrol officers, plumbers, pipe fitters, and steamfitters, electricians, fire fighters, self enrichment education teachers, heating, air conditioning and refrigeration mechanics and installers, food service managers, claims adjusters, examiners, and investigators, and cost estimators.

The jobs that typically require an associate degree or a postsecondary vocational award and are expected to grow and pay well include registered and licensed practical and vocational nurses, automotive service technicians and mechanics, computer support specialists, dental hygienists, paralegals and legal assistants, real estate sales agents, legal secretaries, radiologic technologists and technicians, bus and truck mechanics and diesel engine specialists, medical and clinical laboratory technicians, respiratory technicians, and physical therapy assistants. Vocational schools and community colleges should help counsel their students and prospective students about these fields in order to serve our economy's need for their skills and so that their graduates will be content with their earnings level.

Historical Wages by Gender

Median earnings of full-time female workers, as shown in the Figure 18, have increased 28% since 1979 yet male earnings are basically unchanged. Full-time working women, however, still earn substantially less than full-time working males. The Government Accountability Office reported that different work patterns for men versus women are a key factor in explaining the wage differential. Specifically, women have fewer years of work experience, work fewer hours per year, and leave the labor force for longer periods of time than men. Other important factors include industry and occupation differences - women tend to work in lower-paying industries and occupations. Even after accounting for all of these differences, however, women earn about 20% less than men.

Figure 18. Median Usual Weekly Earnings for Full-Time Wage and Salary Workers

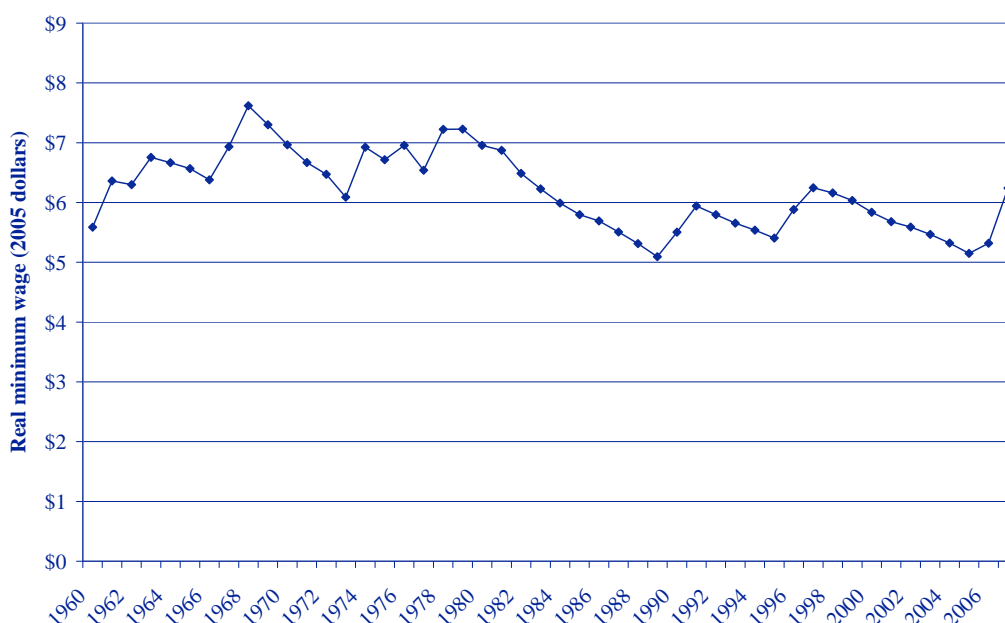


Source: Economic Policy Institute, http://www.epi.org/content.cfm/datazone_dznational

Historical Minimum Wage

The erosion of the federal minimum wage since the 1980s is staggering, even with the recently enacted increase in the value to \$5.85 per hour. Only about 2% of workers paid hourly are estimated to be paid the federal minimum wage or lower, and they tend to be under age 25 and part-time workers. While few workers are paid the minimum wage, the value of the minimum wage impacts the wages of millions of workers who earn a few dollars above the minimum wage due to “spillover effects”. For example, when the minimum wage recently increased from \$5.15 to \$5.85, this is often thought to result in the wages of those then paid \$5.85 to increase above this rate since many employers want to preserve these wage differentials. Most states have passed a minimum wage that is higher than the federal value, however Oklahoma is not one of these.

Figure 19. Real Value of the Minimum Wage



Source: Economic Policy Institute, http://www.epi.org/content.cfm/datazone_dznational

Health Care and Pension Coverage

Employers are less likely to provide health care and pension coverage for their employees than they used to be. For those who still receive coverage, they are often paying a larger share of costs, in the case of health care, or have lower quality pension plans.

The share of employees covered by employer-sponsored insurance has been decreasing. Specifically, 82% of employees were covered in 2001 and about 77% are covered now. This decrease has not been offset by a corresponding increase in Medicaid and non-employer based private plans. Almost half of the drop is the result of employers, particularly smaller firms, choosing not to continue providing health insurance, while one-fourth of the drop is attributed to employees choosing not to continue receiving benefits. Employers are choosing to reduce benefits or drop coverage and employees are choosing to reduce benefits or drop coverage often because of the increasing cost of health insurance. Between 2000 and 2006, the cost of

family health insurance premiums in Oklahoma rose by 65 percent for employers and by 58% for employees. Meanwhile, median earnings only grew by 13%.

The share of the workforce covered by employer-provided pension plans has decreased from about 51% in 1979 to 46% now and they are of less quality. This decrease in coverage has only been felt by men, as the share of women covered increased over this period. Lower-wage workers are very unlikely to be provided coverage with only 14% of them covered in 2004. Pension plans have moved from being defined benefit plans, which guarantees a fixed payment every year of retirement, to being defined contribution plans, which guarantee a certain contribution to the account each year but the payment in retirement will depend on changes in the value of investments.

Other Continued Changes in Employment

The American employment relationship has changed. As just one example, the past was modeled on life-long jobs – jobs where workers worked with one company, stayed with it, moved up the career ladder, and could expect yearly raises and job security. Now, cost reduction is typically the focus, with employers now more willing to forego life-long employees in order to save on payroll expenses. In turn, they are much more likely to turn to contractors and other temporary staff when there is need. Consistent with this pattern, workers are less likely to stay as long with their current employer than they used to be. One study found that one-fourth of men had 7 or more jobs during the first 8 years of their career and job mobility is higher for those with less education.

According to the Bureau of Labor Statistics, about 10% of workers are in alternative employment arrangements consisting of independent contractors, on-call workers, temporary help agency workers, and workers provided by contract firms. When self-employed and part-time workers are included, about 25% of workers are in non-standard work arrangements. Most of these jobs do not provide traditional employer-provided benefits. Further shifts may be spurred by technology or by the demand of certain workers, such as older workers, who may be in more and more in demand as the baby boomers retire and our economy has relatively fewer workers to supply a similar amount of goods and services (discussed in the companion report on labor force projections).

The transition of young workers to the labor market is taking longer and has become more volatile. Young workers who do not go to college are now more likely to be intermittently unemployed and to rely on part-time work for a greater number of years. Those who do go on to college are more likely to work while enrolled and to significantly draw out the period of enrollment. Young workers are now more likely to move back and forth between work, unemployment, and schooling rather than making a single and clean transition into work. Workers at all levels of education have experienced this greater volatility but it is most pronounced for those with less education.

Technological change and globalization have led to companies relying more on decentralized decision making, which gives workers more authority, flexibility, and opportunities to work in teams. Increasingly, we can expect organizations to be less autocratic and instead provide the

rules and culture that define the environment and then autonomous workers are asked to operate in this world. As a prime example, technology has facilitated telecommuting and other forms of distance work. As of 2004, about 15% of the workforce did some work at home at least one day a week as part of their primary job. These jobs tend to be more flexible and have more autonomy.

Another frequently discussed change due to advanced in technology and globalization is that, with cost reduction in mind, employers have begun to increasingly “offshore” services to lower-wage locations abroad. For example, companies are now able to move software programming, accounting and payroll services, and telephone call center services to lower-wage areas such as India, Philippines, and Eastern Europe. Extensive public debate has arisen about the potential costs of offshoring, including job loss, however economic theory generally predicts that it will have little effect on employment in the long run but will affect pockets of workers. Potential benefits are likely to also result from offshoring, including a rise in the United States standard of living as certain goods and services will become less expensive and a rise in the standard of living in producer countries. It is difficult to estimate the extent of offshoring due to data limitations.

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