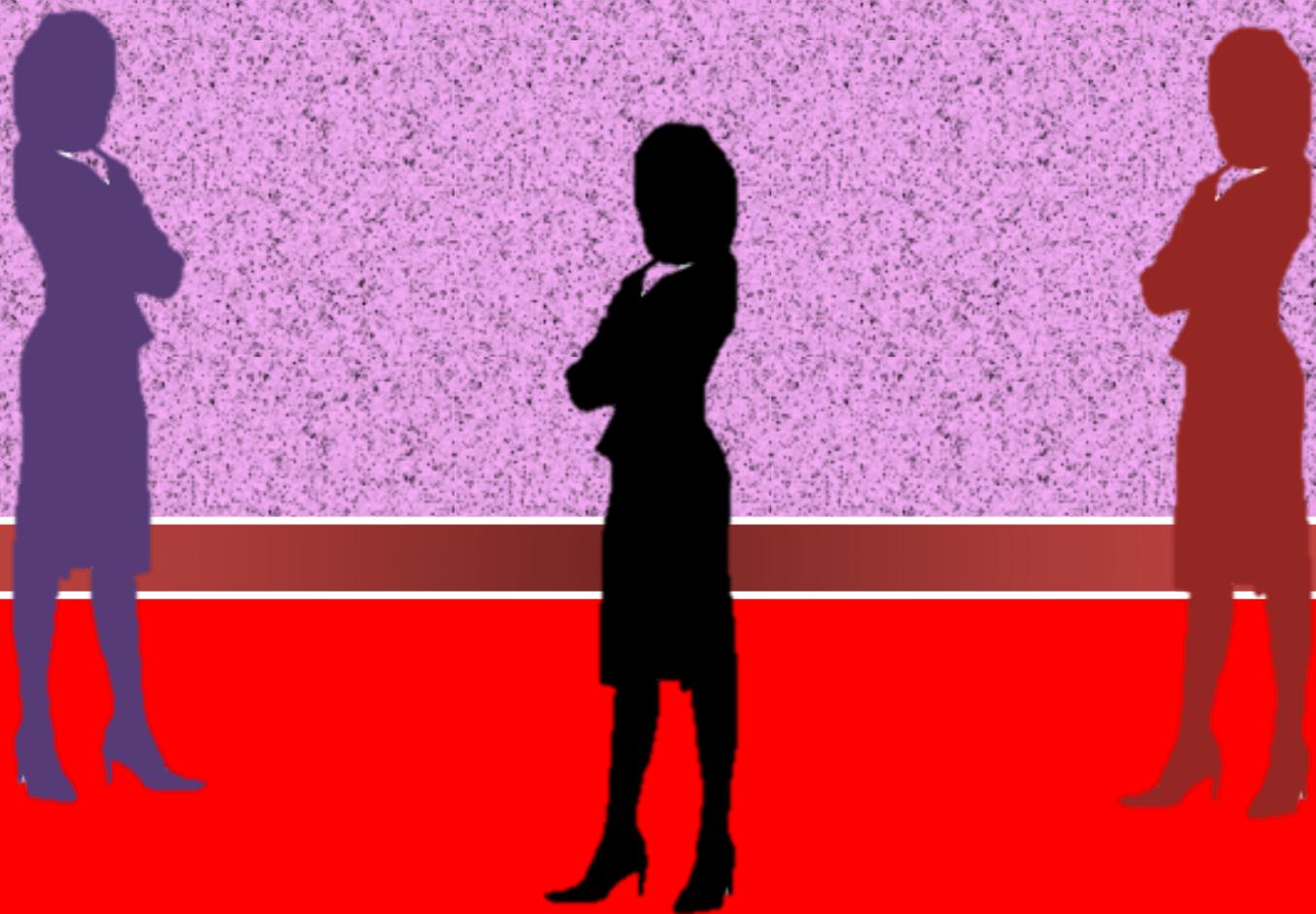


Characteristics of Female Workers in Oklahoma: 2001 to 2018



**Oklahoma Employment Security Commission
Economic Research and Analysis Division**

Characteristics of Female Workers in Oklahoma 2001-2018

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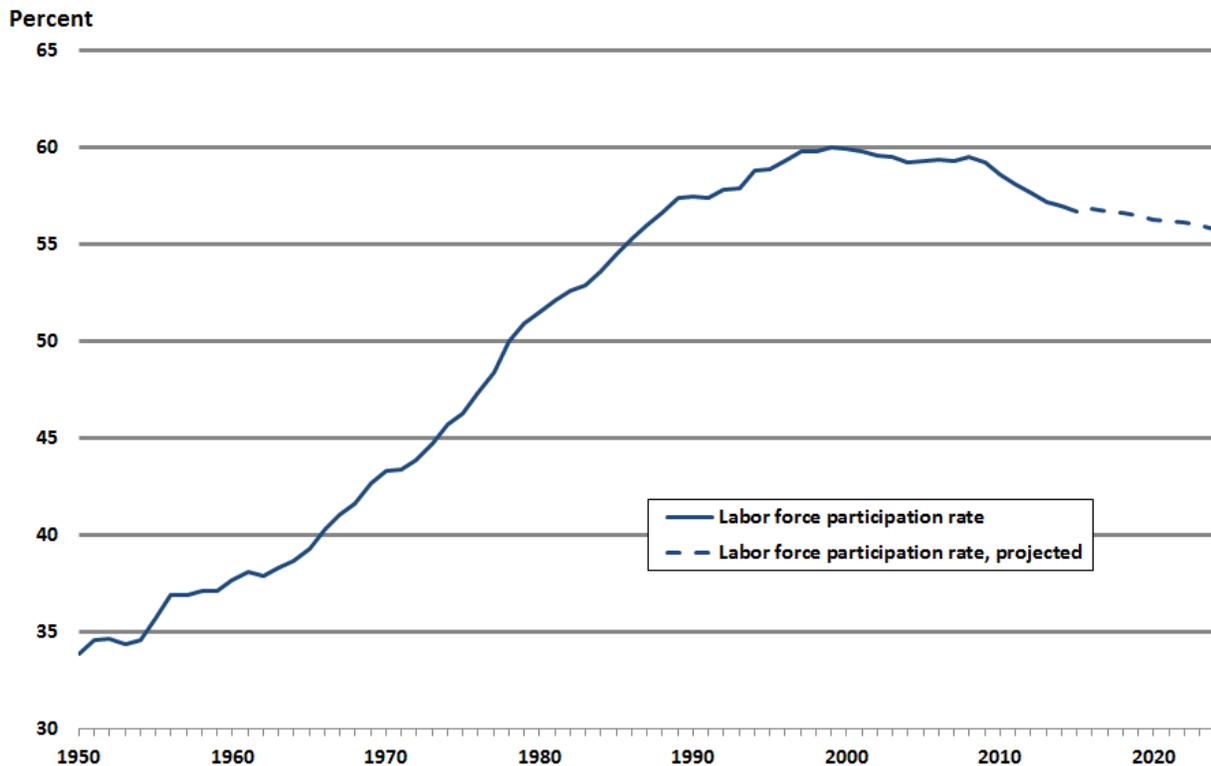
Characteristics of Female Workers in Oklahoma, 2001-2018

Introduction

A major factor contributing to the growth of the U.S. labor force in the second half of the twentieth century was the remarkable increase in the labor force participation rate of women.¹ During this time, the U.S. economy experienced economic growth that increased the demand for labor. Baby boomers (those born between 1946 and 1964) began entering the labor force in large numbers during the early 1960s as they reached working age. The large influx of women into the labor market at this time resulted in a rapidly increasing female labor force participation rate (see Chart 1, below).

Chart 1: U.S. Female Labor Force Participation Rate, 1950 to 2015 and Projected 2024

SOURCE: U.S. Department of Labor, Bureau of Labor Statistics



The female labor force participation rate climbed throughout the 1960s, 1970s, and 1980s, finally peaking at 60.0 percent in 1999. Over these four decades, the female labor force participation rate increased even during several economic downturns. Since the peak, the female labor force participation rate, which historically offset the decline in the male participation rate, has been decreasing and is now contributing to a decline in the overall labor force participation rate. Since the midpoint of the Great

¹ Mitra Toossi and Teresa L. Morisi, "Women in the Workforce Before, During, and After the Great Recession." July 2017, *Spotlight on Statistics*, U.S. Bureau of Labor Statistics.

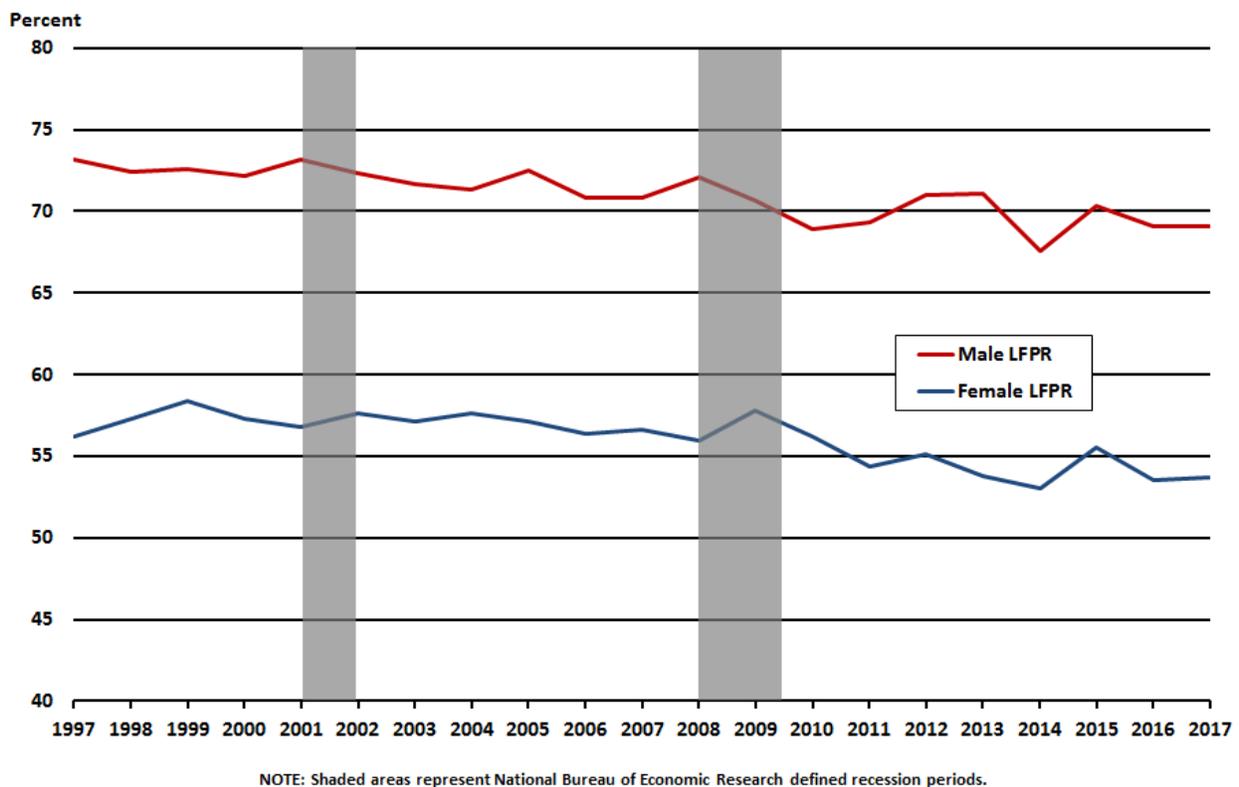
Recession in 2008, the rate has further declined by 2.8 percentage points to 56.7 percent in 2015.² The Bureau of Labor Statistics (BLS) projects the female labor force participation rate will continue to decline in the 2014–24 decade, falling by 0.9 percentage point to 55.8 percent in 2024 (see Chart 1).

This analysis re-examines a previous study of the characteristics and trends of female workers in Oklahoma³ using the Quarterly Workforce Indicators (QWI) Explorer from the U.S. Census Bureau’s Longitudinal Employer-Household Dynamics program along with supporting data from the Bureau of Labor Statistics’ Current Population Survey (CPS) and the Employment Projections program.

Trends in Oklahoma’s Female Labor Force, 1997-2017 (Current Population Survey)

The Current Population Survey (CPS) is a monthly survey of households conducted by the Bureau of Census for the Bureau of Labor Statistics. It provides a comprehensive body of data on the labor force, employment, unemployment, persons not in the labor force, hours of work, earnings, and other demographic and labor force characteristics. At the state level, data from the Current Population Survey for Oklahoma is available from 1997 to 2017. Chart 2, below, illustrates trends in the labor force participation rates for both genders from 1997 to 2017.

Chart 2: Oklahoma Male and Female Labor Force Participation Rates, 1997-2017
 SOURCE: U.S. Department of Labor, Bureau of Labor Statistics and Current Population Survey (CPS)



² Ibid.

³ Yin Zhou and Chad Mullen, “Changes in the Female Labor Force in Oklahoma.” December 2012, Oklahoma Employment Security Commission, Economic Research and Analysis Division.

During the period from 1997 to 2017, Oklahoma’s female labor force participation rate declined from 56.2 percent to 53.7 percent, (-2.5 percentage points), peaking at 58.4 percent in 1999. At the same time, the male labor force participation rate also declined but much more than the female rate, falling from a peak of 73.2 percent in 1997 to 69.1 percent in 2017 (-4.1 percentage points). Oklahoma’s overall labor force participation rate declined from 64.2 percent in 1997 to 61.2 percent in 2017 (-3.0 percentage points).

Characteristics of Female Workers in Oklahoma, 2001-2018 (Quarterly Workforce Indicators)

The Quarterly Workforce Indicators (QWI) data produced by the U.S. Census Bureau provide local labor market statistics by industry, worker demographics, employer age and size. Unlike statistics tabulated from firm or person-level data, the QWI source data are unique job-level data that link workers to their employers. Because of this link, labor market data in the QWI is available by worker age, sex, educational attainment, and race/ethnicity, allowing for analysis by demographics of a particular local labor market or industry.

Employment by Gender

Table 1, below, summarizes the composition of the Oklahoma workforce by gender from 2001 to 2018. In most years, male workers represent the greater portion of the workforce but the overall trend

Table 1. Oklahoma: Employment by Gender of Worker, Annual Averages, 2001-2018

Year	Female		Male	
	Number	Percent	Number	Percent
2001	692,895	49.1	717,947	50.9
2002	690,685	49.7	699,715	50.3
2003	680,146	49.8	684,468	50.2
2004	683,672	49.8	688,369	50.2
2005	701,648	49.8	706,372	50.2
2006	714,774	49.5	728,283	50.5
2007	728,861	49.5	742,573	50.5
2008	742,080	49.4	759,418	50.6
2009	731,023	50.3	722,825	49.7
2010	716,708	50.2	711,013	49.8
2011	716,929	49.4	733,592	50.6
2012	727,065	49.0	756,589	51.0
2013	734,804	48.8	771,241	51.2
2014	746,146	48.8	783,965	51.2
2015	758,617	49.0	788,527	51.0
2016	756,616	49.6	769,282	50.4
2017	755,915	49.5	770,533	50.5
2018	762,581	49.7	771,378	50.3

SOURCE: Quarterly Workforce Indicators, U.S. Census Bureau, qwexplorer.ces.census.gov

suggests that the female workers' share is gaining over the 18-year period from 2001 to 2018, growing from 49.1 percent in 2001 to 49.7 percent in 2018.

It is also interesting to note that in 2009 and 2010, the female share of the workforce surpassed the male share due to the lingering effects of the 'Great Recession' in Oklahoma.⁴ From 2008 to 2010, female employment fell 25,372 (-3.4 percent), while male employment dropped by 48,405 (-6.4 percent), nearly double the female job losses. This is the reason why some have referred to this recession as the 'Man-Cession' since men bore most of the job losses.⁵

Female Worker Employment by Age Group

Table 2, below, shows the breakdown by age group for female workers in Oklahoma from 2001 to 2018. From Table 2 it can be seen that the only female worker age groups that gained employment over this period were the 25 to 34 years old, 55 to 64 years old and 65 years and older groups.

Table 2. Oklahoma: Female Employment by Age Group, Annual Averages, 2001-2018

Year	14 to 18 years old	19 to 21 years old	22 to 24 years old	25 to 34 years old	35 to 44 years old	45 to 54 years old	55 to 64 years old	65 years and older
2001	31,565	45,697	45,249	145,536	174,179	156,767	73,227	20,675
2002	29,027	45,428	45,746	144,333	168,755	157,482	78,371	21,543
2003	26,331	43,576	45,741	140,986	161,130	157,682	82,230	22,470
2004	25,282	42,913	46,956	141,614	157,599	159,844	85,928	23,536
2005	25,426	43,520	48,695	145,374	157,611	164,835	90,958	25,229
2006	26,798	43,442	49,061	147,655	157,220	167,622	95,859	27,117
2007	27,025	42,792	49,494	152,547	156,698	170,493	100,895	28,917
2008	27,067	42,099	48,942	157,266	155,940	173,198	106,085	31,483
2009	22,912	39,672	46,980	157,126	151,787	170,535	109,104	32,907
2010	19,442	38,328	45,081	155,458	147,787	166,161	111,028	33,423
2011	18,878	38,890	44,669	156,764	146,875	162,052	114,174	34,627
2012	19,388	39,526	46,226	159,452	148,823	159,045	116,912	37,693
2013	19,407	40,182	47,806	162,875	149,917	155,826	119,007	39,784
2014	20,505	40,195	49,351	165,976	152,453	154,367	121,472	41,827
2015	22,154	40,269	49,632	169,172	155,833	153,705	124,437	43,415
2016	22,234	39,387	47,994	168,485	156,269	151,904	125,671	44,672
2017	21,919	39,825	46,075	166,946	158,101	149,923	126,939	46,187
2018	21,655	39,595	45,184	167,501	162,195	149,667	128,815	47,969

SOURCE: Quarterly Workforce Indicators, U.S. Census Bureau, (qwexplorer.ces.census.gov)

From 2001 to 2018, female workers in the 55 to 64 years old age group gained the most employment, adding 55,588 workers (75.9 percent), followed by the 65 years and older group that increased by 27,294 (132.0 percent), and the 25 to 34 years old group that added 21,965 workers (15.1 percent). All other female worker age groups' employment declined over this 18-year period (see Table 2).

However, during the same time period, the number of female workers declined significantly in the 14 to 18 year old age group (-31.4 percent), the 19 to 21 year old age group (-13.4 percent), the 33 to 44 year old age group (-6.9 percent), and the 45 to 54 year old (-4.5 percent) age group.

⁴ The 'Great Recession' began in December 2007 and ended in June 2009, lasting 18 months and making it the longest of any recession since World War II, according to the National Bureau of Economic Research (NBER).

⁵ Howard J. Wall, "The 'Man-Cession' of 2008-2009: It's Big, but It's Not Great," October 2009, *Regional Economist*, Federal Reserve Bank of St. Louis.

Female Worker Employment by Industry

What industries employ the largest number of female workers in Oklahoma? In general, the services-providing industries, (NAICS 42 through NAICS 92), employ the largest number of female workers, (see Table 3 below).

**Table 3. Oklahoma: Employment of Female Workers by Industry, Annual Averages
2001-2018**

	2001		2018	
	Number	Percent	Number	Percent
NAICS 11 Agriculture, Forestry, Fishing and Hunting	2,256	28.6	3,068	29.1
NAICS 21 Mining, Quarrying, and Oil and Gas Extraction	7,118	24.1	10,827	21.9
NAICS 22 Utilities	4,100	24.7	3,888	24.4
NAICS 23 Construction	11,514	16.6	14,265	17.7
NAICS 31-33 Manufacturing	47,694	27.6	30,721	22.9
NAICS 42 Wholesale Trade	16,336	28.4	15,520	27.7
NAICS 44-45 Retail Trade	88,597	51.3	88,197	50.7
NAICS 48-49 Transportation and Warehousing	9,252	20.6	12,859	25.4
NAICS 51 Information	19,463	47.8	8,890	40.1
NAICS 52 Finance and Insurance	38,983	71.4	35,979	67.7
NAICS 53 Real Estate and Rental and Leasing	12,333	50.7	9,416	44.5
NAICS 54 Professional, Scientific, and Technical Services	26,886	51.8	36,907	50.5
NAICS 55 Management of Companies and Enterprises	6,916	49.7	9,658	47.7
NAICS 56 Administrative and Support and Waste Management and Remediation Services	41,779	43.0	41,910	43.3
NAICS 61 Educational Services	97,705	67.8	104,819	70.6
NAICS 62 Health Care and Social Assistance	136,549	80.4	173,479	79.5
NAICS 71 Arts, Entertainment, and Recreation	8,006	46.9	20,008	52.2
NAICS 72 Accommodation and Food Services	62,321	55.9	83,906	55.6
NAICS 81 Other Services (except Public Administration)	20,454	51.4	16,950	47.2
NAICS 92 Public Administration	34,629	46.3	41,315	49.3

SOURCE: Quarterly Workforce Indicators, U.S. Census Bureau, (qwexplorer.ces.census.gov)

In 2001, NAICS 62 Health Care and Social Assistance had both the largest number (136,549) and the largest share (80.4 percent) of female workers. NAICS 61 Educational Services followed with a female employment level of 97,705 (67.8 percent). While NAICS 52 Finance and Insurance did not have a very large employment level of female workers (38,983) in 2001, female employment represented 71.4 percent of the workforce in this industry. NAICS 44-45 Retail Trade had the third-highest level of employment of female workers (88,597), but that amounted to a little over half (51.3 percent) of the total employment in that industry. The most underrepresented industry for female employment was NAICS 23 Construction with only 11,514 female workers (16.6 percent).

By 2018, Oklahoma's female workforce had grown 10.1 percent, adding 69,691 workers. At the same time, the male workforce grew by 7.4 percent, adding 53,429 workers—16,252 fewer male workers than female (see Table 1, page 3). Employment of female workers expanded in 12 of Oklahoma's 20 industry sectors by 108,090 workers and contracted in eight sectors by 38,399 workers. The industry with the

largest job gain of female workers was NAICS 62 Health Care and Social Assistance, adding 36,930 (27.0 percent) over the 18-year period (however, the share of female workers shrank a bit to 79.5 percent). NAICS 72 Accommodation and Food Services had the second-largest gain in female employment adding 21,585 female workers (34.6 percent) between 2001 and 2018.

It is also interesting to note that the industry showing the most dramatic rise in employment, both female and male, during this period was NAICS 71 Arts, Entertainment, and Recreation where employment more than doubled from 17,058 workers in 2001 to 38,347 workers in 2018—a remarkable 124.8 percent growth rate. Female employment in this industry climbed sharply adding 12,002 jobs (149.9 percent) while the female share of employment increased from 46.9 percent to 52.2 percent. No doubt much of the phenomenal job growth in this industry, which includes gambling industries, occurred thanks to the introduction of tribal gaming in Oklahoma in 2004.⁶

The most significant job losses for female workers occurred in NAICS 31-33 Manufacturing where 16,973 jobs were lost and the female share of employment in the sector fell from 27.6 percent in 2001 to 22.9 percent in 2018.

Also, NAICS 51 Information saw the largest percent reduction of female workers where employment plunged 10,573 (-54.3 percent) between 2001 and 2018, losing more than half of the female workforce. Consolidation in this industry has reduced the overall size of the workforce by 18,587 workers (45.6 percent) over the 18-year period.

Hiring Trends of Female Workers

QWI's measure of employment change includes the indicator, Hires All ('HirA'), which is the estimated number of workers who started a new job in a specified quarter. This indicator includes workers who started a new job, (Hires New, 'HirN'), along with workers who returned to the same employer where they had worked within the previous year, (Hires Recalls, 'HirR').

From 2001 to 2018, overall hiring levels declined significantly, equally affecting females and males (see Table 4, next page). Total hiring in Oklahoma tumbled by 110,722 (-29.5 percent) during this time, female hiring levels fell from 179,180 in 2001 to 124,007 in 2018, a reduction in hiring of 55,173 (-30.8 percent) while male hiring dropped from 195,655 in 2001 to 140,106 in 2018, amounting to 55,549 (-28.4 percent) fewer hires.

One of the big factors for the considerable reduction in hiring levels over the past 18 years may be attributed to advances in technology, not only in manufacturing, clerical, and retail work but in professions such as law, financial services, education, and medicine.⁷ Automation is reducing the need for people in many jobs and this trend is expected to continue into the future.

In the period 2001 to 2018, the female share of hiring in Oklahoma slipped 0.8 percentage point from 47.8 percent of total hiring to 47.0 percent in 2018, while males gained 0.8 percentage point.

⁶ Approved by voters in 2004, Oklahoma's State-Tribal Gaming Act created a tribal gaming compact allowing federally recognized American Indian tribes to operate: electronic bonanza-style bingo games, electronic amusement games, electronic instant bingo games, and non house-banked card games. The current compact expires January 1, 2020.

⁷ David Rotman, "How Technology is Destroying Jobs." *MIT Technology Review*, June 12, 2013.

**Table 4. Oklahoma: Hiring by Gender, Annual Averages
2001-2018**

	Male	Percent total hiring	Female	Percent total hiring	Total hiring
2001	195,655	52.2	179,180	47.8	374,835
2002	168,686	51.7	157,843	48.3	326,529
2003	171,171	52.1	157,486	47.9	328,657
2004	165,530	51.3	157,116	48.7	322,646
2005	177,460	51.9	164,542	48.1	342,002
2006	182,726	51.6	171,262	48.4	353,988
2007	186,687	51.7	174,320	48.3	361,007
2008	183,792	51.9	170,052	48.1	353,844
2009	139,607	50.9	134,814	49.1	274,421
2010	149,147	52.9	132,865	47.1	282,012
2011	149,153	53.2	131,389	46.8	280,542
2012	156,429	53.1	137,986	46.9	294,415
2013	157,551	53.0	139,687	47.0	297,238
2014	164,058	53.0	145,308	47.0	309,366
2015	156,214	51.7	145,649	48.3	301,863
2016	147,954	51.5	139,065	48.5	287,019
2017	155,586	52.5	140,532	47.5	296,118
2018	140,106	53.0	124,007	47.0	264,113

SOURCE: Quarterly Workforce Indicators, U.S. Census Bureau,
(qwiexplorer.ces.census.gov)

Hiring Trends of Female Workers by Industry

Which industries in Oklahoma are hiring female workers? Using the QWI dataset, we can see that, in general, the industries with higher concentrations of female workers also tended to hire a larger share of female workers. In this case, the services-providing industries are where the bulk of female hiring has taken place (see Table 5, next page).

As mentioned in the previous section, hiring levels of both female and male workers in Oklahoma has declined over the past 18 years. As well, hiring levels of female workers dropped in 16 of 20 industry sectors from 2001 to 2018.

In 2001, the industry with highest level of hiring of female workers was NAICS 72 Accommodation and Food Services at 33,397 (54.4 percent of total hiring in that industry). NAICS 62 Health Care and Social Assistance followed at a level of 29,308 female hires (81.3 percent of total hiring in that industry and the highest percentage of female hires). Also, female hiring in NAICS 44-45 Retail Trade was at a level of 28,375 (53.8 percent of total hiring in that industry) for the third-highest hiring level.

However, by 2018, hiring levels in Oklahoma had significantly declined in most industries, (see Table 5).

Table 5. Oklahoma: Hiring by Industry, Female Workers, Annual Averages, 2001-2018

	2001		2018	
	Number of Hires	Percent Total Hiring	Number of Hires	Percent Total Hiring
NAICS 11 Agriculture, Forestry, Fishing and Hunting	768	28.3	443	26.6
NAICS 21 Mining, Quarrying, and Oil and Gas Extraction	833	13.8	1,078	12.0
NAICS 22 Utilities	342	26.5	179	23.8
NAICS 23 Construction	3,587	13.4	2,680	14.2
NAICS 31-33 Manufacturing	6,798	28.2	3,411	23.5
NAICS 42 Wholesale Trade	2,977	30.0	2,006	28.9
NAICS 44-45 Retail Trade	28,375	53.8	15,847	51.4
NAICS 48-49 Transportation and Warehousing	1,431	17.6	1,617	20.6
NAICS 51 Information	2,850	49.7	868	43.2
NAICS 52 Finance and Insurance	4,950	70.2	2,932	67.4
NAICS 53 Real Estate and Rental and Leasing	2,343	43.4	1,460	43.6
NAICS 54 Professional, Scientific, and Technical Services	6,394	54.4	6,395	51.6
NAICS 55 Management of Companies and Enterprises	1,398	52.4	989	51.2
NAICS 56 Administrative and Support and Waste Management and Remediation Services	27,224	41.2	14,902	39.2
NAICS 61 Educational Services	13,079	64.7	6,850	64.7
NAICS 62 Health Care and Social Assistance	29,308	81.3	25,008	81.1
NAICS 71 Arts, Entertainment, and Recreation	3,245	48.8	3,313	53.8
NAICS 72 Accommodation and Food Services	33,397	54.4	28,656	54.4
NAICS 81 Other Services (except Public Administration)	6,206	51.1	3,061	46.1
NAICS 92 Public Administration	3,666	45.8	2,311	49.1

SOURCE: Quarterly Workforce Indicators, U.S. Census Bureau, (qwexplorer.ces.census.gov)

The largest reduction in statewide hiring occurred in NAICS 44-45 Retail Trade where average annual female hires fell 12,528 (-44.2 percent) over the 18-year period, possibly further evidence of the shift away from ‘brick-and-mortar’ stores to online shopping. NAICS 56 Administrative and Support and Waste Management and Remediation Services saw female hiring decline by 12,322 workers (-45.3 percent), part of the overall hiring drop in this industry. Hiring of female workers in NAICS 61 Educational Services was nearly half the 2001 level, falling 6,229 (-47.6 percent) by 2018, however, the share of female hires in this industry remained unchanged at 64.7 percent (see Table 5).

NAICS 21 Mining, Quarrying, and Oil and Gas Extraction had the largest gain in female hiring levels during the 18-year period, up by 245 hires (29.4 percent), however the female share of hiring in this industry shrank from 13.8 percent in 2001 to 12.0 percent in 2018. Also, NAICS 48-49 Transportation and Warehousing saw a gain of 186 female hires (13.0 percent), from 2001 to 2018 and the female share of hiring grew 3.0 percentage points.

The largest positive change in the share of female hiring occurred in NAICS 71 Arts, Entertainment, and Recreation where female workers’ share of hiring expanded from 48.8 percent in 2001 to 53.8 percent in 2018, a gain of five percentage points. Although hiring levels declined in NAICS 23 Construction, the female share of hiring in this industry increased from 13.4 percent to 14.2 percent over the 18-year period.

Female Workers' Earnings

What are female workers being paid and what Oklahoma industries are paying the highest and lowest wages to female workers? One of QWI's measures of earnings, the indicator 'Full-Quarter Employment (Stable): Average Monthly Earnings', ('EarnS'), reports average monthly earnings of employees with stable jobs (i.e. worked with the same firm throughout the quarter). Using this indicator, we can determine wage levels by age, gender, and industry in Oklahoma.

Table 6. Oklahoma: Average Monthly Earnings by Gender and Age Group, Annual Averages, 2001-2017

Year	14 to 24 years old		25 to 34 years old			35 to 54 years old			55 years and older			
	male	female	male	female	male	female	male	female	male	female		
2001	\$1,155	\$1,309	\$1,004	\$2,284	\$2,641	\$1,880	\$2,972	\$3,740	\$2,201	\$2,678	\$3,501	\$1,835
2002	\$1,151	\$1,293	\$1,014	\$2,292	\$2,633	\$1,914	\$2,981	\$3,725	\$2,244	\$2,727	\$3,542	\$1,907
2003	\$1,154	\$1,298	\$1,019	\$2,305	\$2,633	\$1,944	\$3,031	\$3,773	\$2,302	\$2,813	\$3,654	\$1,983
2004	\$1,196	\$1,351	\$1,050	\$2,396	\$2,739	\$2,018	\$3,201	\$3,992	\$2,414	\$2,973	\$3,869	\$2,092
2005	\$1,237	\$1,406	\$1,078	\$2,445	\$2,812	\$2,042	\$3,286	\$4,120	\$2,456	\$3,070	\$4,009	\$2,151
2006	\$1,325	\$1,528	\$1,131	\$2,580	\$2,979	\$2,138	\$3,473	\$4,348	\$2,591	\$3,311	\$4,325	\$2,313
2007	\$1,398	\$1,620	\$1,186	\$2,715	\$3,144	\$2,242	\$3,628	\$4,535	\$2,712	\$3,471	\$4,518	\$2,436
2008	\$1,464	\$1,705	\$1,233	\$2,831	\$3,289	\$2,327	\$3,757	\$4,700	\$2,802	\$3,640	\$4,741	\$2,556
2009	\$1,400	\$1,582	\$1,232	\$2,758	\$3,160	\$2,334	\$3,667	\$4,546	\$2,807	\$3,575	\$4,610	\$2,585
2010	\$1,415	\$1,604	\$1,241	\$2,819	\$3,241	\$2,372	\$3,773	\$4,680	\$2,874	\$3,697	\$4,776	\$2,660
2011	\$1,472	\$1,694	\$1,261	\$2,957	\$3,424	\$2,447	\$3,967	\$4,934	\$2,976	\$3,932	\$5,132	\$2,758
2012	\$1,554	\$1,803	\$1,313	\$3,080	\$3,581	\$2,523	\$4,106	\$5,096	\$3,071	\$4,111	\$5,354	\$2,878
2013	\$1,592	\$1,850	\$1,341	\$3,157	\$3,673	\$2,582	\$4,169	\$5,151	\$3,132	\$4,160	\$5,373	\$2,945
2014	\$1,636	\$1,916	\$1,361	\$3,298	\$3,856	\$2,678	\$4,308	\$5,323	\$3,235	\$4,307	\$5,548	\$3,053
2015	\$1,639	\$1,885	\$1,403	\$3,338	\$3,863	\$2,767	\$4,367	\$5,353	\$3,337	\$4,364	\$5,561	\$3,151
2016	\$1,613	\$1,836	\$1,405	\$3,269	\$3,755	\$2,757	\$4,313	\$5,258	\$3,342	\$4,268	\$5,389	\$3,146
2017	\$1,660	\$1,906	\$1,428	\$3,369	\$3,907	\$2,803	\$4,448	\$5,441	\$3,428	\$4,385	\$5,549	\$3,206

SOURCE: Quarterly Workforce Indicators, U.S. Census Bureau, (qwexplorer.ces.census.gov)

Table 6, above, summarizes Oklahoma average monthly earnings by age group and gender from 2001 to 2017. While female workers' earnings have grown over the 2001 to 2017 period, without exception, their average monthly earnings lag behind in both age group and male earnings.

The largest gain in female workers' average monthly earnings over the 17-year period occurred in the 55 years and older age group where earnings rose by \$1,371 (32.2 percent). Nevertheless, even with that gain, female earnings were only 57.8 percent of male earnings (\$5,549) in 2017.

The most parity between female and male workers' earnings was seen in the 14 to 24 years old age group where female workers earned 76.7 percent of male earnings in 2001. However, by 2017, female average monthly earnings in this age group had shrunk to 74.9 percent of male earnings.

Female Workers' Earnings by Industry

What industries in Oklahoma are paying the highest and lowest wages to female workers? QWI data shows that across all industries, female workers' average weekly earnings increased from \$1,908 in 2001 to \$2,996 in 2017 for a gain of \$1,088 (57.0 percent).

By far, NAICS 21 Mining, Quarrying, and Oil and Gas Extraction paid both the highest average monthly wages as well as the largest change in earnings, \$3,839 (118.2 percent), over the 17-year period (see Table 7, below).

Table 7. Oklahoma: Average Monthly Earnings of Female Workers by Industry, Annual Averages 2001-2017

	2001	2017	Change	Percent Change
NAICS 11 Agriculture, Forestry, Fishing and Hunting	\$1,547	\$2,590	\$1,043	67.4
NAICS 21 Mining, Quarrying, and Oil and Gas Extraction	\$3,249	\$7,088	\$3,839	118.2
NAICS 22 Utilities	\$2,932	\$5,448	\$2,516	85.8
NAICS 23 Construction	\$1,951	\$3,253	\$1,302	66.7
NAICS 31-33 Manufacturing	\$2,217	\$3,640	\$1,423	64.2
NAICS 42 Wholesale Trade	\$2,451	\$3,787	\$1,336	54.5
NAICS 44-45 Retail Trade	\$1,247	\$1,975	\$728	58.4
NAICS 48-49 Transportation and Warehousing	\$2,153	\$3,473	\$1,320	61.3
NAICS 51 Information	\$2,719	\$3,813	\$1,094	40.2
NAICS 52 Finance and Insurance	\$2,232	\$3,939	\$1,707	76.5
NAICS 53 Real Estate and Rental and Leasing	\$1,897	\$3,006	\$1,109	58.5
NAICS 54 Professional, Scientific, and Technical Services	\$2,301	\$3,919	\$1,618	70.3
NAICS 55 Management of Companies and Enterprises	\$2,346	\$4,038	\$1,692	72.1
NAICS 56 Administrative and Support and Waste Management and Remediation Services	\$1,684	\$2,766	\$1,082	64.3
NAICS 61 Educational Services	\$2,118	\$2,837	\$719	33.9
NAICS 62 Health Care and Social Assistance	\$1,951	\$3,313	\$1,362	69.8
NAICS 71 Arts, Entertainment, and Recreation	\$1,157	\$2,390	\$1,233	106.6
NAICS 72 Accommodation and Food Services	\$919	\$1,416	\$497	54.1
NAICS 81 Other Services (except Public Administration)	\$1,393	\$2,347	\$954	68.5
NAICS 92 Public Administration	\$2,419	\$3,251	\$832	34.4

SOURCE: Quarterly Workforce Indicators, U.S. Census Bureau, (qwexplorer.ces.census.gov)

NAICS 71 Arts, Entertainment, and Recreation had the second-highest percent change in female earnings jumping 106.6 percent, from \$1,157 in 2001 to \$2,390 in 2017. Female workers employed in NAICS 22 Utilities also saw a substantial gain in earnings growing \$2,516 (85.8 percent) over the 17-year period.

NAICS 61 Educational Services, a traditionally female-led industry, saw the least wage growth for female workers, only increasing \$719 (33.9 percent) between 2001 and 2017. NAICS 92 Public Administration followed, where female workers' earnings grew only by \$832 (34.4 percent) over the 17-year period.

Female earnings growth in other female-led industries did better as average monthly earnings in NAICS 52 Finance and Insurance climbed \$1,707 (76.5 percent) while average monthly earnings of females in NAICS 62 Health Care and Social Assistance rose \$1,362 (69.8 percent) between 2001 and 2017.

Summary

The rapid rise in women's labor force participation was a major development in the labor market during the second half of the 20th century. Women's labor force participation increased dramatically from the 1960s through the 1980s, before slowing in the 1990s. After reaching a peak of 60.0 percent in 1999,

labor force participation among women began a gradual decline. In 2016, 56.8 percent of all women participated in the labor force nationally.⁸

Oklahoma's female labor force participation rate also reached a peak of 58.4 percent in 1999 and from 1997 to 2017 the female labor force participation rate has declined from 56.2 percent to 53.7 percent (-2.5 percentage points). But the gender gap between the female and male labor force participation rates is narrowing. Oklahoma's male labor force participation rate also declined but much more than the female rate, falling from a peak of 73.2 percent in 1997 to 69.1 percent in 2017 (-4.1 percentage points).

The female share of employment in Oklahoma has also gained slightly. Between 2001 and 2018, female employment has increased from 49.1 percent to 49.7 percent, while the male share has shrank from 50.9 percent to 50.3 percent. Interestingly, females' share of employment in Oklahoma surpassed the males' share in 2009 and 2010 during the 'Great Recession'.

Older female workers appear to be gaining employment at a faster rate. From 2001 to 2018, female workers in the 55 to 64 years age group gained 55,588 (75.9 percent), while female workers in the 65 years and over age group grew by 27,294 (132.0 percent). The only other female worker age group to add employment during this period was in the 25 to 34 years group (+21,965 workers, 15.1 percent), employment in all other age groups declined.

There are several industries in Oklahoma where employment tends to be traditionally female led. These industries are: NAICS 62 Health Care and Social Assistance (79.5 percent female employment in 2018), NAICS 61 Educational Services (70.6 percent), and NAICS 52 Finance and Insurance (67.7 percent). Industry hiring of female workers also follows a similar pattern.

While male earnings remain well above female earnings, over the period from 2001 to 2017, that gap appears to be shrinking. For example, in the 35 to 54 years age group, female worker average monthly earnings have grown from 58.9 percent of male earnings in 2001 to 63.0 percent in 2017. Also, female workers' earnings in the 55 years and older group went from 52.4 percent of their male counterparts in 2001 to 57.8 percent in 2017.

Across all industries, female workers' average monthly earnings increased from \$1,908 in 2001 to \$2,996 in 2017 for a gain of \$1,088 (57.0 percent). The industry paying the highest wages to female workers (and male workers as well), was NAICS 21 Mining, Quarrying, and Oil and Gas Extraction with average monthly earnings for female workers at \$7,088 in 2017. This industry also had the largest gain in female worker earnings over the 17-year period. Female workers in NAICS 61 Educational Services saw the smallest gain in average monthly earnings, only growing 33.9 percent.

There have been a number of notable changes from the 1960s through the present regarding women's involvement in the labor market. Women now are more likely to work full time and year round than in earlier decades and attain higher levels of education. The gender gap between women and men has significantly narrowed in the past several decades and this trend is expected to continue going forward.

⁸ "Women in the labor force: a databook," November 2017, *BLS Reports*, Report 1071, U.S. Bureau of Labor Statistics.

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