



In 2016, the Pew Research Center released a report on “America’s Shrinking Middle Class.” The report looked at changes in the American middle class between 2000 and 2014 and found that in a majority of U.S. regions, the share of households in a middle-income tier has declined. A growing share of households today are either in a low-income tier or in an up-income tier.

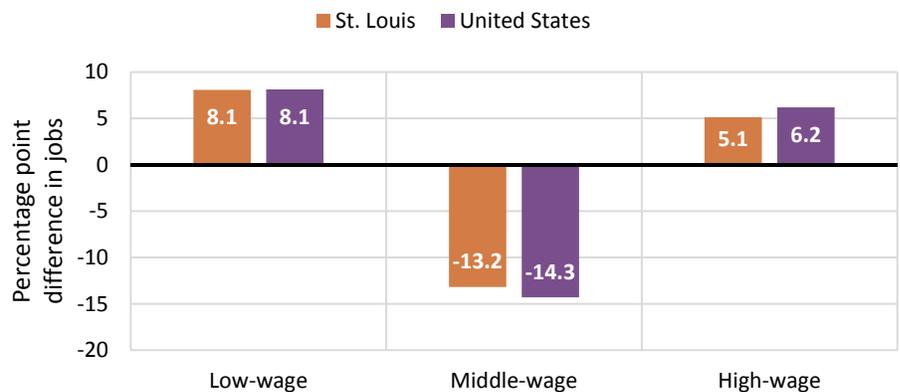
This white paper follows the Pew Research Center’s report with a particular focus on the 50 most populated regions in the country (called the peer regions) and the St. Louis region especially. Wage and salary incomes for full-time, full-year employees are used in this paper to establish three income tiers (see note on wage-tiers on page 10). In this paper, middle-wage jobs are defined as having earnings between two-thirds and two times the national median wage. Using this definition, middle-wage jobs were paid between \$4,833 and \$14,500 in 1970 and between \$32,000 and \$96,000 in 2016. High-wage jobs are defined as jobs earning twice the national median wage or more, and low-wage jobs are defined as those earning less than the national median wage.

Similar to the Pew Research Center report, this white paper observes that the distribution of jobs is becoming polarized throughout the country. Jobs today are increasingly high- or low-paying, while jobs in the middle are becoming more difficult to find. All of the peer regions experienced a declining share of middle-wage jobs between 1970 and 2016. With few exceptions, most regions saw increases in both high- and low-wage jobs, but in many regions, including St. Louis, the increase in low-wage jobs outpaced the increase in high wage jobs.

Between 1970 and 2016, the St. Louis region experienced a moderate decline in middle-wage jobs, compared to the peer regions. Like most peer regions, St. Louis saw an increase in high wage jobs during this time. However, the region’s growth in high wage jobs was outpaced by its growth in low wage jobs. Compared to the peer regions, St. Louis had a relatively small increase in high-wage jobs. Between 1970 and 2016, employment increased by nearly 500,000 jobs. Around 35 percent of this increase was in low paying jobs, and 19 percent was in high paying jobs.

**Figure 1: Change in the Wage Income Distribution**

St. Louis MSA and the United States, 1970 to 2016



Source: IPUMS-USA, University of Minnesota

Between 1970 and 2016, the percentage of middle wage jobs in St. Louis declined from 72.4 percent to 59.2 percent, a decline of 13.2 percentage points. As shown in Table 2 (page 3), every peer region saw a decline in its share of jobs earning a middle-wage. St. Louis' decline in middle-wage jobs is about in the middle of the peer regions, but slightly less dramatic than the national decline (-14.3 percentage points).

Austin, saw the smallest decline in its share of jobs earning a middle wage, with a decline of just 1.8 percentage points. San Jose had the steepest decline in middle wage jobs of the peer regions with a decline of 29.1 percentage points.

In place of middle wage jobs, St. Louis saw increasing shares of both high- and low-wage jobs. However, the region's increase in high-wage jobs was outpaced by its increase in low-wage jobs. Between 1970 and 2016, the percentage of jobs earning a high-wage increased from 8.6 percent of the region's workforce to 13.8 percent, an increase of 5.1 percentage points. Meanwhile, the percentage of jobs earning a low-wage increased from 19.0 percent in 1970 to 27.1 percent in 2016, an increase of 8.1 percentage points. As shown in Table 1, St. Louis' increase in low-wage jobs is about in the middle of the peer regions, ranking 24th, and it is virtually the same as the national increase in middle wage jobs. The region's increase in high-wage jobs, however, was relatively low compared to the peer regions, with a ranking of 32nd, and slightly lower than the national increase of 6.2 percentage points.

Figure 2 shows the share of jobs by each income category for St. Louis from 1970 to 2016. The figure shows that the St. Louis region experienced a steady decline in middle-wage jobs over the entire time period, with a steeper decline in more recent years. Nearly all of the region's increases in high-wage jobs occurred prior to 2000. Meanwhile, most of the region's increases in low-wage jobs occurred between 2000 and 2016.

**Table 1  
Change in  
Low-Wage Jobs**

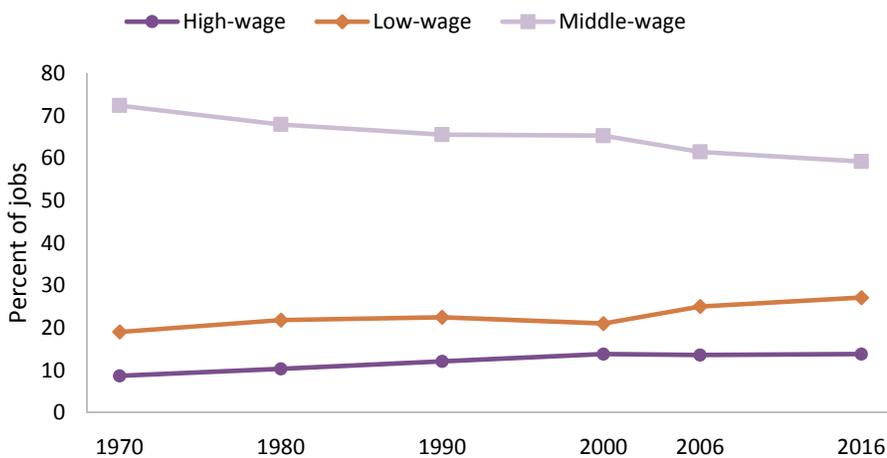
Percentage point difference in low-wage jobs, 1970-2016

1	Los Angeles	20.0
2	Las Vegas	16.8
3	Riverside	16.3
4	Detroit	15.5
5	San Diego	13.4
6	Sacramento	12.7
7	Chicago	12.5
8	Salt Lake City	11.7
9	Houston	11.3
10	Cleveland	11.1
11	Indianapolis	10.9
12	Phoenix	10.4
13	Portland	10.2
14	Milwaukee	10.2
15	Orlando	9.8
16	New York	9.5
17	Seattle	9.2
18	Oklahoma City	9.2
19	Dallas	9.0
20	Kansas City	8.9
21	Pittsburgh	8.9
22	Buffalo	8.8
23	Atlanta	8.2
	<b>United States</b>	<b>8.1</b>
24	<b>St. Louis</b>	<b>8.1</b>
25	Miami	7.9
26	Louisville	7.3
27	San Jose	7.1
28	Columbus	7.1
29	San Francisco	7.0
30	Cincinnati	6.5
31	Virginia Beach	6.4
32	Tampa	6.1
33	Denver	5.9
34	Philadelphia	5.9
35	Memphis	4.9
36	Jacksonville	4.8
37	Minneapolis	4.7
38	New Orleans	4.7
39	Washington, D.C.	4.5
40	San Antonio	4.5
41	Hartford	3.4
42	Birmingham	2.9
43	Charlotte	1.9
44	Boston	1.6
45	Baltimore	0.9
46	Richmond	0.8
47	Nashville	0.2
48	Providence	-0.6
49	<b>Austin</b>	<b>-8.0</b>

Source: IPUMS-USA, University of Minnesota

**Figure 2: Percent of Jobs by Wage Level**

St. Louis MSA, 1970 to 2016



Source: IPUMS-USA, University of Minnesota

As shown in Table 4, St. Louis is one of 30 regions in which the percentage of low-wage jobs increased more than high-wage jobs. In St. Louis, low-wage jobs outpaced high-wage jobs by 3.0 percentage points. This change in the wage distribution ranks 31st among the peer regions.

Austin, which ranks 1st, saw its increase in high-wage jobs outpace low-wage jobs by 17.8 percentage points. In Austin, low-wage jobs declined by 8.0 percentage points, and high wage jobs increased by 9.8 percentage points. Las Vegas ranks 49th and saw low-wage jobs outpace high-wage jobs by 18.7 percentage points.

**Table 2  
Change in  
Middle-Wage Jobs**

Percentage point difference in middle-wage jobs, 1970-2016

1	Austin	-1.8
2	Nashville	-6.2
3	Providence	-7.2
4	Charlotte	-7.7
5	Richmond	-8.1
6	Memphis	-8.4
7	San Antonio	-8.7
8	Birmingham	-8.8
9	Jacksonville	-10.1
10	New Orleans	-10.5
11	Miami	-10.6
12	Louisville	-11.1
13	Tampa	-11.2
14	Orlando	-11.5
15	Minneapolis	-11.8
16	Columbus	-12.2
17	Hartford	-12.2
18	Virginia Beach	-12.3
19	Oklahoma City	-12.8
20	Cincinnati	-12.9
21	Buffalo	-13.0
22	St. Louis	-13.2
23	Baltimore	-13.4
24	Cleveland	-13.5
25	Atlanta	-13.7
26	Kansas City	-14.3
	<b>United States</b>	<b>-14.3</b>
27	Denver	-14.5
28	Las Vegas	-15.0
29	Milwaukee	-15.2
30	Phoenix	-15.2
31	Pittsburgh	-15.2
32	Dallas	-15.3
33	Philadelphia	-15.4
34	Washington, D.C.	-15.4
35	Indianapolis	-15.9
36	Salt Lake City	-16.1
37	Boston	-16.1
38	Detroit	-16.9
39	Houston	-18.2
40	Portland	-18.5
41	Chicago	-19.2
42	New York	-20.2
43	Riverside	-20.3
44	Seattle	-21.5
45	San Diego	-21.7
46	Sacramento	-23.1
47	Los Angeles	-24.2
48	San Francisco	-28.6
49	San Jose	-29.1

Source: IPUMS-USA, University of Minnesota

**Table 3  
Change in  
High-Wage Jobs**

Percentage point difference in high-wage jobs, 1970-2016

1	San Jose	21.9
2	San Francisco	21.6
3	Boston	14.5
4	Baltimore	12.5
5	Seattle	12.3
6	Washington, D.C.	10.8
7	New York	10.8
8	Sacramento	10.4
9	Austin	9.8
10	Philadelphia	9.5
11	Hartford	8.8
12	Denver	8.6
13	San Diego	8.3
14	Portland	8.2
15	Providence	7.9
16	Richmond	7.3
17	Minneapolis	7.1
18	Houston	6.9
19	Chicago	6.7
20	Pittsburgh	6.3
21	Cincinnati	6.3
22	Dallas	6.3
	<b>United States</b>	<b>6.2</b>
23	Nashville	6.0
24	Virginia Beach	5.9
25	Birmingham	5.9
26	Charlotte	5.9
27	New Orleans	5.7
28	Atlanta	5.6
29	Kansas City	5.4
30	Jacksonville	5.3
31	Tampa	5.2
32	St. Louis	5.1
33	Columbus	5.1
34	Indianapolis	5.0
35	Milwaukee	5.0
36	Phoenix	4.8
37	Salt Lake City	4.3
38	Los Angeles	4.3
39	Buffalo	4.2
40	San Antonio	4.1
41	Riverside	4.0
42	Louisville	3.8
43	Oklahoma City	3.6
44	Memphis	3.6
45	Miami	2.7
46	Cleveland	2.4
47	Orlando	1.6
48	Detroit	1.5
49	Las Vegas	-1.9

Source: IPUMS-USA, University of Minnesota

**Table 4  
Change in the Wage  
Income Distribution**

Difference between the growth in high-wage jobs and low-wage jobs, 1970-2016

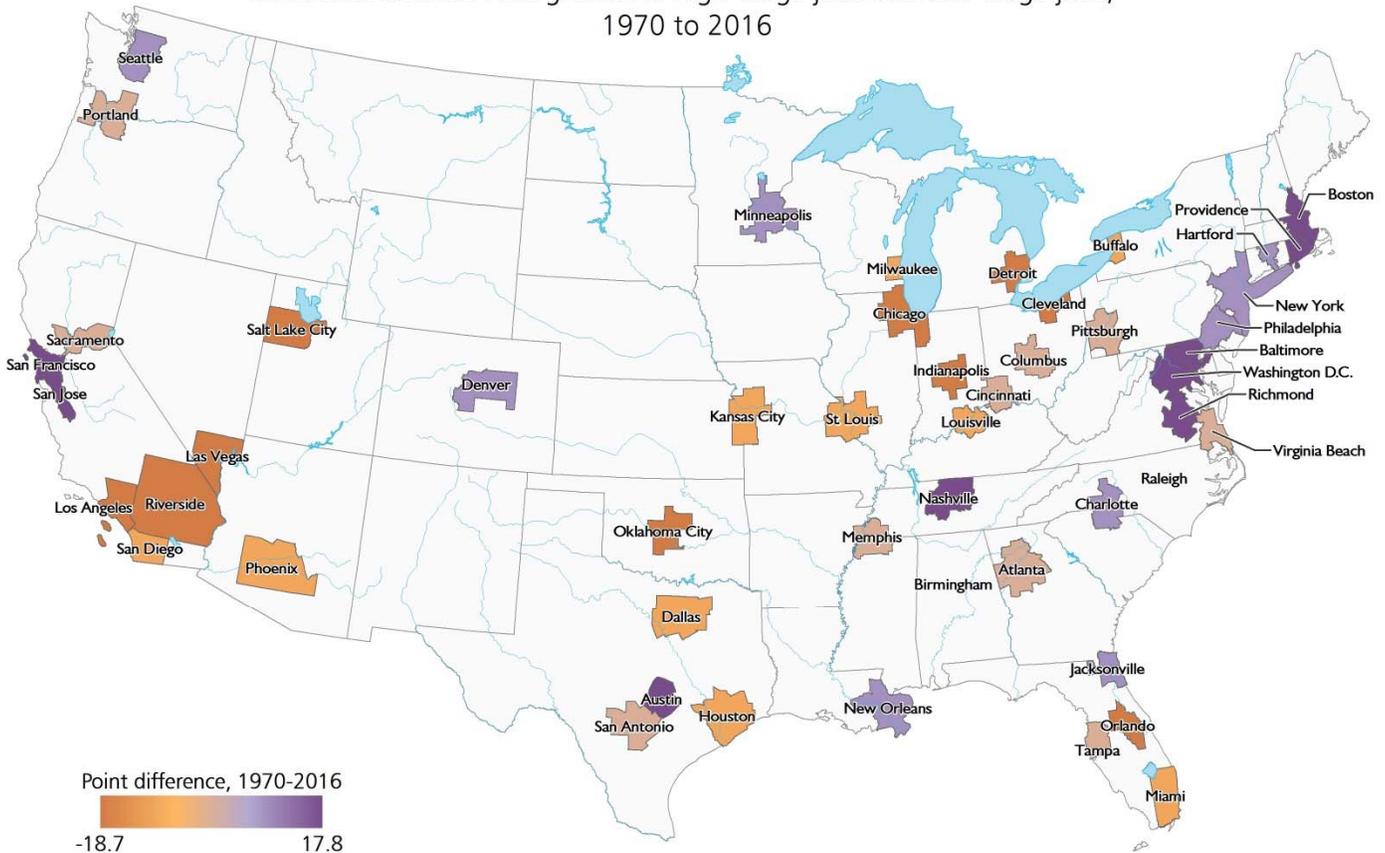
1	Austin	17.8
2	San Jose	14.8
3	San Francisco	14.6
4	Boston	12.9
5	Baltimore	11.7
6	Providence	8.5
7	Richmond	6.5
8	Washington, D.C.	6.3
9	Nashville	5.8
10	Hartford	5.5
11	Charlotte	4.0
12	Philadelphia	3.6
13	Seattle	3.1
14	Birmingham	2.9
15	Denver	2.7
16	Minneapolis	2.3
17	New York	1.3
18	New Orleans	1.0
19	Jacksonville	0.5
20	Cincinnati	-0.2
21	San Antonio	-0.4
22	Virginia Beach	-0.5
23	Tampa	-0.9
24	Memphis	-1.3
	<b>United States</b>	<b>-1.9</b>
25	Columbus	-2.0
26	Portland	-2.0
27	Sacramento	-2.3
28	Pittsburgh	-2.6
29	Atlanta	-2.6
30	Dallas	-2.8
31	St. Louis	-3.0
32	Louisville	-3.5
33	Kansas City	-3.5
34	Houston	-4.4
35	Buffalo	-4.6
36	San Diego	-5.1
37	Miami	-5.3
38	Milwaukee	-5.3
39	Phoenix	-5.5
40	Oklahoma City	-5.6
41	Chicago	-5.8
42	Indianapolis	-5.9
43	Salt Lake City	-7.4
44	Orlando	-8.2
45	Cleveland	-8.7
46	Riverside	-12.4
47	Detroit	-14.0
48	Los Angeles	-15.7
49	Las Vegas	-18.7

Source: IPUMS-USA, University of Minnesota

The distribution of new low- and high- wage jobs has not been even across the peer regions. The map on this page shows the peer regions according to their change in wage distribution. In the regions colored purple, the increase in high-wage jobs outpaced the increase in low-wage jobs. For the regions colored orange, low-wage jobs outpaced high-jobs. This figure shows there is a clear geographic pattern among the peer regions. Regions in the Northeast and in the Bay area saw bigger increases in high-wage jobs, whereas regions in the Southwest and in the Midwest saw bigger increases in low-wage jobs.

## Change in wage income distribution

Difference between the growth in high-wage jobs and low-wage jobs, 1970 to 2016



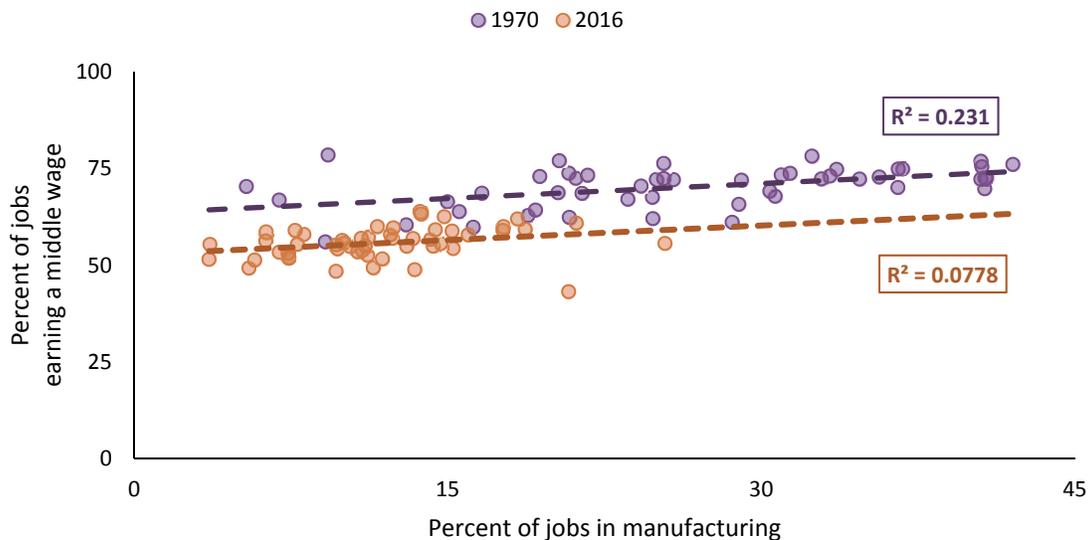
Much of the changes observed over the last 46 years are related to job automation and the decline of manufacturing employment. The Pew Research Center found that regions with the “greatest losses in economic status” tended to have a “greater than average reliance on manufacturing.” In the 1970s, many jobs within the manufacturing sector performed repetitive tasks, and with the development of new technologies, these jobs were often the most prone to automation (Autor, Levy and Murnane 2003).

In the 1970s, the manufacturing sector supported a large number of well-paying jobs, and there was a fairly strong correlation between manufacturing jobs and middle-wage jobs. In regions where there was a higher percentage of manufacturing jobs there also tended to be a higher percentage of middle-wage jobs. In St. Louis, 32.9 percent of the region’s workforce worked in the manufacturing sector, and many of these jobs were well paying. Nearly 80 percent of manufacturing jobs in St. Louis paid a middle-wage in 1970. An additional 8.5 percent paid a high wage, and the remaining 11.7 percent paid a low-wage.

Today, jobs in the manufacturing sector still pay relatively well. In St. Louis, jobs in the manufacturing sector pay about 15 percent more than the national median wage (\$55,000 annually compared with the national median of \$48,000). However, manufacturing employment today comprises a much smaller percentage of the regional workforce than it did in 1970. In 2016, 14.4 percent of the region’s workforce was employed in manufacturing. In addition, as shown in Figure 3, the correlation between manufacturing jobs and middle wage jobs is weaker in 2016 than it was in 1970.

**Figure 3: Manufacturing and Middle Wage Jobs**

The Peer Regions, 1970 and 2016



Source: IPUMS-USA, University of Minnesota

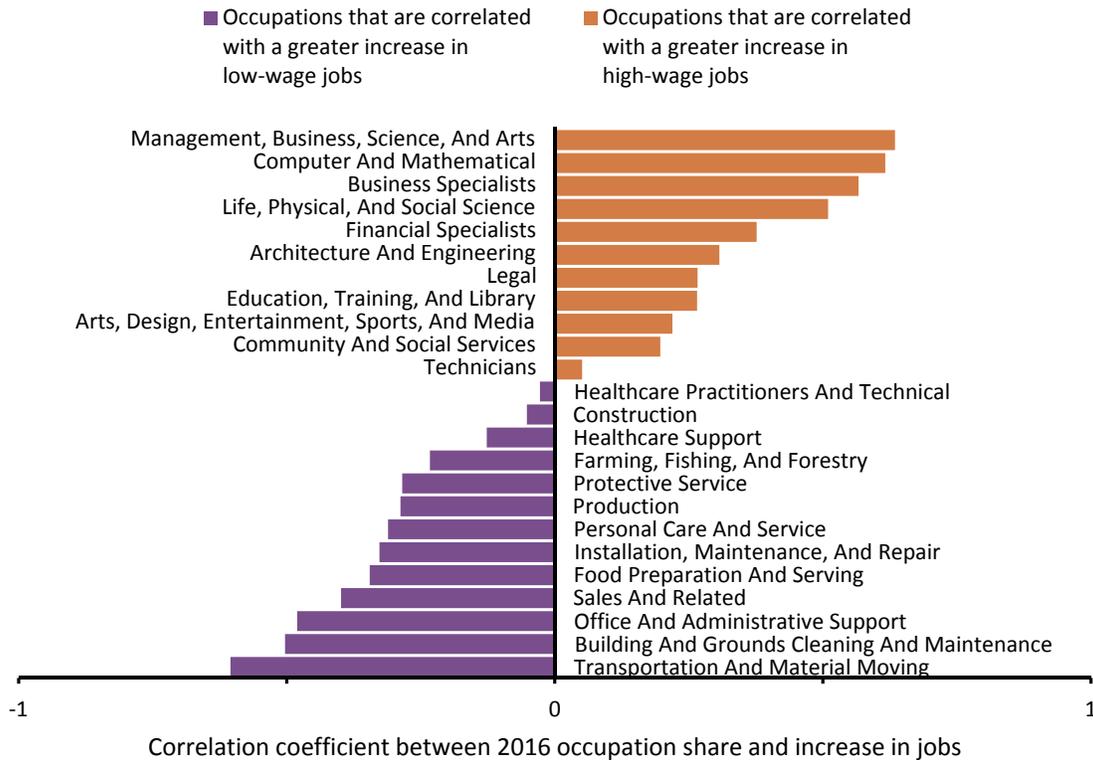
Among the regions where there has been stronger growth in high-wage jobs, there is also a tendency to have a larger share of highly skilled jobs. This can be seen in Figure 4, which shows correlations between various occupations and changes in the distribution of wages. The figure shows that in regions where a greater percentage of jobs are in management, for example, the increase in high-wage jobs between 1970 and 2016 tended to outpace the increase in low-wage jobs. In addition to management occupations, the types of jobs that are most correlated with an increase in high-wage jobs include computer and math related occupations, business specialists, and science related occupations.

This figure also shows the types of occupations that are correlated with a greater increase in low-wage jobs. In regions where the increase in low-wage jobs outpace high-wage jobs there is generally a higher percentage of jobs in transportation and material moving occupations, cleaning, office and administrative support occupations, and occupations in sales.

In 2016, office and administrative support occupations comprised the largest share of workers in 22 of the peer regions, including St. Louis. Fourteen percent of jobs in St. Louis are in office and administrative support occupations. Management occupations comprise the largest share of occupations in the remaining 28 peer regions, with Raleigh; Washington, D.C; San Francisco; Denver; and Austin having the largest percentages of management occupations. In St. Louis, management occupations make up the second largest share of jobs in the region (13.6 percent).

**Figure 4: Occupation Shares and Wage Distribution Changes**

Peer Regions, 2017



Source: IPUMS-USA, University of Minnesota

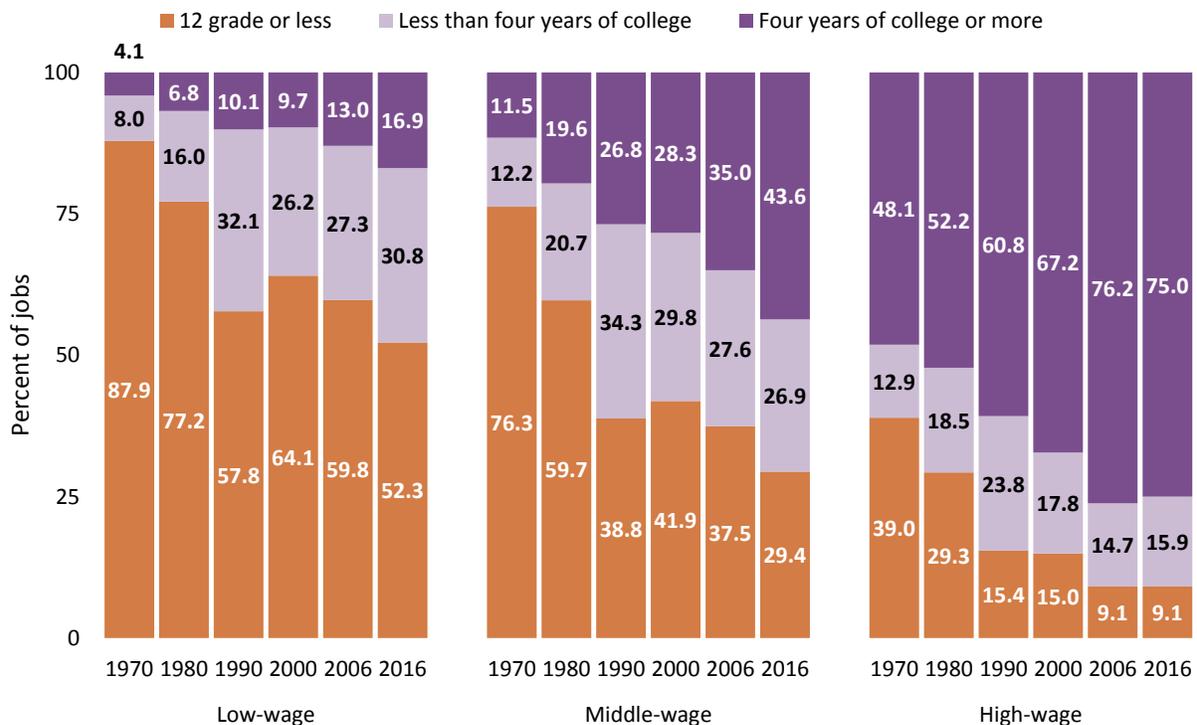
Another important change over the last 46 years is the level of educational attainment held by people earning middle- and high-wages. In 1970, middle- and high-wage jobs were fairly accessible to people with little educational attainment. In 1970, three-quarters of middle-wage workers had a 12th grade education or less. This also describes nearly 40 percent of all high-wage workers, and 87.9 percent of low-wage workers.

Today, high-wage jobs are nearly exclusive to people with more than a 12th grade education. Over 90 percent of high-wage jobs are held by people with more than a 12th grade education. Three-quarters of high-wage workers have four years of college education or more, and another 15.9 percent have had some college experience. In addition, 70.6 percent of middle-wage jobs are held by workers with more than a 12th grade education.

This scenario is considerably different among workers earning a low-wage. A majority of low-wage workers today have a 12th grade education or less (52.3 percent). And of the low-wage workers who have gone to college (around 132,000 people), around a third (35.3 percent) have completed four years of college or more. By comparison, among high-wage workers who have gone to college, 82.5 percent have completed at least four years of college (see note on page 10 regarding educational attainment).

**Figure 5: Wage Levels by Educational Attainment**

St. Louis MSA, 1970 to 2016



Source: IPUMS-USA, University of Minnesota

In St. Louis, wages are not distributed evenly among people of different races. Figure 6 shows that white workers are around three times as likely to earn a high-wage as black workers. Black workers are nearly twice as likely to earn a low-wage as white workers. Around 47 percent of black workers earn a low-wage, compared with around 25 percent of white workers. Over the last 16 years, the percentage of both white and black workers earning a low-wage has increased steadily. For white workers, the percentage of those earning a low-wage increased by around 6 percentage points. For black workers, the increase was over twice as great, increasing by over 12 percentage points.

**Figure 6: Wage Levels by Race**  
St. Louis MSA, 1970 to 2016



Source: IPUMS-USA, University of Minnesota

Similarly, St. Louis wages are not distributed evenly across sexes. Figure 7 shows that 36.1 percent of female workers earn a low-wage compared with 22.8 percent of male workers. Male workers are over twice as likely to earn a high-wage compared with female workers.

The disparity between male and female workers has lessened over the last 46 years. In 1970, 46.2 of all female workers earned a low-wage, nearly six times the percent of male workers at the time. Additionally, a tiny fraction of female workers earned a high-wage in 1970 (0.6 percent). In fact, 98 percent of all high wage jobs were held by males in 1970. Today, more female workers earn a high-wage, but females are still underrepresented in the high-wage tier. In 2016, 74 percent of all high-wage jobs were held by males in the St. Louis region.

**Figure 7: Wage Levels by Sex**  
St. Louis MSA, 1970 to 2016



Source: IPUMS-USA, University of Minnesota

## Discussion

The economy has shifted over the last 46 years, and jobs paying a middle-wage have diminished. Amid these shifts, some regions have seen strong growth in high-wage jobs whereas in other regions, including St. Louis, there has been a greater increase in low-wage jobs.

However, the long-term trends suggest that changes over the last five decades have not been bad for all people in St. Louis. A growing share of females earn a middle- or a high-wage, but a large disparity between male and female workers persists. Also, the wage disparity between black and white workers remains high in St. Louis. Nearly half of black workers earn a low-wage, compared with around a quarter of white workers.

Educational trends suggest there is a need for changes to post-secondary schooling. Since the 1970s, educational barriers to middle- and high-wage jobs have increased. In the 1970s, many middle- and high-wage jobs were held by people with little educational attainment. Today, middle- and high-wage jobs are almost exclusively held by people with at least some college experience. Among low-wage workers who have attended college, only 35 percent have four years of college experience or more. More analysis is needed in this area, but reforms could be focused on finding ways to improve college retention and graduation rates, and on improving college affordability without burdening low-wage workers with large amounts of student loan debt.

## Sources and Notes

**Wage-tiers:** The methodology used in this report differs from the Pew Research Center report on “America’s Shrinking Middle Class.” This report focuses on wage and salary income for individuals, whereas the Pew Research Center report focuses on household income. Wage and salary income is a subset of household income. In addition to wage and salary income, household income can include public assistance payments or welfare, retirement benefits, bonuses, interest dividends from stocks, etc.

**Educational attainment:** The data presented on educational attainment in this report reflects the highest year of school completed, which is not necessarily degree completion. The U.S. Census Bureau did not begin asking questions related to degree completion until the 1990 census.

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<https://doi.org/10.18128/D010.V7.0>.