October 2019

Where is our Workforce?
Southeast Michigan's Labor Force Participation Rate Trends

By certain measures, Southeast Michigan is experiencing its healthiest economy in a couple decades. The unemployment rate is 4.2 percent and real gross domestic product growth has returned to near its pre-recession peak of $255 billion. Yet, despite the improved economy, many residents of prime working age are not engaged in the workforce.

The primary measure for workforce engagement is the **labor force participation rate**. The labor force participation rate (LFPR) is defined as the percentage of working-age people who either have a job or are looking for work. In short, it is a measure of the labor supply. LFPR is an important measure of the region's economy. More people working or interested in working aids economic growth. This is an especially important consideration when there are labor shortages.

SEMCOG compared the LFPR for the Detroit-Warren-Dearborn Metropolitan Statistical Area (Detroit MSA) to peer regions across the Midwest and discovered a distinct trend – that our region's LFPR is perpetually lower than our peers.

Note that the Detroit MSA comprises six counties: Lapeer, Livingston, Macomb, Oakland, St. Clair, and Wayne; all except Lapeer are in the SEMCOG region. SEMCOG's two other counties, Monroe and Washtenaw, have their own MSAs and are not included in this study; however, a quick analysis found the LFPR for the seven-county SEMCOG region is within no more than 0.4 percentage points of the Detroit MSA.

Key Findings
- The Detroit MSA's labor force participation rate is lower than 10 comparison Midwest metros since 2012.
- For prime working age 25-54, the Detroit MSA's participation rate is lowest among its Midwest peers – about three percentage points from the median (which is 84 percent).
- Participation rates for both genders are lower than our peer regions. Males are starting to participate more with respect to our peers; the Detroit region is only two percentage points below the Midwest median. However, the gap has been growing for female participation, which is now four percentage points below the Midwest median.
- The Detroit MSA's participation rate is lowest among all levels of education, ranging from six percentage points lower than the Midwest median for residents without a high school diploma to two percentage points lower than the Midwest median for those with a bachelor's degree or more.
- For working-age population with a disability, the Detroit MSA is about seven percentage points lower than the Midwest median.
- Regression modeling suggests that four factors have the greatest effect (both in terms of increases and decreases) on the overall labor force participation rate – share of the population age 25-54, share of the population with a bachelor's degree or more, share of the population with a disability, and share of households with a single parent.

Background
As defined above, the labor force participation rate is the percentage of working-age people who either have a job or who are looking for work; in short, it is a measure of the labor supply. Figure 1, from the Bureau of Labor Statistics (2018), illustrates the components of the labor market. The labor force participation rate is calculated as (Labor Force ÷ Civilian noninstitutional population, age 16 and older) × 100.

Note that this report looks at data from the Census Bureau's American Community Survey, which includes both noninstitutional and institutional populations; however, inclusion of the institutional population has little effect on the LFPR for the Detroit MSA.

Figure 1
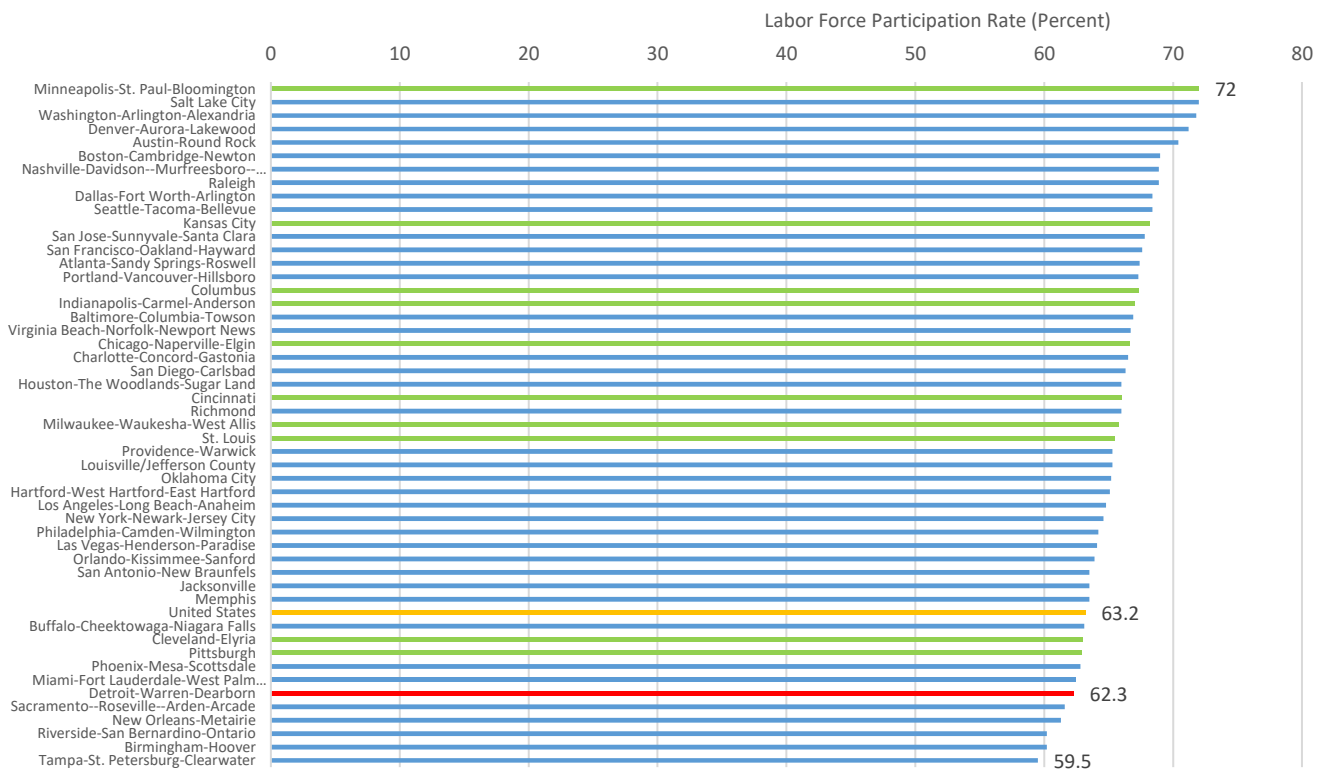**Components of the Labor Market**

Source: Bureau of Labor Statistics.

The labor force participation rate is an important measure because more people who are working or interested in working aids economic growth in times of labor shortages. Work is also good for a person's well-being. Further, with public discourse turning towards the concept of prosperity being shared among the entire population, it is important to ask how do those not in the labor force realize prosperity? (Shared Prosperity Partnership, 2018) For those not in the labor force, there could be a number of reasons, including retirement, disability, full-time school, caring for family, or other reasons (e.g., lack of skills or discouraged).

Labor force participation for metropolitan areas is measured by the Census Bureau's American Community Survey (ACS). Using the most recent data available (2017 one-year ACS estimates), SEMCOG ranked the Detroit MSA's participation rate against 50 metros with the largest working-age population. Figure 2 shows that the Detroit region's LFPR (in red) ranks 44th out of the 50 largest metros with an overall LFPR of 62.3 percent. For comparison, the average for the entire U.S. is 63.2 percent (in yellow) and our region is lower than our Midwest peer regions (highlighted in green). The Minneapolis and Salt Lake City metros have the highest participation rates in the country at 72 percent.

Figure 2
Labor Force Participation Rate for the Largest 50 Metros, 2017

Labor Force Participation Rate (Percent)

Metro	LFPR
Minneapolis-St. Paul-Bloomington	72
Salt Lake City	
Washington-Arlington-Alexandria	
Denver-Aurora-Lakewood	
Austin-Round Rock	
Boston-Cambridge-Newton	
Nashville-Davidson--Murfreesboro--...	
Raleigh	
Dallas-Fort Worth-Arlington	
Seattle-Tacoma-Bellevue	
Kansas City	
San Jose-Sunnyvale-Santa Clara	
San Francisco-Oakland-Hayward	
Atlanta-Sandy Springs-Roswell	
Portland-Vancouver-Hillsboro	
Columbus	
Indianapolis-Carmel-Anderson	
Baltimore-Columbia-Towson	
Virginia Beach-Norfolk-Newport News	
Chicago-Naperville-Elgin	
Charlotte-Concord-Gastonia	
San Diego-Carlsbad	
Houston-The Woodlands-Sugar Land	
Cincinnati	
Richmond	
Milwaukee-Waukesha-West Allis	
St. Louis	
Providence-Warwick	
Louisville/Jefferson County	
Oklahoma City	
Hartford-West Hartford-East Hartford	
Los Angeles-Long Beach-Anaheim	
New York-Newark-Jersey City	
Philadelphia-Camden-Wilmington	
Las Vegas-Henderson-Paradise	
Orlando-Kissimmee-Sanford	
San Antonio-New Braunfels	
Jacksonville	
Memphis	
United States	63.2
Buffalo-Cheektowaga-Niagara Falls	
Cleveland-Elyria	
Pittsburgh	
Phoenix-Mesa-Scottsdale	
Miami-Fort Lauderdale-West Palm...	
Detroit-Warren-Dearborn	62.3
Sacramento--Roseville--Arden-Arcade	
New Orleans-Metairie	
Riverside-San Bernardino-Ontario	
Birmingham-Hoover	
Tampa-St. Petersburg-Clearwater	59.5

Source: SEMCOG analysis of Census 2017 ACS 1-Year Estimates.

Figure 3 shows that the Detroit MSA's low LFPR is not a one-year occurrence, but in fact has been lowest among its Midwest peers since 2012. Before then, only Pittsburgh had a lower LFPR. One might think it is due to the automotive bankruptcies; however, looking at data from the 2000 Census – the last time our region was relatively prosperous – we were still lower than our peers, with the exception of Pittsburgh.

[Note: The data values for year 2000 and years 2008-2017 are not comparable, due to the Census Bureau asking a different set of questions. Since 2008, the questions on employment status have been consistent, making the data comparable for years 2008-2017. The key takeaway for year 2000 is where the Detroit region is ranked when compared to its Midwest peers, which is second from the bottom and has fallen to the bottom in the years since.]

This analysis takes a deeper dive into the Detroit region's LFPR and how it compares to its Midwest peer regions across these categories:
- age group,
- gender,
- educational attainment,
- disability status, and
- poverty status.

The analysis will conclude with SEMCOG's efforts to model an explanation of factors influencing the overall LFPR.

Figure 3
**Labor Force Participation Rates, Midwest Metro Areas, 2000-2017**
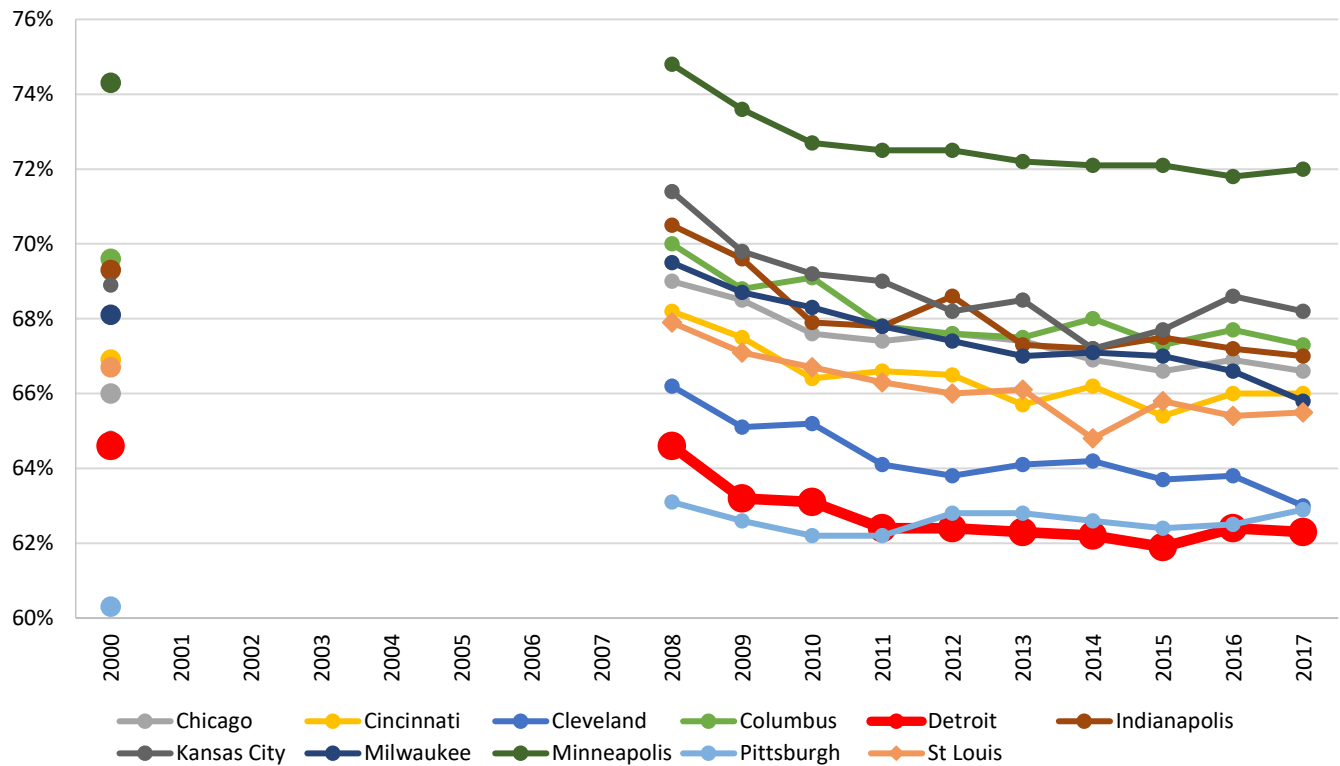
Source: SEMCOG analysis of Decennial Census 2000 and Census 2008-2017 ACS 1-Year Estimates.

Labor Force Participation by Age Group

A second trend noticeable in Figure 3 is the decline in LFPR for almost all metros since 2008. This is partly due to an aging population. Figures 4 and 5 illustrate such change over the last nine years. Figure 4 shows the share of the working-age population for year 2008 broken into four age groups – 16-24, 25-54, 55-64, and 65 and over. The metros are sorted by the share of what is considered the "prime working-age group" of 25-54 (in orange) in descending order. This age group ranges from a 58 percent share for Indianapolis to a 49 percent share for Pittsburgh. Detroit has a share of 54 percent.

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Figure 4
Share of Working-Age Population (Age 16+) by Age Group, 2008
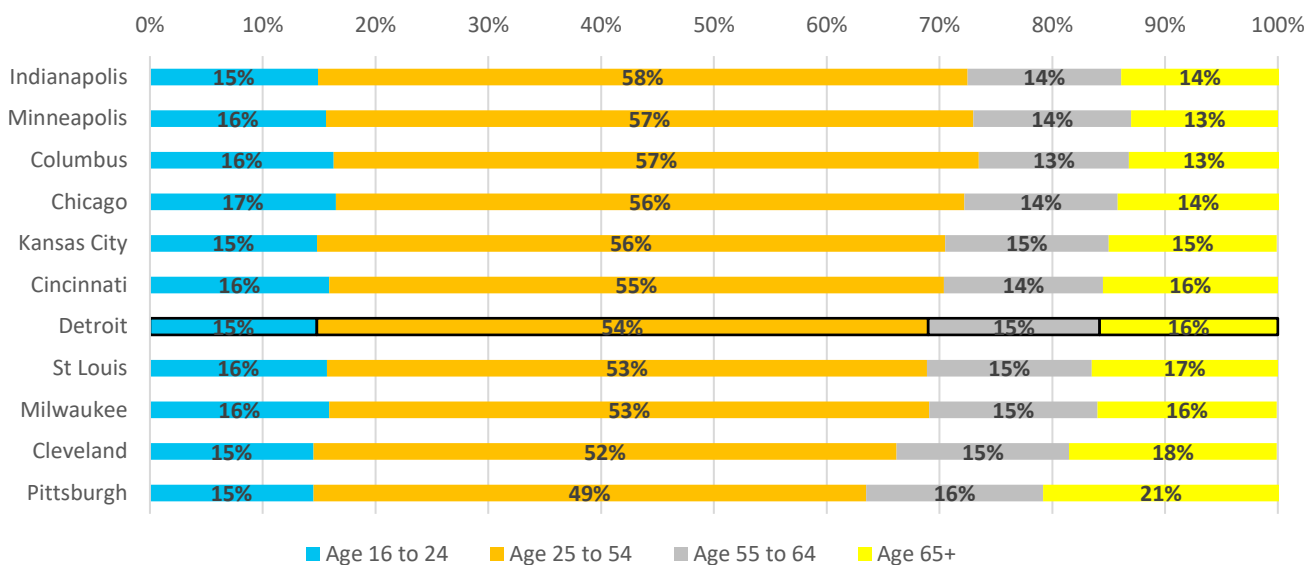
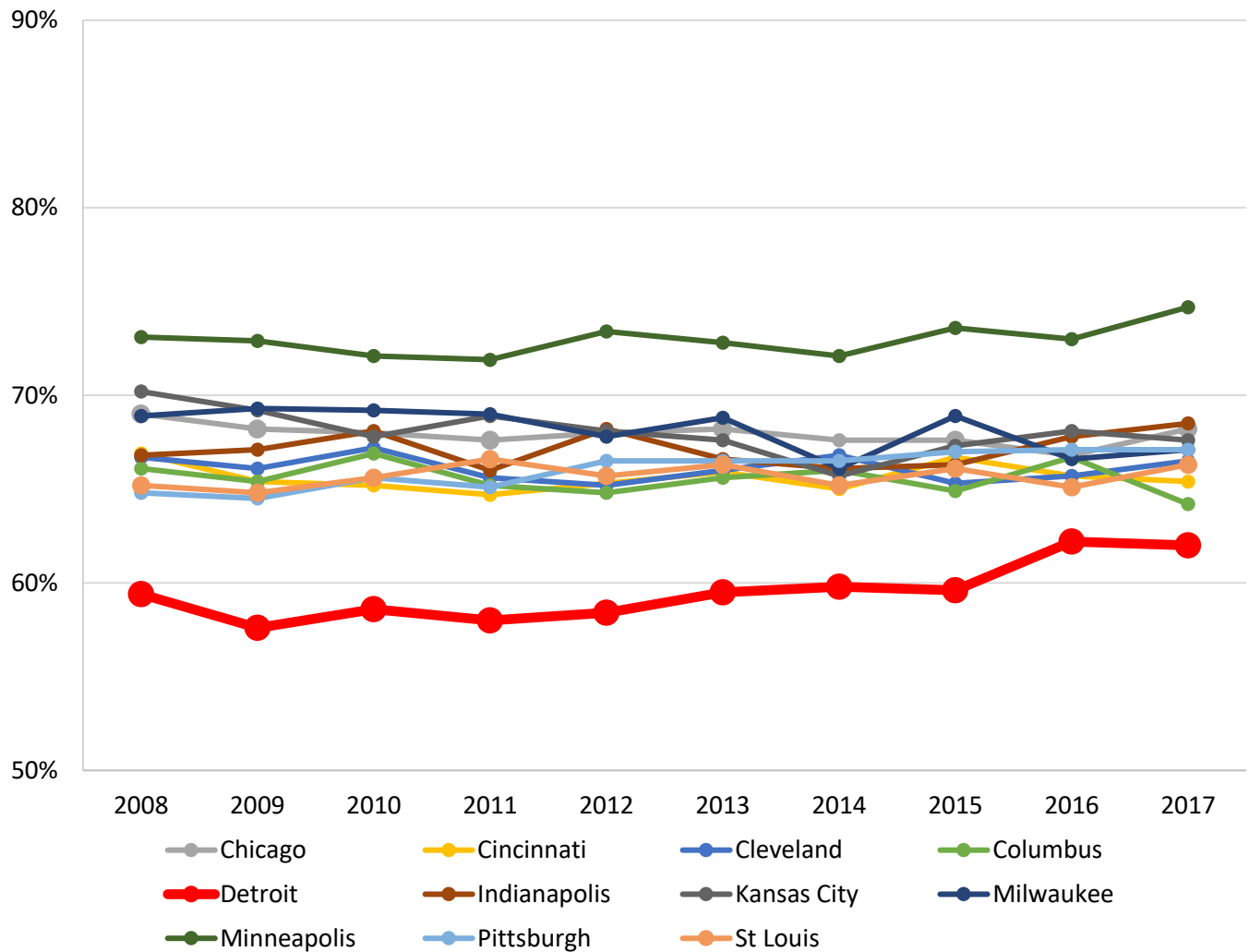Source: SEMCOG analysis of Census 2008 ACS 1-Year Estimates.

Figure 5 shows the same age groups for year 2017, again sorted by prime-working-age group, 25-54, descending. Notice how this share declines for all metros and now ranges from 53 percent for Columbus and Indianapolis to 46 percent for Pittsburgh. Detroit has declined to 49 percent. In essence, there are relatively fewer people in their prime working years with respect to the entire population over age 16.

Figure 5
Share of Working Age Population (Age 16+) by Age Group, 2017

Source: SEMCOG analysis of Census 2017 ACS 1-Year Estimates.

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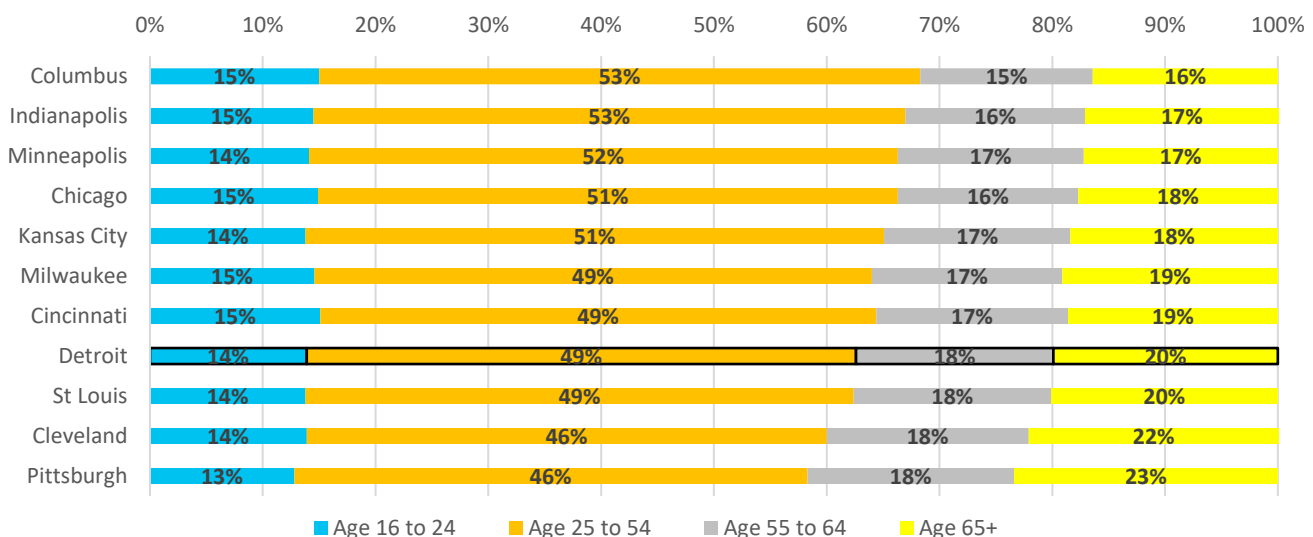
What exacerbates the problem of declining participation rates for the Detroit region is that we have lower participation rates than our peers, especially for prime-working age 25-54, and for age 55-64. Figures 6 and 7 show how there is a substantial gap in participation for the Detroit region compared to its Midwest peers. Minneapolis has the highest participation rate for both – about 88 percent for ages 25-54 (Figure 6) and about 73 percent for ages 55-64 (Figure 7). The remaining Midwest regions are clustered between 83 percent and 86 percent for ages 25-54 and mostly clustered between 65 percent and 68 percent for 55-64. The Detroit MSA has hovered around an 81 percent participation rate for ages 25-64 and around 59 percent for ages 55-64, although that figure has risen to 62 percent in recent years. For prime-working age 25-54, the Detroit MSA's participation rate differs about three percentage points from the median of its Midwest peers (which is about 84 percent).

Figure 6
Labor Force Participation Rate, Age 25-54, 2008-2017

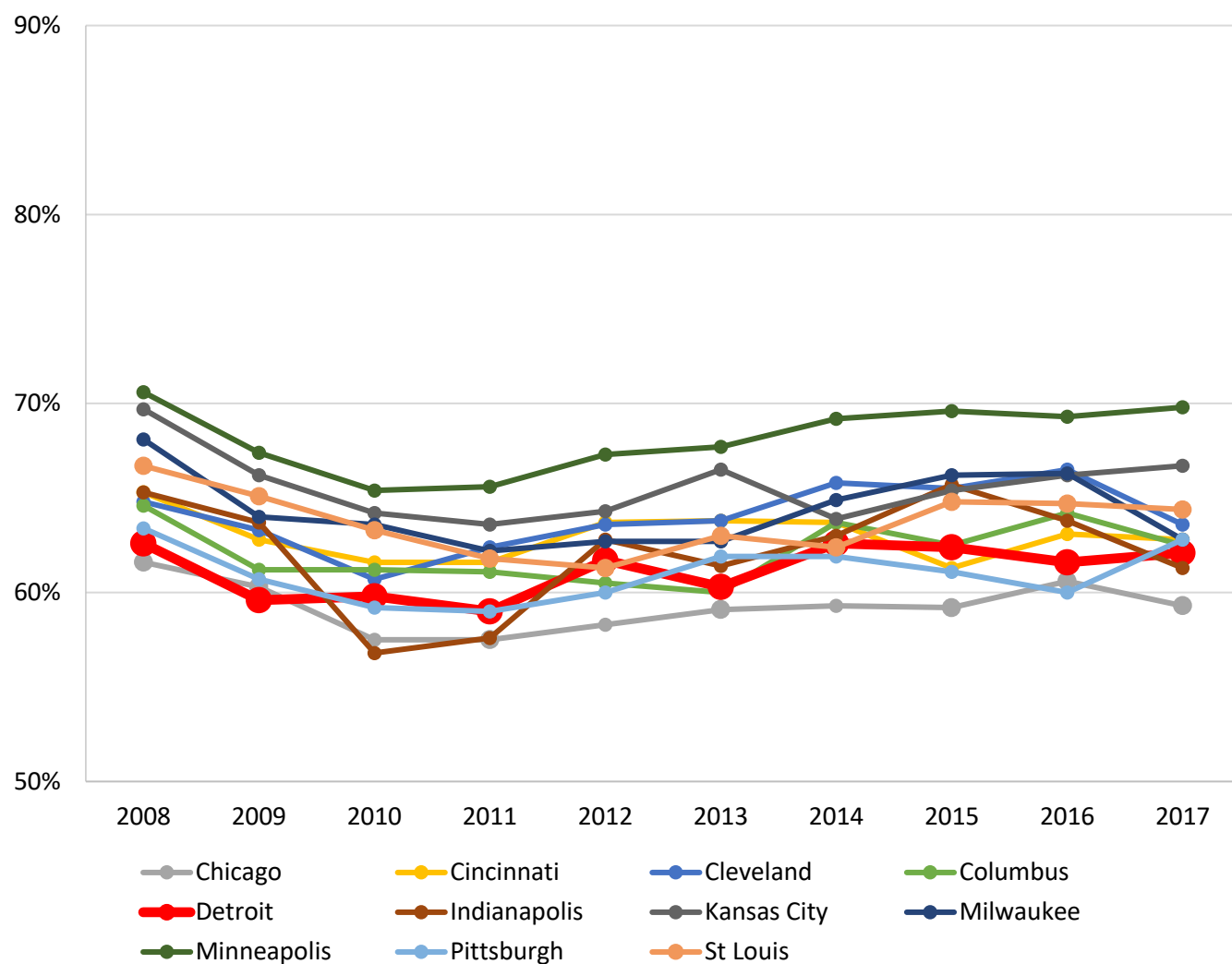Source: SEMCOG analysis of Census 2008-2017 ACS 1-Year Estimates.

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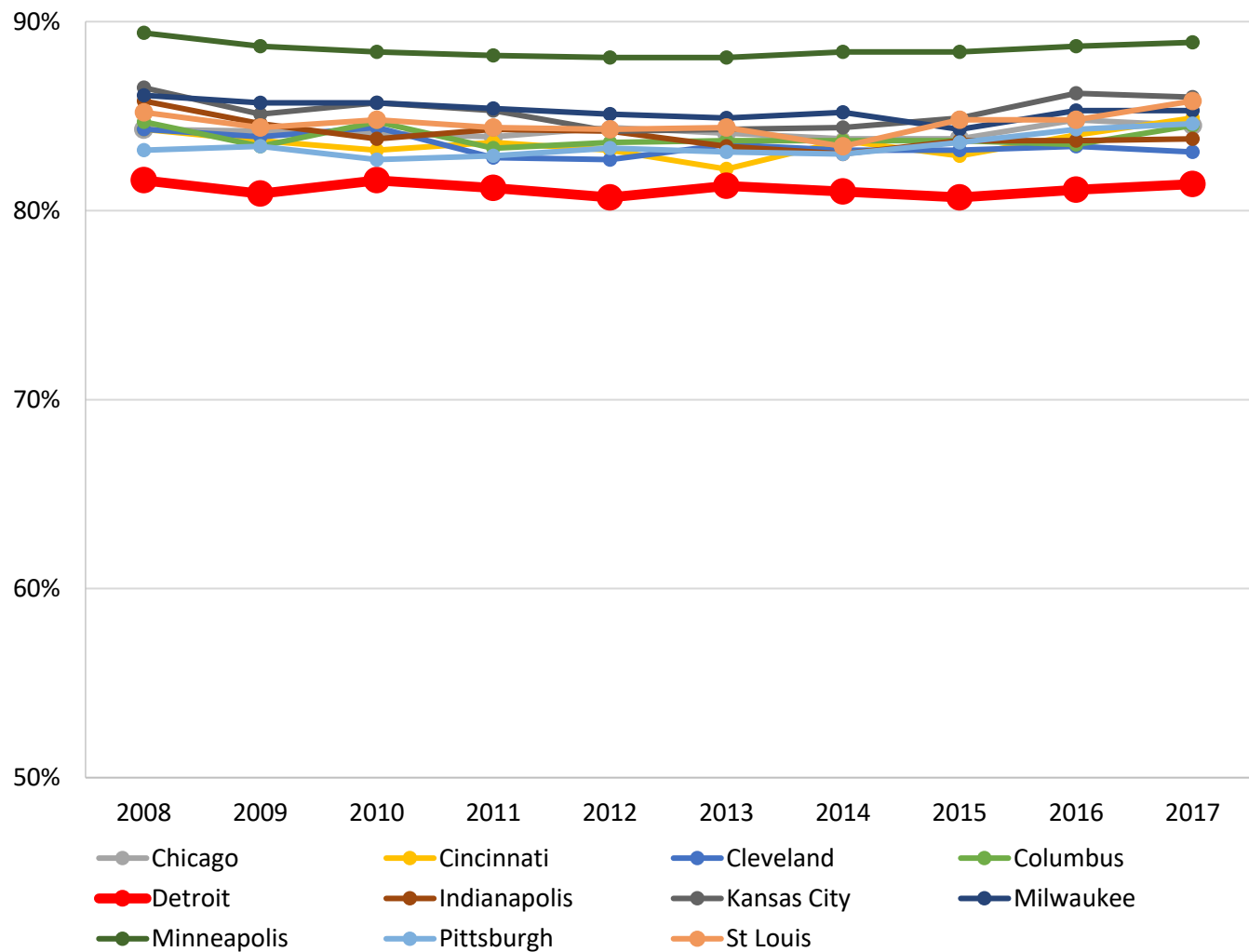
Figure 7
Labor Force Participation Rate, Age 55-64, 2008-2017

Source: SEMCOG analysis of Census 2008-2017 ACS 1-Year Estimates.

Participation rates for the younger and older populations are more homogenous across metros. Figure 8 shows the participation rates for ages 16-24, where the Detroit region is only about 1-2 percentage points below the median. Figure 9 shows the participation rates for ages 65 and over, where the Detroit region, having been four percentage points below the median in 2013 and 2014, is less than three percentage points below the median in 2017. This gap is less of a concern given that residents age 65 and older are no longer in their prime working years and participation rates are much lower (most metros are under 20 percent).
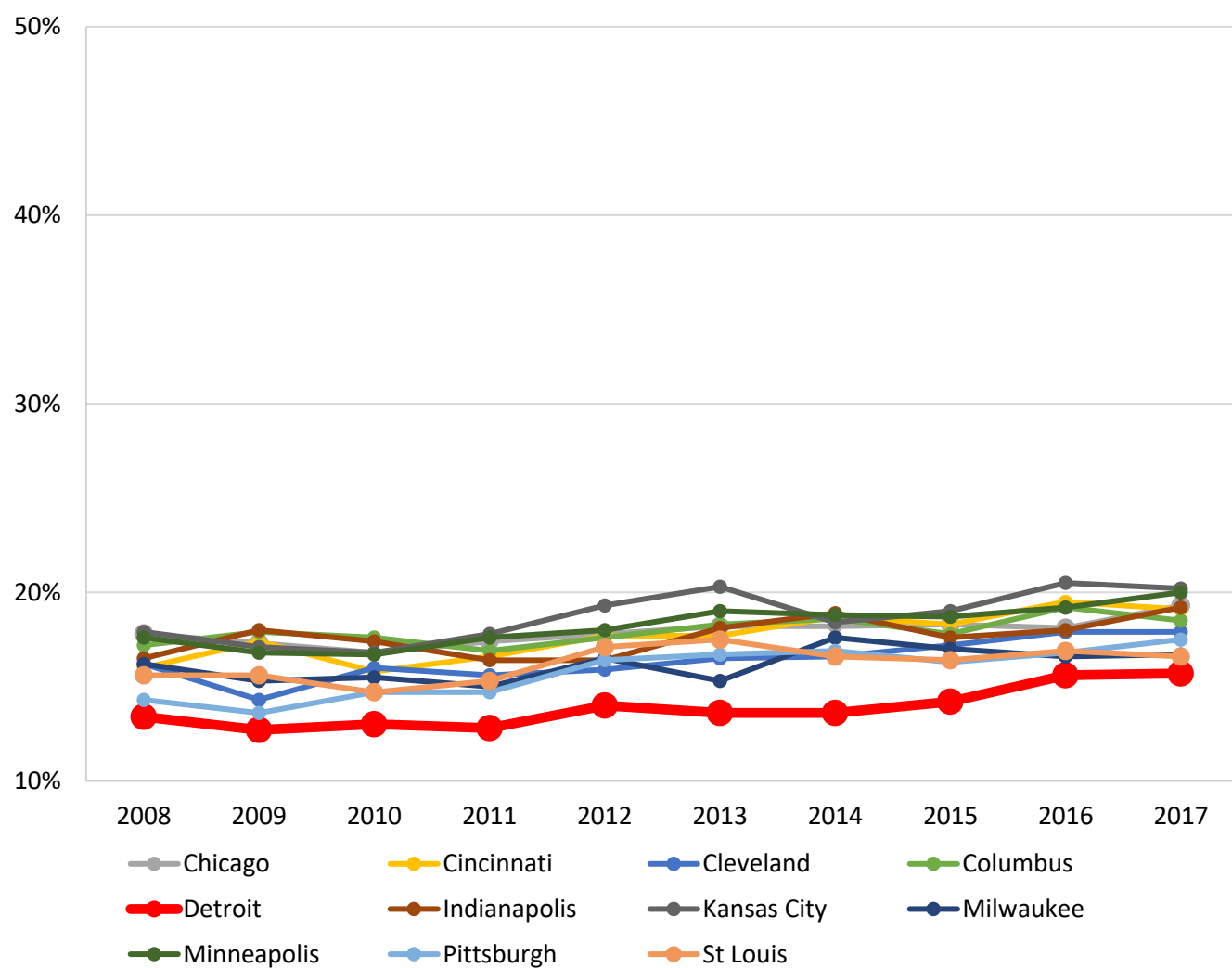
Figure 8
Labor Force Participation Rate, Age 16-24, 2008-2017

Source: SEMCOG analysis of Census 2008-2017 ACS 1-Year Estimates.

Figure 9
Labor Force Participation Rate, Age 65 and over, 2008-2017
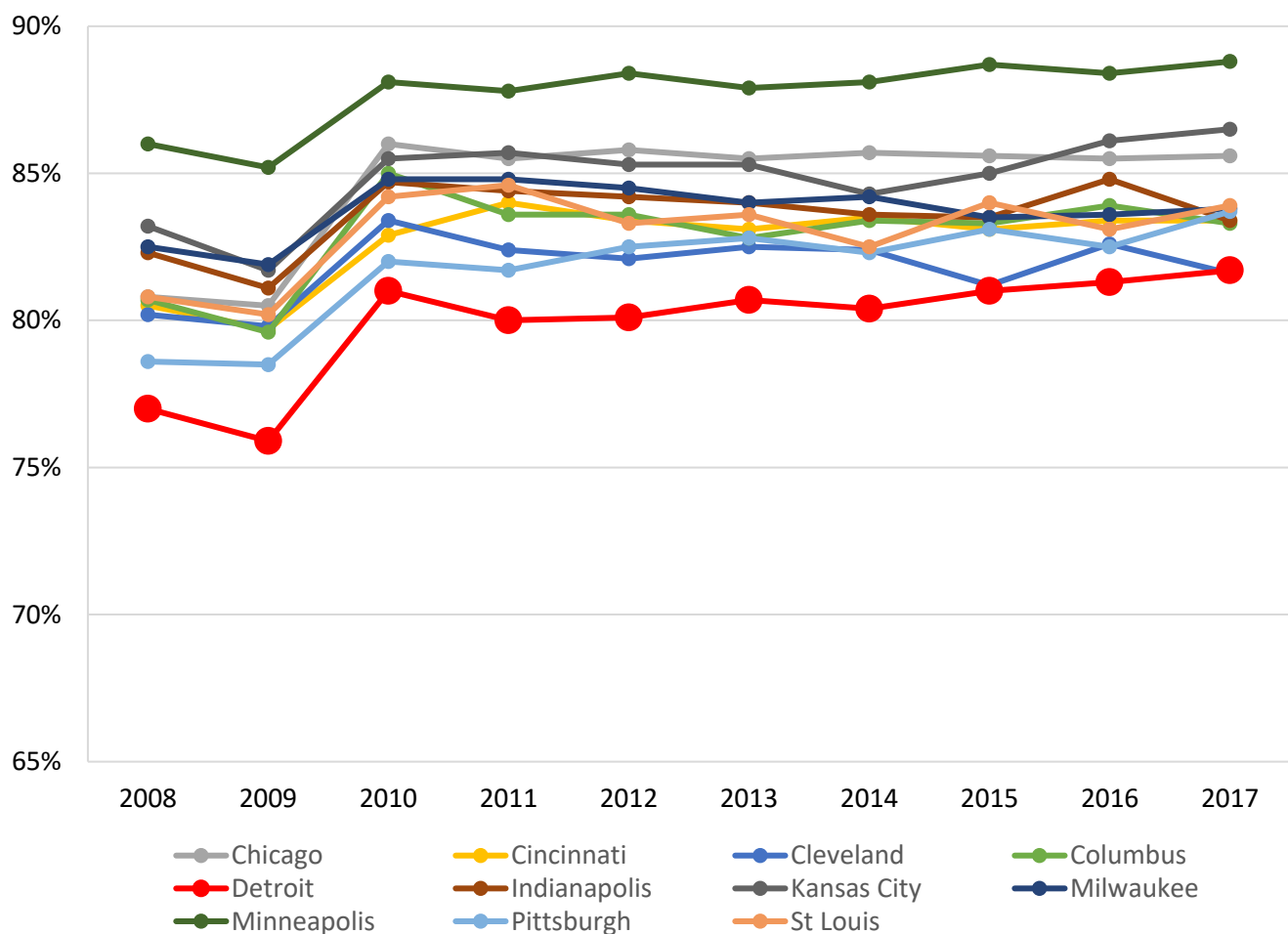

Source: SEMCOG analysis of Census 2008-2017 ACS 1-Year Estimates.

Labor Force Participation by Gender

Sizeable gaps in labor force participation exist for both genders, too. Figure 10 shows the difference among males; between 2008 and 2011 there was about a four percentage point gap between the Detroit MSA and the median of its peers. That gap closed to about two percentage points in 2017. The same cannot be said for the female population (Figure 11), where the Detroit region had a 3-4 percentage point gap from the median for years 2008 to 2014, and grew to over four percentage points in 2017. Part of the reason female participation is lower in the Detroit MSA is that females with young children (under age six) have lower participation rates. Figure 12 shows the difference between the Detroit region and its peer metros. Between 2008 and 2014, the Detroit MSA was about five percentage points lower than the median for all years except 2010. That difference has grown about a percentage point each year since 2015, and the Detroit MSA is almost nine percentage points below the median in 2017.
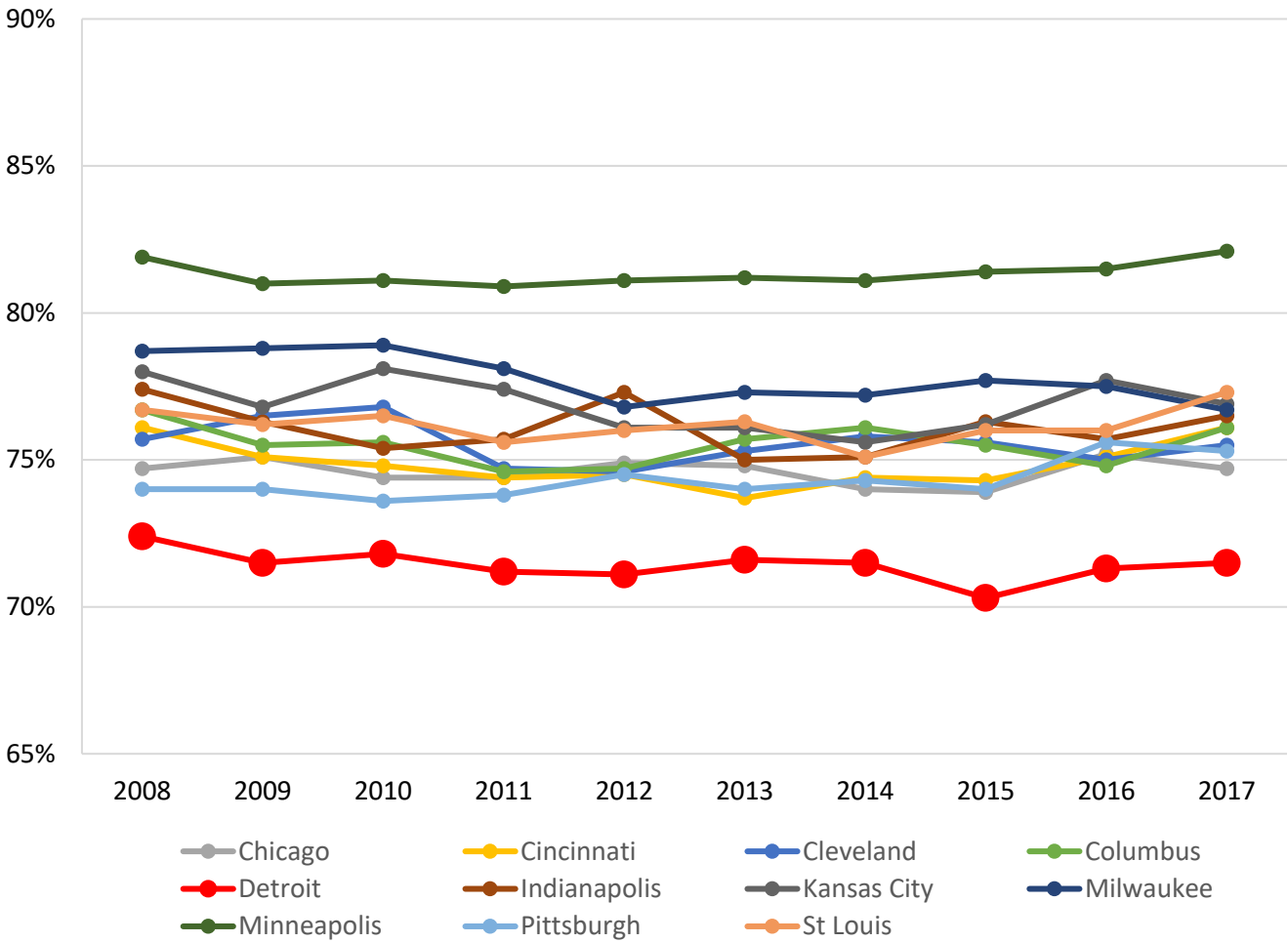
Figure 10
Labor Force Participation Rate for Males (Age 20-64)

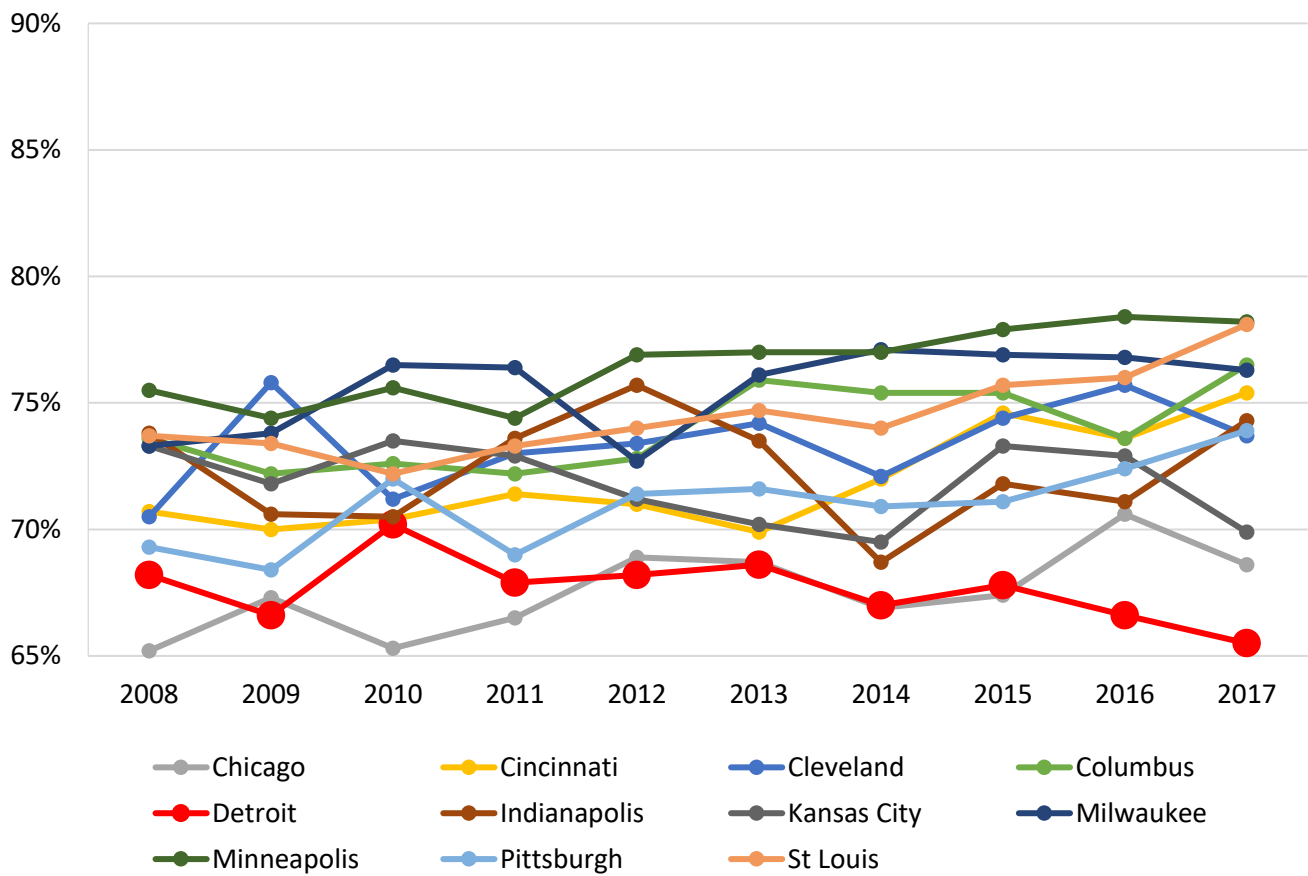Source: SEMCOG analysis of Census 2008-2017 ACS 1-Year Estimates.

Figure 11
Labor Force Participation Rate for Females (Age 20-64)

Source: SEMCOG analysis of Census 2008-2017 ACS 1-Year Estimates.

Figure 12
Labor Force Participation Rate for Females with Young Children (Under Age 6)

Source: SEMCOG analysis of Census 2008-2017 ACS 1-Year Estimates.

**Labor Force Participation by Educational Attainment**
The Detroit MSA's labor force participation rate is among the lowest for all levels of education. The next four charts show participation rates for four levels of educational attainment – no high school, high school, some college or associate's degree, and bachelor's degree or more. Among these four charts, two trends emerge:

- For all metros, participation rates rise with higher levels of education.
- There is less deviation in rates among metros at the higher educational levels.

Despite these trends pointing to the importance of education and participation in the workforce, the Detroit region's participation rates lag across all levels of education. Figure 13 shows that for people with no high school education, the Detroit area ran second to last for years 2008 to 2015 and sunk to the bottom in 2016 and 2017, with a participation rate of 50 percent. Since 2015, the Detroit MSA rate has differed by at least six percentage points from the median of its peers.

Figure 13
Labor Force Participation Rate for Residents with No High School Diploma (Age 25-64)
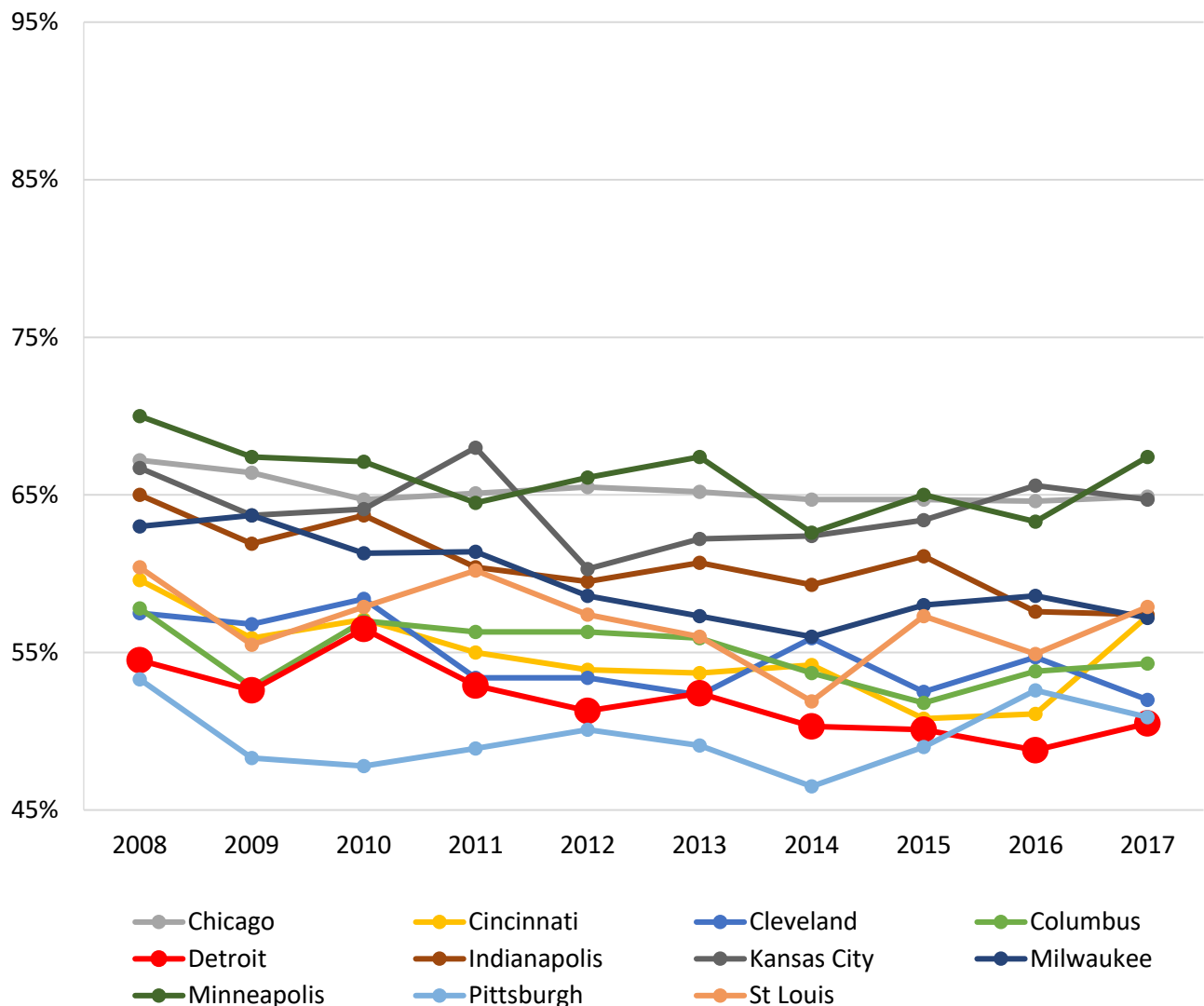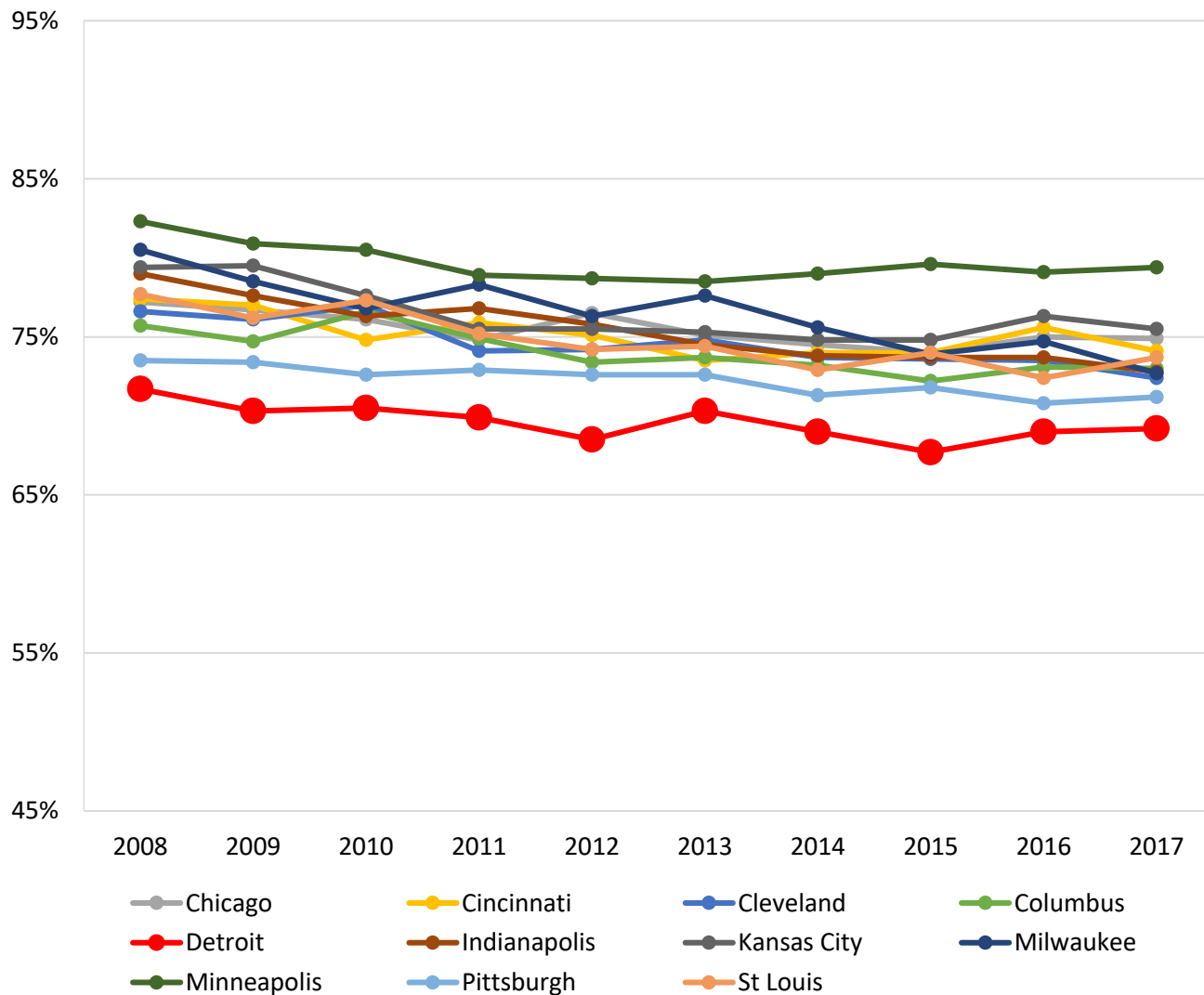

Source: SEMCOG analysis of Census 2008-2017 ACS 1-Year Estimates.

Moving on to residents with a high school diploma or equivalent, Figure 14 shows a slightly smaller gap of about five percentage points between the Detroit region and the median of its peers across all years.

Figure 14
Labor Force Participation Rate for Residents with High School Diploma or Equivalent (Age 25-64)
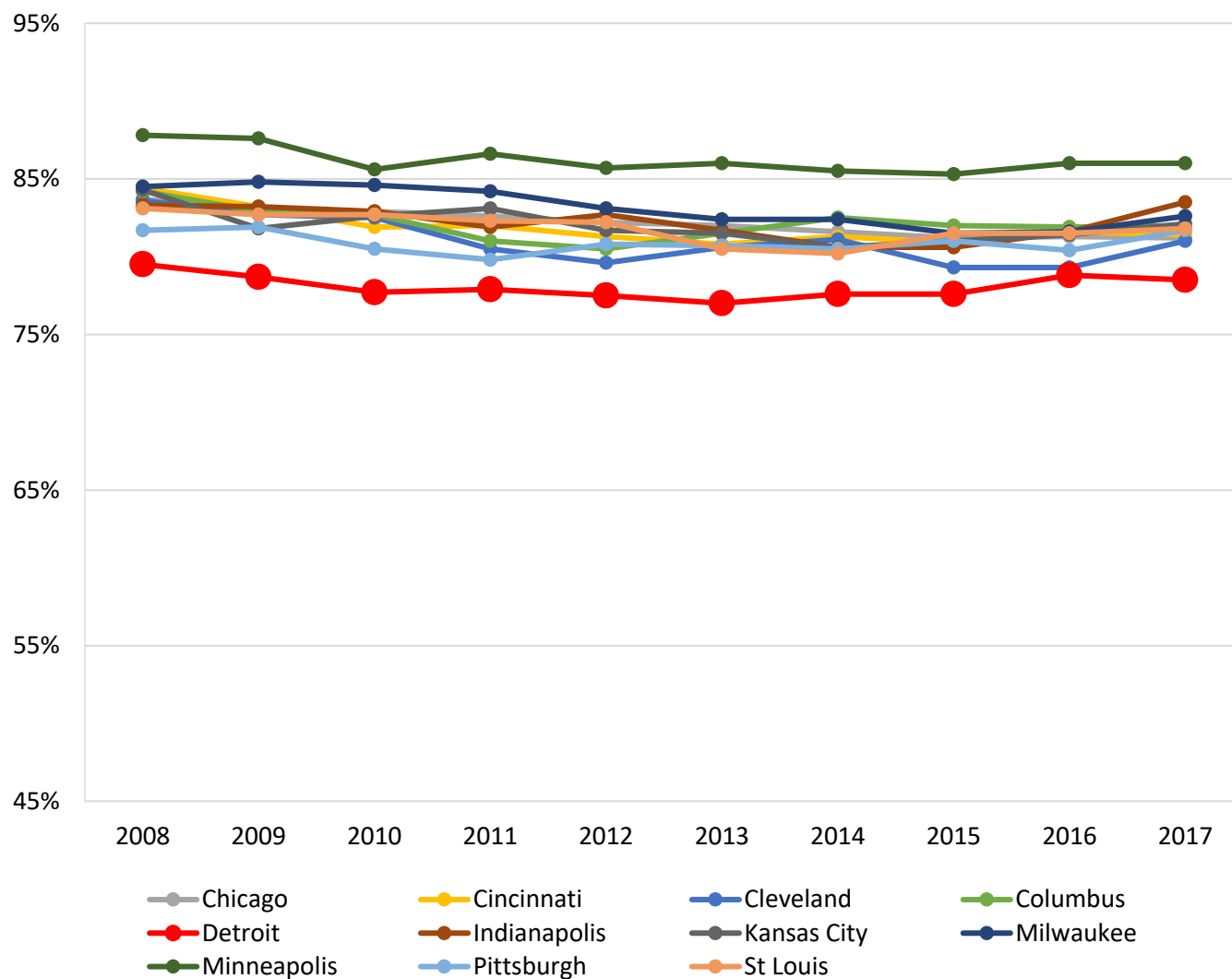

Source: SEMCOG analysis of Census 2008-2017 ACS 1-Year Estimates.

The Detroit region further improves when comparing residents with some college or associate's degrees (Figure 15). Between 2008 and 2013, the region's participation rate was about four percentage points below its peers; there have been improvements and, since 2014, has been about three percentage points below its peers.

Figure 15
Labor Force Participation Rate for Residents with Some College or Associate's Degree (Age 25-64)
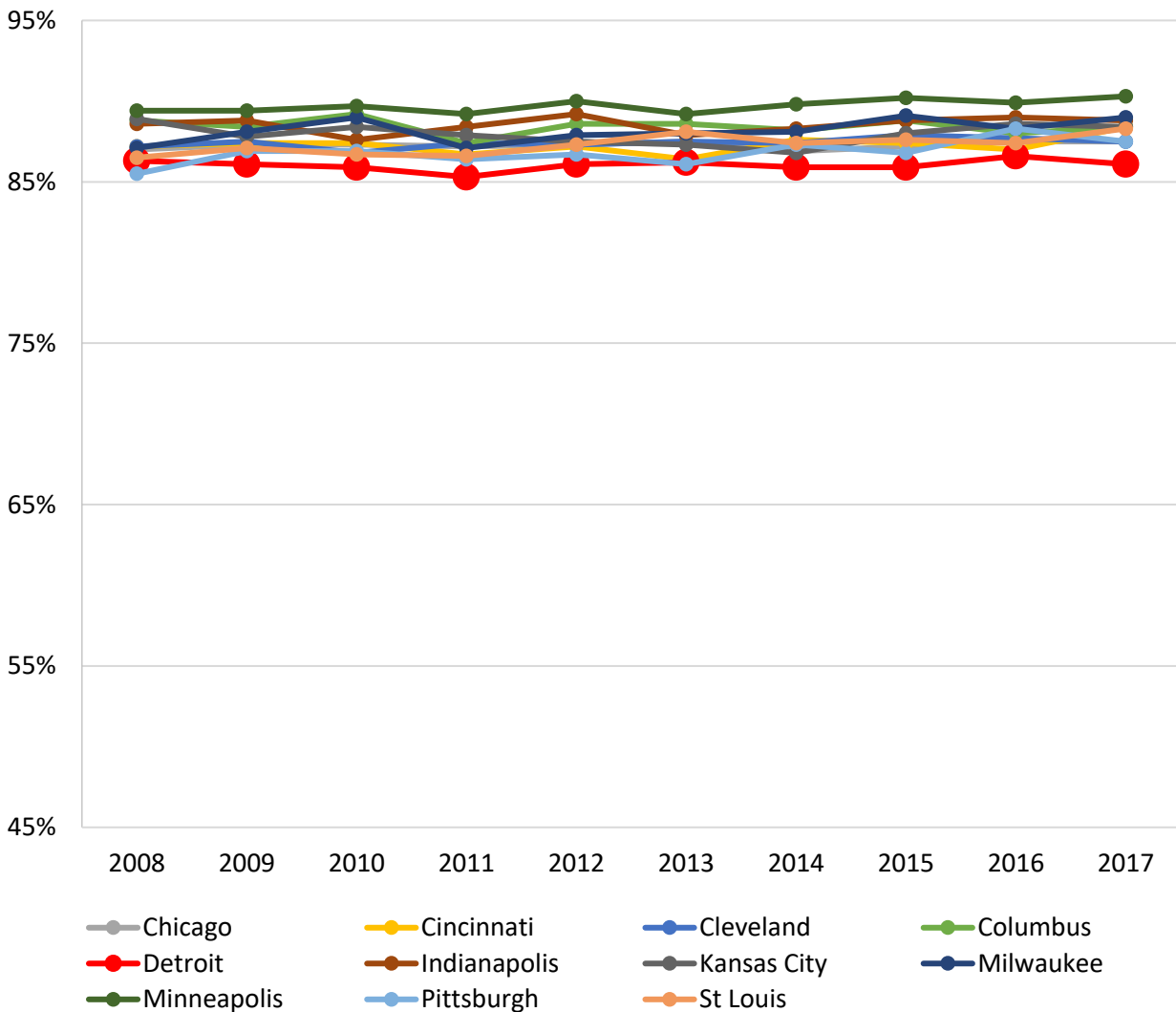

Source: SEMCOG analysis of Census 2008-2017 ACS 1-Year Estimates.

The Detroit MSA's participation rates are most like its peers for residents with a bachelor's degree or more (Figure 16). The region has been consistently about 1-2 percentage points below the median for all years.

Figure 16
Labor Force Participation Rate for Residents with Bachelor's Degree or more (Age 25-64)
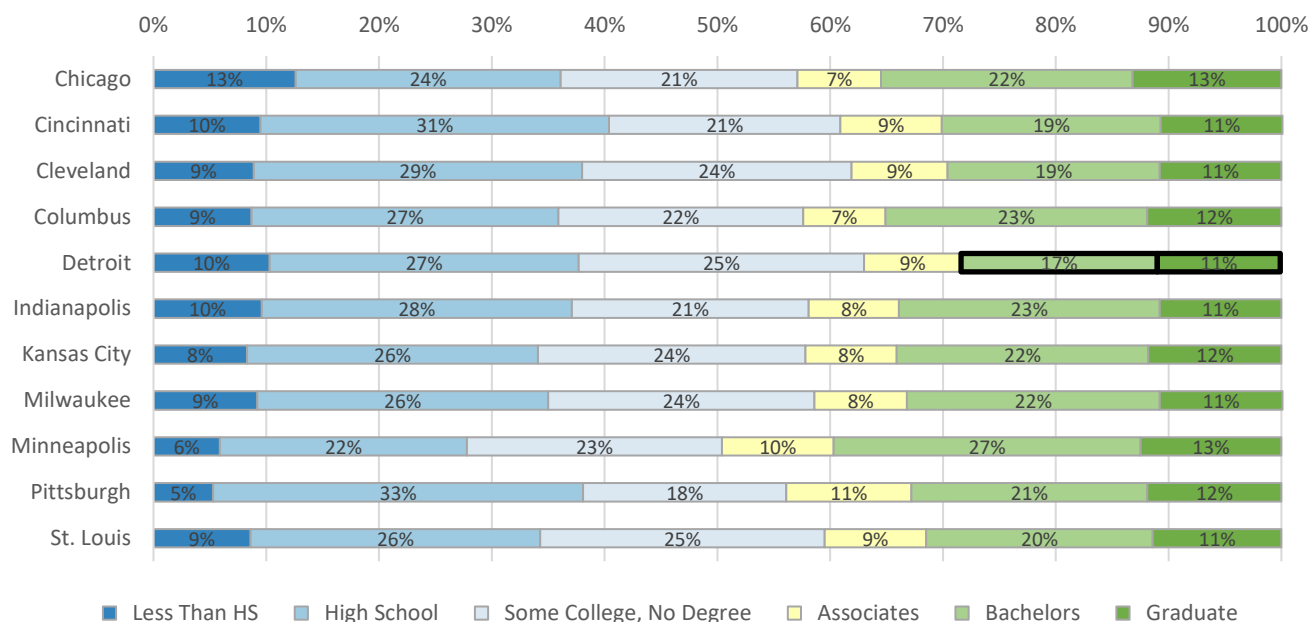

Source: SEMCOG analysis of Census 2008-2017 ACS 1-Year Estimates.

Lower shares of educational attainment also contribute to the region's lower participation rate. The Detroit region lags in its share of population with a bachelor's degree or more. Figures 17 and 18 show how our region compares to its peers. In 2008, only 28 percent of working age adults had at least a bachelor's degree (17 percent with a bachelor's degree and 11 percent with a graduate degree, Figure 17). That share increased to 33 percent by 2017 (20 percent with a bachelor's and 13 percent with a graduate degree, Figure 18), but we still lag all of our peers except the Cleveland region with whom we are equal.

It is also worth noting that, despite improvements, we have the largest share of working age population with some college but no degree. In 2008, 25 percent of our population had taken some college courses, but did not have a degree. That figure dropped to 24 percent by 2017, but remains higher than all of our peers. However it is also important to acknowledge that the Census Bureau does not collect data on
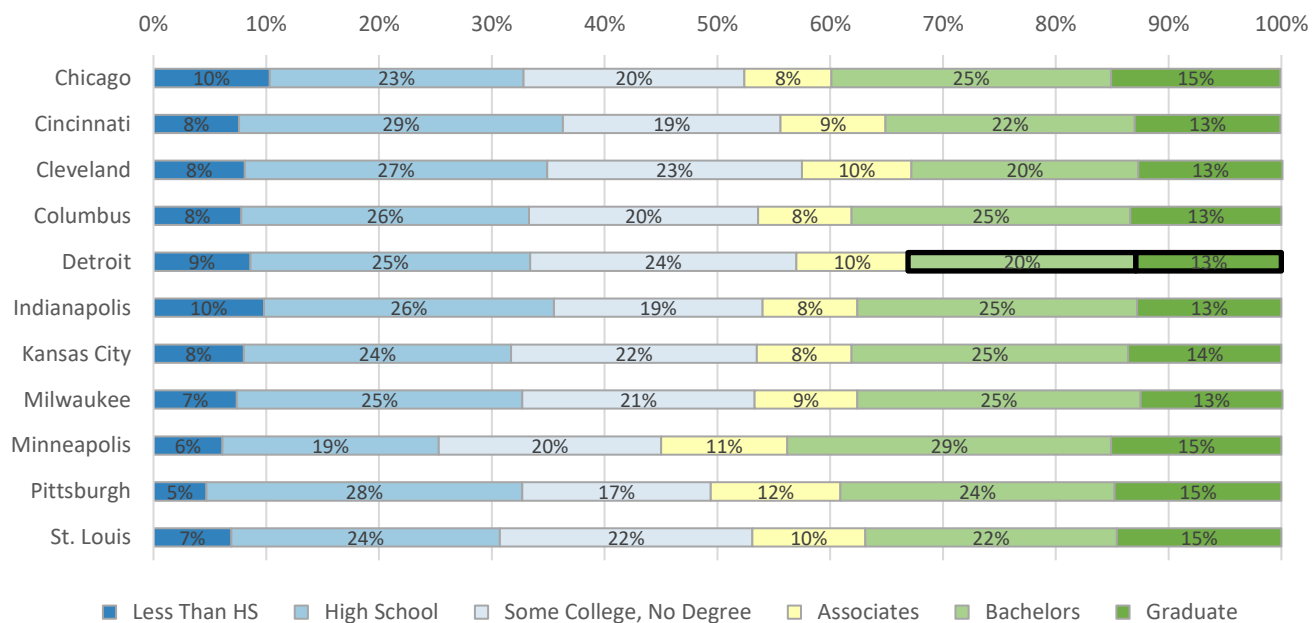
people holding certificates or diplomas in specific trades or from vocational and technical schools. These individuals could be in this population.

Figure 17
Educational Attainment (Age 25 to 64), 2008

City	Less Than HS	High School	Some College, No Degree	Associates	Bachelors	Graduate
Chicago	13%	24%	21%	7%	22%	13%
Cincinnati	10%	31%	21%	9%	19%	11%
Cleveland	9%	29%	24%	9%	19%	11%
Columbus	9%	27%	22%	7%	23%	12%
Detroit	10%	27%	25%	9%	17%	11%
Indianapolis	10%	28%	21%	8%	23%	11%
Kansas City	8%	26%	24%	8%	22%	12%
Milwaukee	9%	26%	24%	8%	22%	11%
Minneapolis	6%	22%	23%	10%	27%	13%
Pittsburgh	5%	33%	18%	11%	21%	12%
St. Louis	9%	26%	25%	9%	20%	11%

Source: SEMCOG analysis of Census 2008 ACS 1-Year Estimates.

Figure 18
Educational Attainment (Age 25 to 64), 2017
Source: SEMCOG analysis of Census 2017 ACS 1-Year Estimates.

| City	Less Than HS	High School	Some College, No Degree	Associates	Bachelors	Graduate
Chicago	10%	23%	20%	8%	25%	15%
Cincinnati	8%	29%	19%	9%	22%	13%
Cleveland	8%	27%	23%	10%	20%	13%
Columbus	8%	26%	20%	8%	25%	13%
Detroit	9%	25%	24%	10%	20%	13%
Indianapolis	10%	26%	19%	8%	25%	13%
Kansas City	8%	24%	22%	8%	25%	14%
Milwaukee	7%	25%	21%	9%	25%	13%
Minneapolis	6%	19%	20%	11%	29%	15%
Pittsburgh	5%	28%	17%	12%	24%	15%
St. Louis	7%	24%	22%	10%	22%	15%

Labor Force Participation by Disability Status

SEMCOG looked at labor force participation for those with a disability. The Detroit metro region has some of the highest shares of working-age population with a disability – consistently around 12 percent (Figure 19). And just like the other characteristics, participation rates are lowest for our region in comparison to its peers (Figure 20) – averaging 6-7 percentage points below the median.
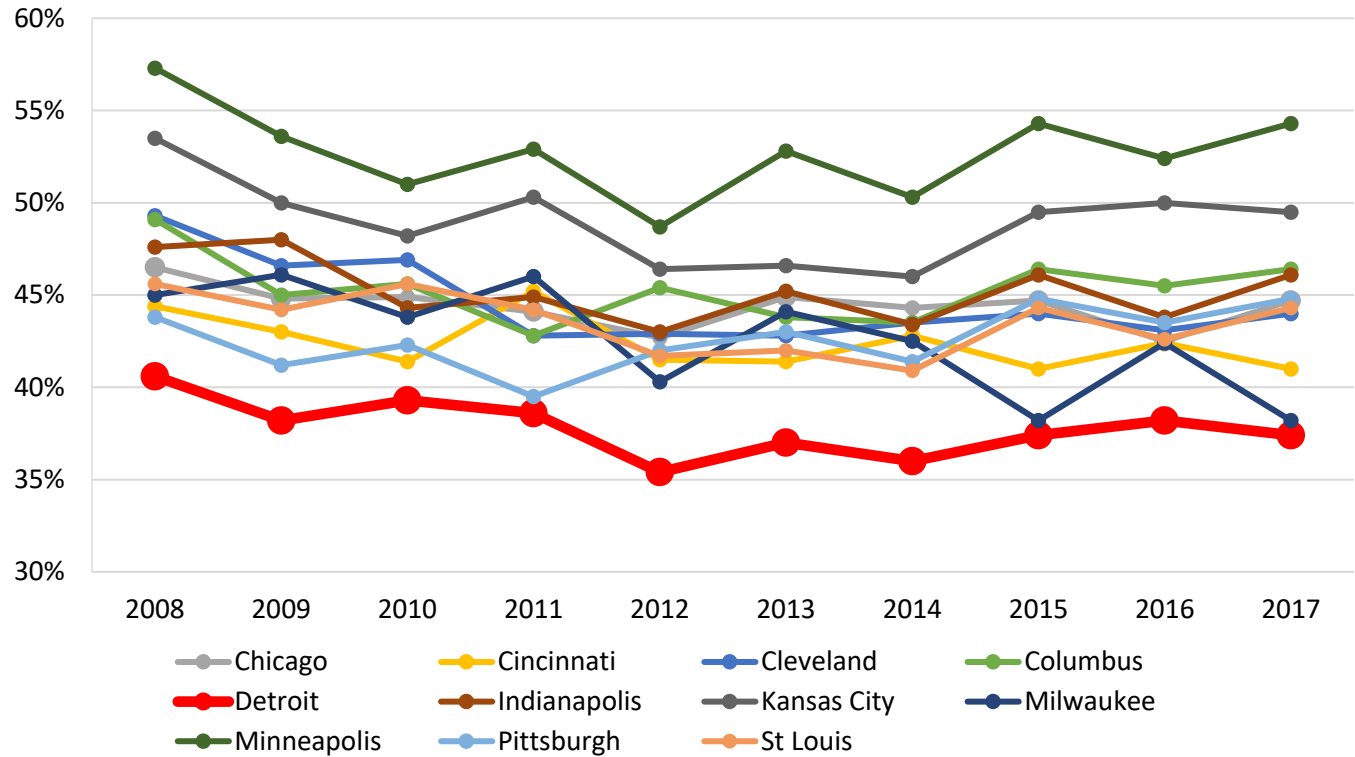
Figure 19
Share of Working-Age Population with a Disability (Age 20-64)
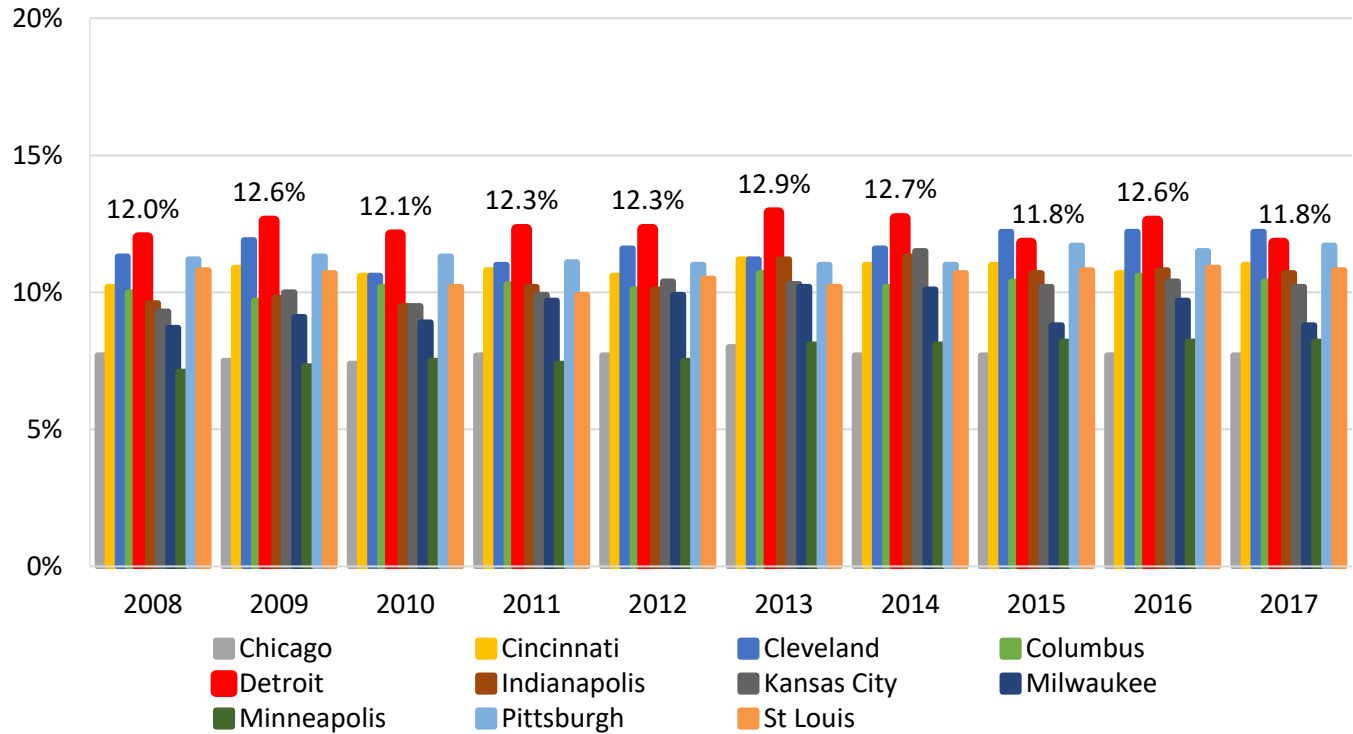
Source: SEMCOG analysis of Census 2008-2017 ACS 1-Year Estimates.

Figure 20
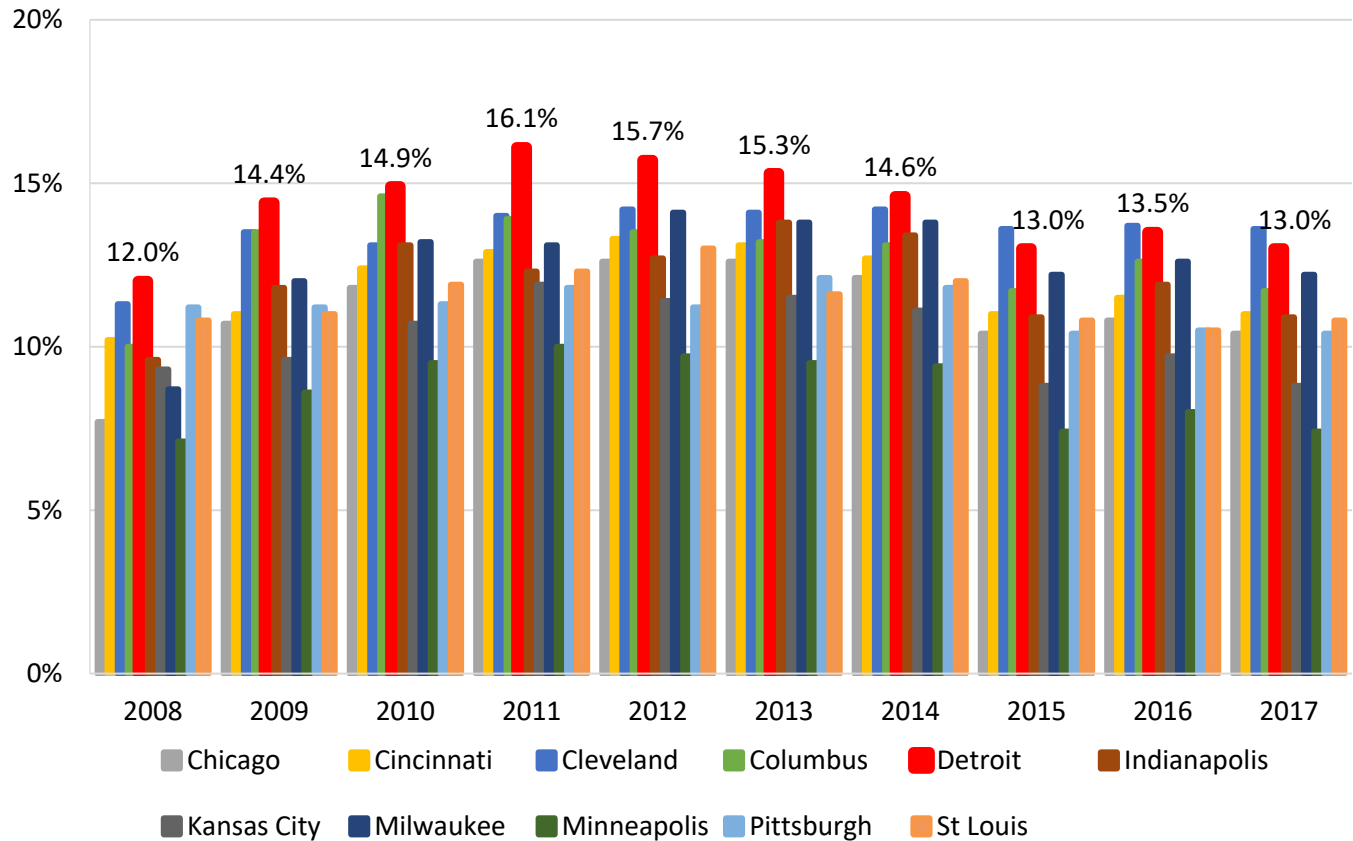**Labor Force Participation Rate for Residents with a Disability (Age 20-64)**

Source: SEMCOG analysis of Census 2008-2017 ACS 1-Year Estimates.

Labor Force Participation by Poverty Status

Lastly, SEMCOG looked at labor force participation for residents below the poverty line. Similar to disability status, the Detroit metro area has a higher share of residents below poverty compared to most of its peers (even with our poverty levels dropping from 16 percent to 13 percent; Figure 21). Participation rates for this population are lower in our region than in our peer regions (Figure 22). Our region's participation rate used to be closer to the median between years 2009 and 2013, where we were no more than two percentage points below. Since 2014, the Detroit region has been 2-4 percentage points below the median.
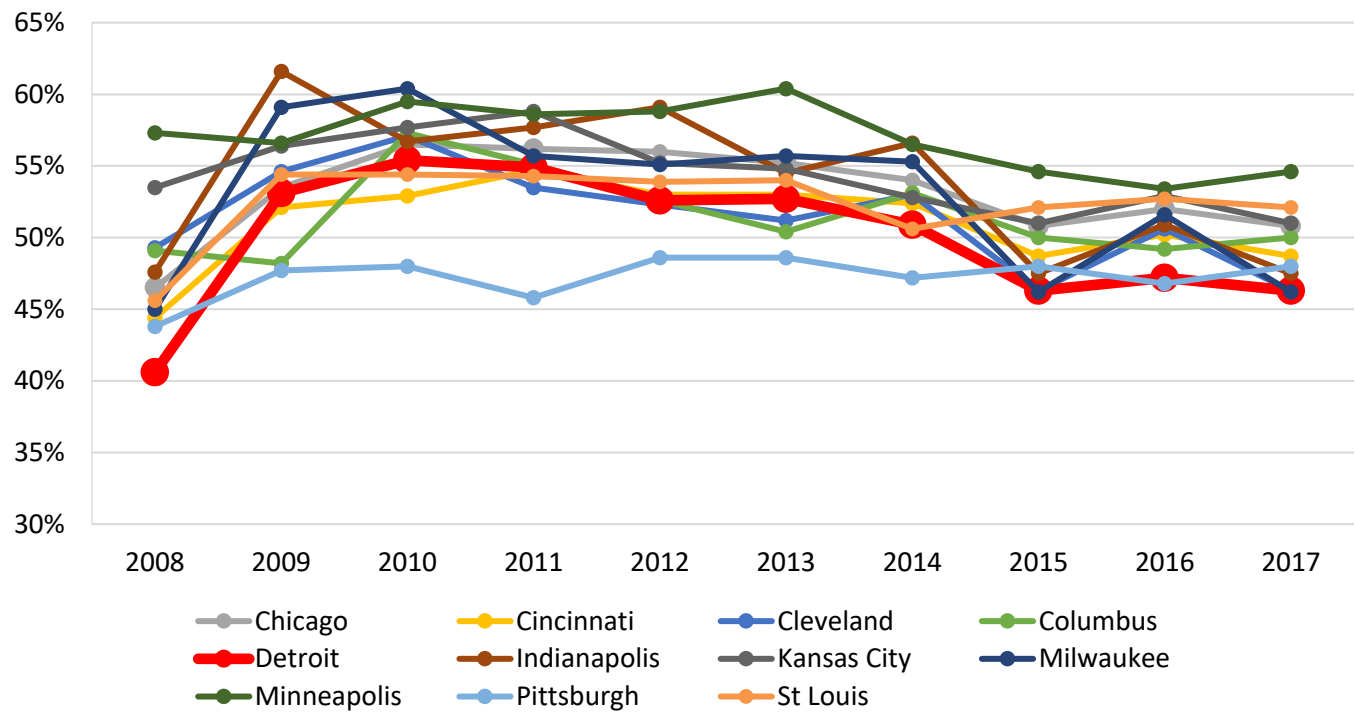
Figure 21
Share of Working-Age Population below Poverty (Age 20-64)

Source: SEMCOG analysis of Census 2008-2017 ACS 1-Year Estimates.

Figure 22
Labor Force Participation Rate for Residents below Poverty (Age 20-64)

Source: SEMCOG analysis of Census 2008-2017 ACS 1-Year Estimates.

Regression Modeling and Results
SEMCOG experimented with modeling some of the socioeconomic characteristics to better explain what factors influence the overall labor force participation rate significantly among metros (i.e., the rate displayed in Figures 2 and 3). We researched factors that could influence the rate and developed a list from both the supply side and demand side (Bureau of Labor Statistics, 2016; Congressional Budget Office, 2018; Corporation for a Skilled Workforce, 2016). On the supply side, we considered race, educational attainment, age group, poverty status, disability status, share of households with little or no English speakers, share of single parent households, average commute time, share of households with a vehicle, collective bargaining coverage, transit accessibility, share of households receiving public cash assistance or food stamps, and share of households receiving supplemental security income. On the demand side, we considered employment growth rate, job-to-population ratio, and GDP growth rate.

We asked these questions:
- Why has Metro Detroit been low on LFPR (Labor Force Participation Rate)?
- What are the factors affecting LFPR? And which factors are more important?
- How does each factor affect LFPR? What are the direction and magnitude by quantified measure?
- What will the metro LFPR look like if we can improve those factors?

We performed a panel data analysis, using 10 years of data for 45 metro areas (most of the areas listed in Figure 2) to give 450 observations. The panel analysis was performed using a two-way fixed effects model, where we included dummy variables to account for unobservable effects by each metro and by each year (Croissant and Millo; StataCorp LLC).

SEMCOG found four factors had a statistically significant effect on the overall labor force participation rate. These are:
- share of population in age group 25 to 54,
- share of population with a bachelor's degree,
- share of population with a disability, and
- share of households with a single parent.

Table 1 summarizes the results. The estimate for each variable is interpreted as:
- for every one-percentage-point increase in the share of population age 25-54, the labor force participation rate increases by 0.39 percentage points;
- for every one-percentage-point increase in the share of population with a bachelor's degree, the labor force participation rate increases by 0.3 percentage points;
- for every one-percentage-point increase in the share of population with a disability, the labor force participation rate decreases by 0.14 percentage points;
- for every one-percentage-point increase in the share of single parent households, the labor force participation rate decreases by 0.07 percentage points.

Table 1
SEMCOG's Labor Force Participation Rate Model Results

Coefficients:	Estimate	Std. Error	t-value	Pr(>|t|)	Signif.
Pop_Share_25to54	**0.389223**	0.051463	7.5632	2.75E-13	***
Share_Bachelor	**0.304546**	0.037988	8.0169	1.22E-14	***
Share_with_Disability	**-0.143346**	0.059065	-2.4269	0.01567	*
Share_Single_Parent	**-0.072133**	0.03587	-2.011	0.045	*
Signif. codes: 0.001 '***' 0.01 '**' 0.05 '*' 0.1 ' '					

Source: SEMCOG.

To answer the question of what Metro Detroit LFPR would look like with factor improvement, we developed different scenarios with specific factor changes and applied model coefficients. For example, Figure 23 shows how Detroit MSA's overall participation rate increases given four factors similar to the Chicago metro. Our region's original LFPR is seen in the dotted red line. When the percent shares for each of the four factors are adjusted to the level of Chicago region, the Detroit MSA's overall participation rate increases (seen in the solid red line) to be almost equal to the Chicago region (yellow line). The small gap indicates the majority of the difference in LFPR between metro Chicago and Detroit are explained by the four factors from the model. The new LFPR is also near the median participation rate of the Midwest metros (66 percent for 2017).

Figure 23
Labor Force Participation Rate Model Results – Chicago Scenario

Source: SEMCOG.

We also compared our region to the Minneapolis region – which has the highest LFPR among the Midwest peers. Figure 24 shows the result for when we adjust the percent shares for each of the four factors to match those of Minneapolis. The Detroit region's LFPR increases to 68 percent in 2017, but remains well below the Minneapolis LFPR which is 72 percent. What this means is there are still unique and uncaptured factors contributing to differences in the labor force participation rate between Detroit and Minneapolis.

Figure 24
Labor Force Participation Rate Model Results – Minneapolis Scenario

Source: SEMCOG.

Summary

SEMCOG discovered that the labor force participation rate for the Detroit MSA is perpetually low compared to 10 of its Midwest peer regions. Deeper analysis found that, in many cases, our region's LFPR is lowest across the major socioeconomic characteristics – age group, gender, educational attainment, disability status, and poverty status. SEMCOG modeled 16 selected factors based on previous research literature. The significant factors, as shown in the model, are share of population in age group 25-54, share of population with a bachelor's degree, share of population with a disability, and share of single parent households. They clearly explained a substantial portion of the difference of LFPR between metro Detroit and its peers, which lead to us believe the improvement of those factors, such as education, will have true positive impact on our region's labor force participation rate. But the model and scenario analyses also indicate there are additional factors are yet to be discovered.

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