An Equity Profile of the
City of Detroit

Acknowledgments

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Equity Profiles are products of a partnership between PolicyLink and PERE, the Program for Environmental and Regional Equity at the University of Southern California.

The views expressed in this document are those of PolicyLink and PERE.
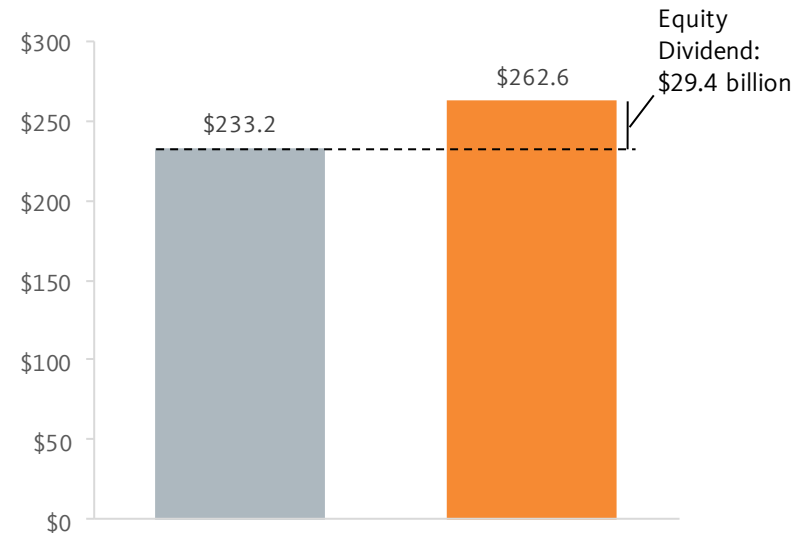
Summary

After decades of job and population loss, the City of Detroit has shown recent signs of growth, with major new public and private investments in and around the downtown area in infrastructure, new development in several districts, and diverse types of business activity. However, this Detroit Renaissance is not enjoyed equally by all residents; deep racial disparities, declining wages, and a hollowing out of middle-wage, high-opportunity jobs threaten the city's rebound and the economic viability.

The city and the region are fostering new entrepreneurship and job growth, but equitable development strategies will be essential if that growth is to have an appreciable impact on poverty, inequality, and racial disparities. The region can implement policies not only directly in economic and community development, but also, for housing, transportation, and education, which will remove barriers and expand opportunities for all. Doing so will benefit not only residents who are people of color, but all Detroit residents and business owners. Had racial disparities been reconciled in 2014, the Detroit region's GDP could have been $29 billion larger – a 13 percent increase.

The Detroit region's GDP would have been $29 billion higher if there were no racial gaps in income

Actual GDP and Estimated GDP without Racial Gaps in Income, 2014

■ GDP in 2014 (billions)
■ GDP if racial gaps in income were eliminated (billions)

Equity Dividend: $29.4 billion

$262.6

$233.2

Sources: Integrated Public Use Microdata Series; Bureau of Economic Analysis.
Note: Data reflects the Detroit-Warren-Livonia, Michigan Metropolitan Statistical Area as defined by the U.S. Office of Management and Budget and represents a 2010 through 2014 average. Values are in 2014 dollars.

Indicators

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Introduction

Introduction
Overview

Across the country, community organizations and residents, local governments, business leaders, funders, and policymakers are striving to put plans, policies, and programs in place that build healthier, more equitable communities and foster inclusive growth.

These efforts recognize that equity – just and fair inclusion into a society in which all can participate, prosper, and reach their full potential – is fundamental to a brighter future for their communities.

Knowing how a community stands in terms of equity is a critical first step in planning for greater equity. To assist with that process, PolicyLink and the Program for Environmental and Regional Equity (PERE) developed an equity indicators framework that communities can use to understand and track the state of equity and equitable growth locally.

This document presents an equity analysis of the City of Detroit. It was developed with the support of the W.K. Kellogg Foundation to support local community groups, elected officials, planners, business leaders, funders, and others working to build a stronger and more equitable city. The foundation is supporting the development of equity profiles in 10 of its priority communities across Louisiana, Michigan, Mississippi, and New Mexico.

The data in this profile are drawn from a regional equity database that includes data for the largest 100 cities and 150 regions in the United States, as well as all 50 states. This database incorporates hundreds of data points from public and private data sources including the U.S. Census Bureau, the U.S. Bureau of Labor Statistics, the Behavioral Risk Factor Surveillance System, and Woods and Poole Economics. It also includes unique data on child and family well-being from the W.K. Kellogg Foundation Priority Communities Dashboard Database, contributed by The diversitydatakids.org Project based at the Institute for Child, Youth and Family Policy at the Heller School for Social Policy and Management at Brandeis University. See the "Data and methods" section of this profile for a detailed list of data sources.

This profile uses a range of data sources to describe the state of equity in Detroit as comprehensively as possible, but there are limitations. Not all data collected by public and private sources is disaggregated by race/ethnicity and other demographic characteristics. And in some cases, even when disaggregated data is available, the sample size for a given population is too small to report with confidence.

Communities facing deep challenges and barriers to inclusion may be absent from some of the analysis presented here due to small sample size. Local data sources and the lived experiences of diverse residents should supplement the data provided in this profile to more fully represent the state of equity in Detroit.

Introduction
What is an equitable city?

Cities are equitable when all residents – regardless of their race/ethnicity, nativity, income, neighborhood of residence, or other characteristics – are fully able to participate in the city's economic vitality, contribute to the city's readiness for the future, and connect to the city's assets and resources.

Strong, equitable cities:

- Possess **economic vitality**, providing high-quality jobs to their residents and producing new ideas, products, businesses, and economic activity so the city remains sustainable and competitive.

- Are **ready for the future**, with a skilled, ready workforce, and a healthy population.

- Are **places of connection**, where residents can access the essential ingredients to live healthy and productive lives in their own neighborhoods, reach opportunities located throughout the city (and beyond) via transportation or technology, participate in political processes, and interact with other diverse residents.

Introduction
Why equity matters now

The face of America is changing.
Our country's population is rapidly diversifying. Already, more than half of all babies born in the United States are people of color. By 2030, the majority of young workers will be people of color. And by 2044, the United States will be a majority people-of-color nation.

Yet racial and income inequality is high and persistent.
Over the past several decades, long-standing inequities in income, wealth, health, and opportunity have reached unprecedented levels. And while most have been affected by growing inequality, communities of color have felt the greatest pains as the economy has shifted and stagnated.

Racial and economic equity is necessary for the nation's economic growth and prosperity.
Equity is an economic and health imperative as well as a moral one. Research shows that equity and diversity are win-win propositions for nations, cities, communities, and firms.

For example:
• More equitable regions experience stronger, more sustained growth.[1]
• Regions with less segregation (by race and income) and lower income inequality have more upward mobility. [2]
• Researchers predict that health equity would lead to significant economic benefits from reductions in health-care spending and lost productivity. [3]
• Companies with a diverse workforce achieve a better bottom line.[4]
• A diverse population more easily connects to global markets.[5]
• Lower economic inequality results in better health outcomes for everyone. [6]

The way forward is with an equity-driven growth model.
To secure America's health and prosperity, the nation must implement a new economic model based on equity, fairness, and opportunity. Policies and investments must support equitable economic growth strategies, opportunity-rich neighborhoods, and "cradle-to-career" educational pathways.

Cities play a critical role in building this new growth model.
Local communities are where strategies are being incubated that foster equitable growth: growing good jobs and new businesses while ensuring that all – including low-income people and people of color – can fully participate and prosper.

[1] Manuel Pastor, "Cohesion and Competitiveness: Business Leadership for Regional Growth and Social Equity," OECD Territorial Reviews, Competitive Cities in the Global Economy, Organisation For Economic Co-Operation And Development (OECD), 2006; Manuel Pastor and Chris Benner, "Been Down So Long: Weak-Market Cities and Regional Equity" in *Retooling for Growth: Building a 21st Century Economy in America's Older Industrial Areas* (New York: American Assembly and Columbia University, 2008); Randall Eberts, George Erickcek, and Jack Kleinhenz, "Dashboard Indicators for the Northeast Ohio Economy: Prepared for the Fund for Our Economic Future" (Cleveland, OH: Federal Reserve Bank of Cleveland, 2006), https://www.clevelandfed.org/newsroom-and-events/publications/working-papers/working-papers-archives/2006-working-papers/wp-0605-dashboard-indicators-for-the-northeast-ohio-economy.aspx.

[2] Raj Chetty, Nathaniel Hendren, Patrick Kline, and Emmanuel Saez, "Where is the Land of Economic Opportunity? The Geography of Intergenerational Mobility in the U.S.," *Quarterly Journal of Economics 129 (2014): 1553-1623,* http://www.equality-of-opportunity.org/assets/documents/mobility_geo.pdf.

[3] Darrell Gaskin, Thomas LaVeist, and Patrick Richard, *The State of Urban Health: Eliminating Health Disparities to Save Lives and Cut Costs* (New York, NY: National Urban League Policy Institute, 2012).

[4] Cedric Herring, "Does Diversity Pay?: Race, Gender, and the Business Case for Diversity," *American Sociological Review* 74 (2009): 208-22; Slater, Weigand and Zwirlein, "The Business Case for Commitment to Diversity," *Business Horizons* 51 (2008): 201-209.

[5] U.S. Census Bureau, "Ownership Characteristics of Classifiable U.S. Exporting Firms: 2007," Survey of Business Owners Special Report, June 2012, http://www.census.gov/econ/sbo/export07/index.html.

[6] Kate Pickett and Richard Wilkinson, "Income Inequality and Health: A Causal Review," *Social Science & Medicine* 128 (2015): 316-326.

Introduction
Geography

This profile describes demographic, economic, and health conditions in the city of Detroit, portrayed in black on the map to the right. Detroit is situated within the Detroit-Warren-Livonia, MI metropolitan statistical area, which includes Lapeer, Livingston, Macomb, Oakland, St. Clair, and Wayne Counties.

Unless otherwise noted, all data follow the city geography, which is simply referred to as "Detroit." Some exceptions, due to lack of data availability, will highlight trends in Wayne County and the larger metropolitan statistical area; these are noted beneath the relevant figures. Information on data sources and methodology can be found in the "Data and methods" section beginning on page 102.
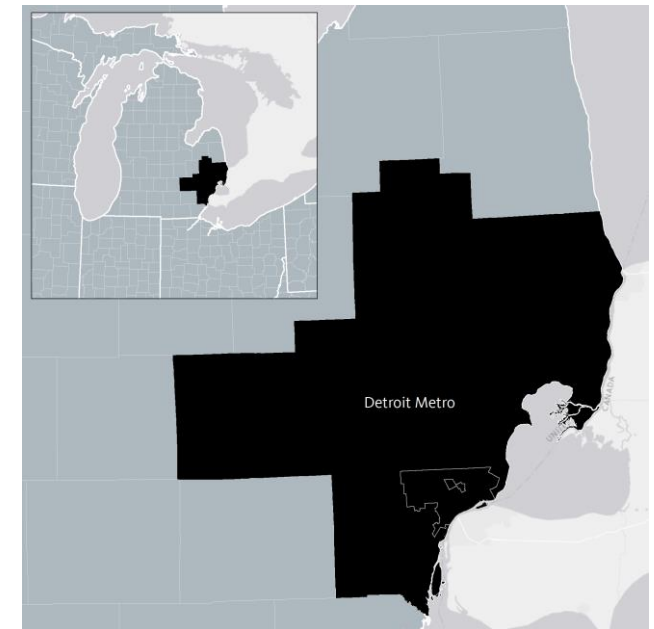
Introduction
Equity indicators framework

The indicators in this profile are presented in five sections. The first section describes the city's demographics. The next three sections present indicators of the city's economic vitality, readiness, and connectedness. The final section estimates the economic benefits of racial equity. Below are the questions answered within each of the five sections.

Demographics:
Who lives in the city, and how is this changing?
• Is the population growing?
• Which groups are driving growth?
• How diverse is the population?
• How does the racial composition vary by age?

Economic vitality:
How is the city doing on measures of economic growth and well-being?
• Is the city producing good jobs?
• Can all residents access good jobs?
• Is growth widely shared?
• Do all residents have enough income to sustain their families?
• Are race/ethnicity and nativity barriers to economic success?
• What are the strongest industries and occupations?

Readiness:
How prepared are the city's residents for the 21st century economy?
• Does the workforce have the skills for the jobs of the future?
• Are all youth ready to enter the workforce?
• Are residents healthy?
• Are racial gaps in education and health decreasing?
• Can all residents access healthy food?

Connectedness:
Are the city's residents and neighborhoods connected to one another and to the city's assets and opportunities?
• Do residents have transportation choices?
• Can residents access jobs and opportunities located throughout the city?
• Can all residents access affordable, quality, and convenient housing?
• Do neighborhoods reflect the city's diversity? Is segregation decreasing?

Economic benefits:
How would addressing racial inequities affect the regional economy?
• How would the region's gross domestic product be affected?
• How much would residents benefit from closing racial gaps in income and employment?

Introduction
Key Findings

- When compared with the 100 largest cities in the nation, Detroit has the highest poverty rate for residents living at 100 percent, 150 percent, and 200 percent of poverty.

- By 2020, 44 percent of Michigan's jobs will require an associate's degree or higher. Currently, only 20 percent of the city's workforce is prepared to meet this demand. Racial disparities in educational attainment are notable in the city.

- Of youth ages 16-24 living in the largest 100 cities in the nation, those living in Detroit are the most likely to be disconnected from school or work. More than 30,000 youth are disconnected, 85 percent of whom are Black.

Share of Michigan jobs that will require an associate's degree or higher by 2020:

44%

Number of youth not in school or working:

30,000

Introduction
Key Findings

Detroit stands to gain a great deal from addressing racial inequities. The region's economy could have been nearly $30 billion stronger in 2014 if its racial gaps in income had been closed: a 13 percent increase.

Using data on income by race, we calculated how much higher total economic output would have been in 2014 if all racial groups who currently earn less than Whites had earned similar average incomes as their White counterparts, controlling for age.

We also examined how much of the region's racial income gap was due to differences in wages and how much was due to differences in employment (measured by hours worked). Nationally, 36 percent of the racial income gap is due to differences in employment. In the Detroit region, the share of the gap attributable to employment is even higher, at 59 percent.

The Detroit region's GDP would have been $29 billion higher if there were no racial gaps in income
Actual GDP and Estimated GDP without Racial Gaps in Income, 2014

■ GDP in 2014 (billions)
■ GDP if racial gaps in income were eliminated (billions)

Equity Dividend: $29.4 billion

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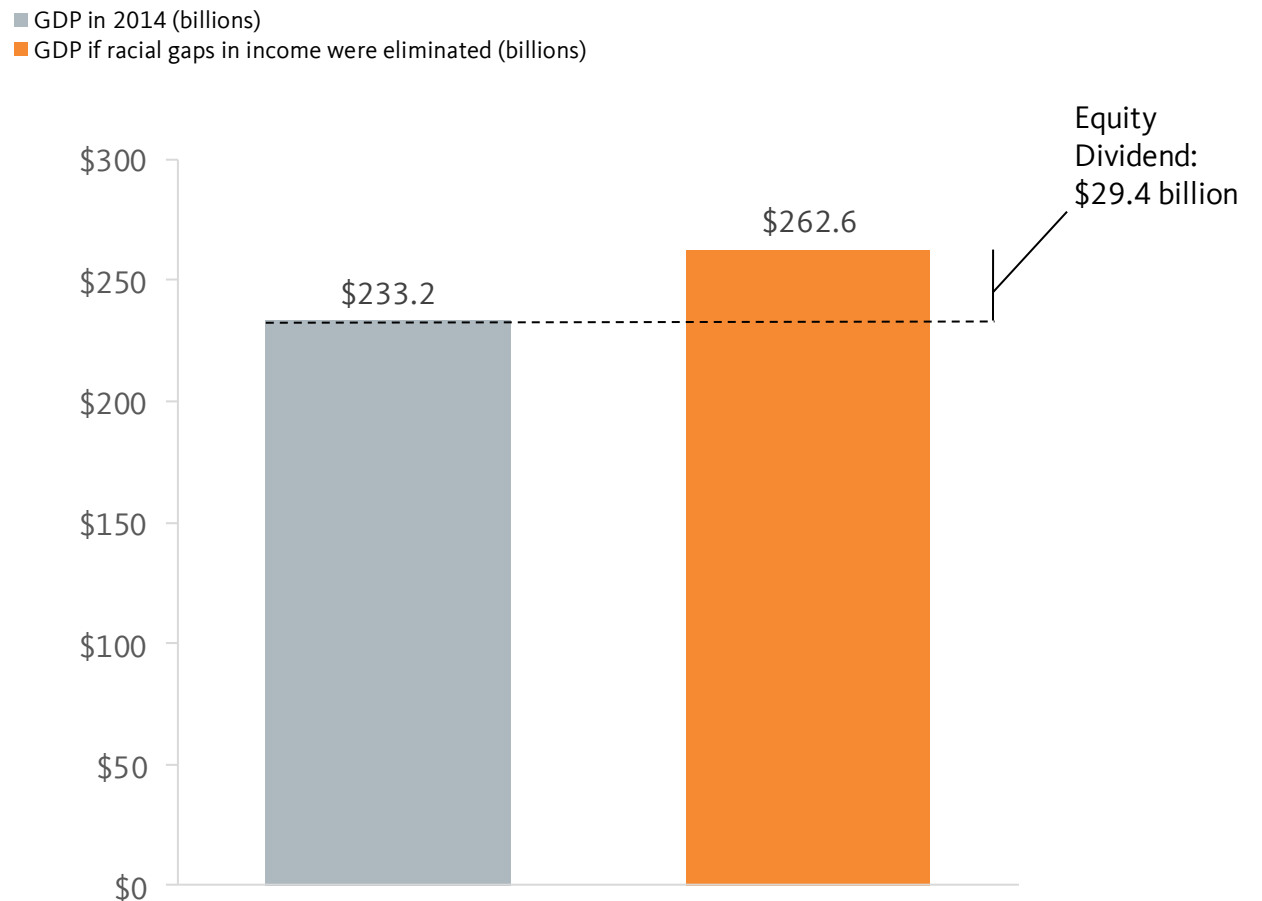
Sources: Integrated Public Use Microdata Series; Bureau of Economic Analysis.
Note: Data reflects the Detroit-Warren-Livonia, Michigan Metropolitan Statistical Area as defined by the U.S. Office of Management and Budget and represents a 2010 through 2014 average. Values are in 2014 dollars.

Demographics

Demographics
Highlights
Who lives in the city and the region, and how are they changing?

- The concentration of people of color in Detroit is increasing. In 2014, the vast majority (91 percent) of residents were people of color.

- Overall, the city's population declined by more than 500,000 people – or 42 percent – between 1980 and 2014. The greatest decline took place between 2000 and 2014, when the city shrunk by more than 255,000 residents.

- The majority of Detroit residents are Black (81 percent). However, Latinos were the only group whose population increased between 2000 and 2014.

- The difference in racial composition between the city's youth and seniors – referred to as the racial generation gap – is one of the smallest in the country.

Growth in the Black share of the population since 1980:

18 percentage points

Decline in overall population between 1980 and 2014:

42%

Growth in the Latino population since 2000:

8%

Demographics
A predominantly African American city

More than 90 percent of the city's residents are people of color, including a diverse mix of racial and ethnic groups. U.S.-born Black residents represent the majority of Detroit residents at 80 percent of the total population. The next largest subgroups are White (9 percent) and Latino residents (7 percent).

Detroit's population was majority people of color in 2014

Race/Ethnicity and Nativity, 2014

- White, U.S.-born
- White, Immigrant
- Black, U.S.-born
- Black, Immigrant
- Latino, U.S.-born
- Latino, Immigrant
- API, U.S.-born
- API, Immigrant
- Native American
- Mixed/other

0.7%
0.5%
2.6%
4.7%
0.5%
0.3%
1.8%
1.0%
7.6%
80.1%
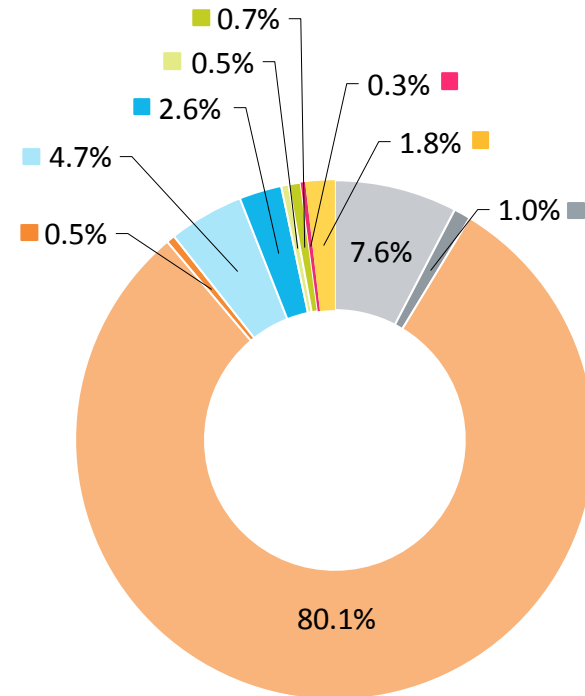
Sources: Integrated Public Use Microdata Series (IPUMS); U.S. Census Bureau.
Note: Data represent a 2010 through 2014 average. The IPUMS American Community Survey (ACS) microdata was adjusted to match the ACS summary file percentages by race/ethnicity.

Demographics
Latino and API residents have diverse ancestral backgrounds

Ninety-one percent of the city's residents are people of color, including a diverse mix of nationalities of origin. More than 64 percent of the city's nearly 52,000 Latino residents hail from Mexico. Puerto Rico and Guatemala are the next most commonly cited ancestries among the Latino population.

The city's Asian or Pacific Islander community is similarly diverse. While residents of Bengali and Indian descent are the largest subgroups, at least 13 nations of ancestry are represented within the city's limits.

While the majority of Black residents do not cite a specific ancestry, those who do are very diverse. In addition to those ancestries listed in Figure 2, residents also represent 17 other Caribbean, South American, and African nations.

Diverse Asian population and predominantly Mexican-ancestry Latino population

Latino, Asian or Pacific Islander, and Black Populations by Ancestry, 2014

Latino	Population
Mexican	33,373
Puerto Rican	5,129
Guatemalan	1,161
Dominican	866
All other Latinos	11,462
Total	**51,991**

Black	Population
Jamaican	1,189
British	962
Nigerian	758
Irish	380
All other Blacks	556,524
Total	**559,812**

Asian or Pacific Islander (API)	Population
Bengali	2,756
Indian	1,521
Hmong	580
Chinese	447
Pakistani	380
All other APIs	2,728
Total	**8,412**

Source: Integrated Public Use Microdata Series.
Note: Data represent a 2010 through 2014 average.

Demographics
Demographics have shifted over the past several decades

Since 1980, the city has experienced significant net population loss of more than a half million people.

As the city's population has shrunk, its demographic makeup has also changed. Between 1980 and 2000, the city's non-Hispanic White community consistently declined from 33 to 11 percent. At the same time, both the number and share of residents who were people of color increased.

Between 2000 and 2014, the city's population shrunk by nearly 256,000 people – 85 percent of whom were people of color. Despite this, the percentage of city residents who are people of color has continued to grow.

The people-of-color majority in the city continues to increase

Racial/Ethnic Composition, 1980 to 2014

- Mixed/other
- Native American
- Asian or Pacific Islander
- Latino
- Black
- White

1980	1990	2000	2014

1980: 2%, 63%, 33%
1990: 3%, 75%, 21%
2000: 2%, 5%, 81%, 11%
2014: 2%, 7%, 81%, 9%

The city has experienced significant population decline

Composition of Net Population Growth by Decade, 1980 to 2014

- White
- People of Color
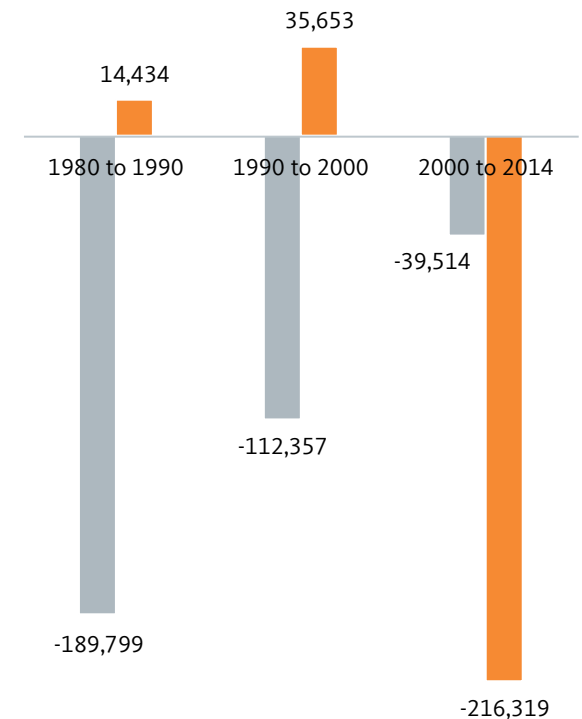
1980 to 1990: 14,434 / -189,799
1990 to 2000: 35,653 / -112,357
2000 to 2014: -39,514 / -216,319

Source: U.S. Census Bureau.
Note: Data for 2014 represent a 2010 through 2014 average. Much of the increase in the Mixed/other population between 1990 and 2000 is due to a change in the survey question on race. Shares by race/ethnicity in 2014 may differ slightly from those reported on page 19 due to rounding.

Source: U.S. Census Bureau.
Note: Data for 2014 represent a 2010 through 2014 average.

Demographics
Latinos are driving demographic change in the city

Although the majority of Detroit residents are Black, Latinos (both immigrant and U.S.-born) as well as U.S.-born Asian or Pacific Islanders were the only groups whose populations have grown since 2000. U.S.-born Latinos saw the largest population increase, but only by 1,930 individuals. Overall, the Asian or Pacific Islander population declined slightly. The net decrease in the number of API immigrants was greater than the net increase in the U.S.-born API population.

The White population saw the largest decline in percentage terms, losing 38,440 residents and falling by 40 percent between 2000 and 2014. And although Detroit has historically been a destination for African American migration, the city has lost more than 200,000 Black residents since 2000.

Latinos grew the most between 2000 and 2014
Growth Rates of Major Racial/Ethnic Groups, 2000 to 2014
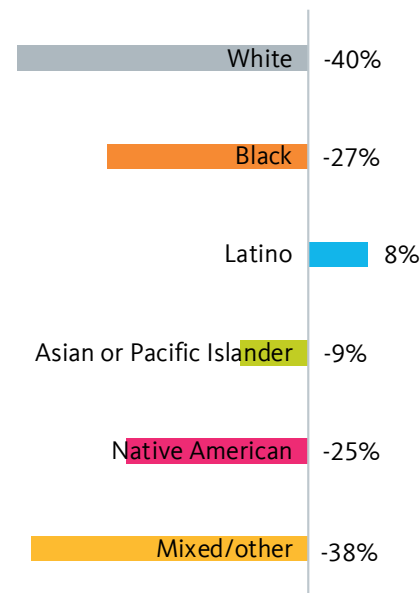
White	-40%
Black	-27%
Latino	8%
Asian or Pacific Islander	-9%
Native American	-25%
Mixed/other	-38%

Latino and Asian or Pacific Islander population growth is driven by increases in U.S-born residents
Net Change in the Latino and Asian or Pacific Islander (API) Population by Nativity, 2000 to 2014
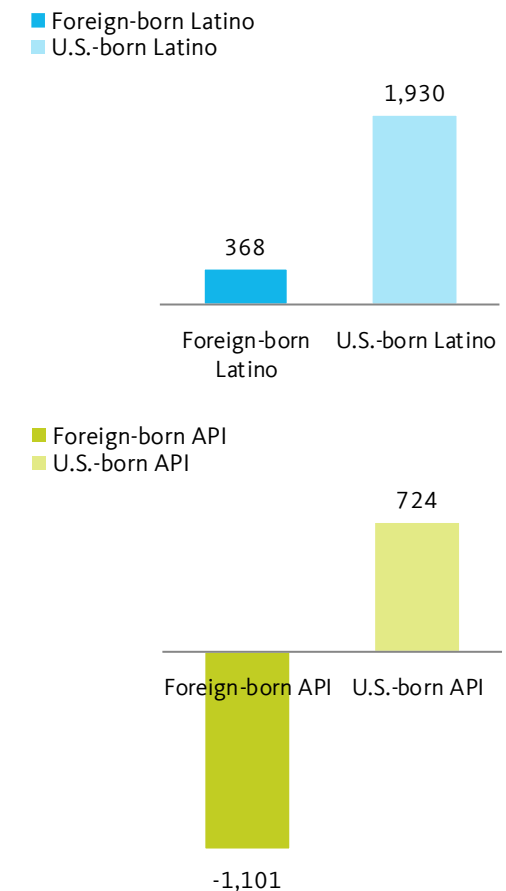
■ Foreign-born Latino
■ U.S.-born Latino

Foreign-born Latino: 368
U.S.-born Latino: 1,930

■ Foreign-born API
■ U.S.-born API

U.S.-born API: 724
Foreign-born API: -1,101

Source: U.S. Census Bureau.
Note: Data for 2014 represent a 2010 through 2014 average.

Source: Integrated Public Use Microdata Series.
Note: Data for 2014 represent a 2010 through 2014 average.

Demographics
Although majority people of color, the city's diversity is low

Although 91 percent of residents who live in the City of Detroit are people of color, the city's diversity is relatively low as compared to the 100 largest cities in the nation (ranking 94th). The city has a diversity score of 0.72, making it significantly less diverse than other large cities nearby such as Cleveland (ranking 59th) and Pittsburgh (ranking 82nd).

The diversity score is a measure of racial/ethnic diversity in a given area. It measures the representation of the six major racial/ethnic groups (White, Black, Latino, API, Native American, and Other/mixed race) in the population. The maximum possible diversity score (1.79) would occur if each group were evenly represented in the region – that is, if each group accounted for one-sixth of the total population.

Note that the diversity score describes the city as a whole and does not measure racial segregation, or the extent to which different racial/ethnic groups live in different neighborhoods. Segregation measures can be found on pages 83-84.

Detroit's level of diversity is low compared to most large cities
Diversity Score in 2014: Largest 100 Cities. Ranked
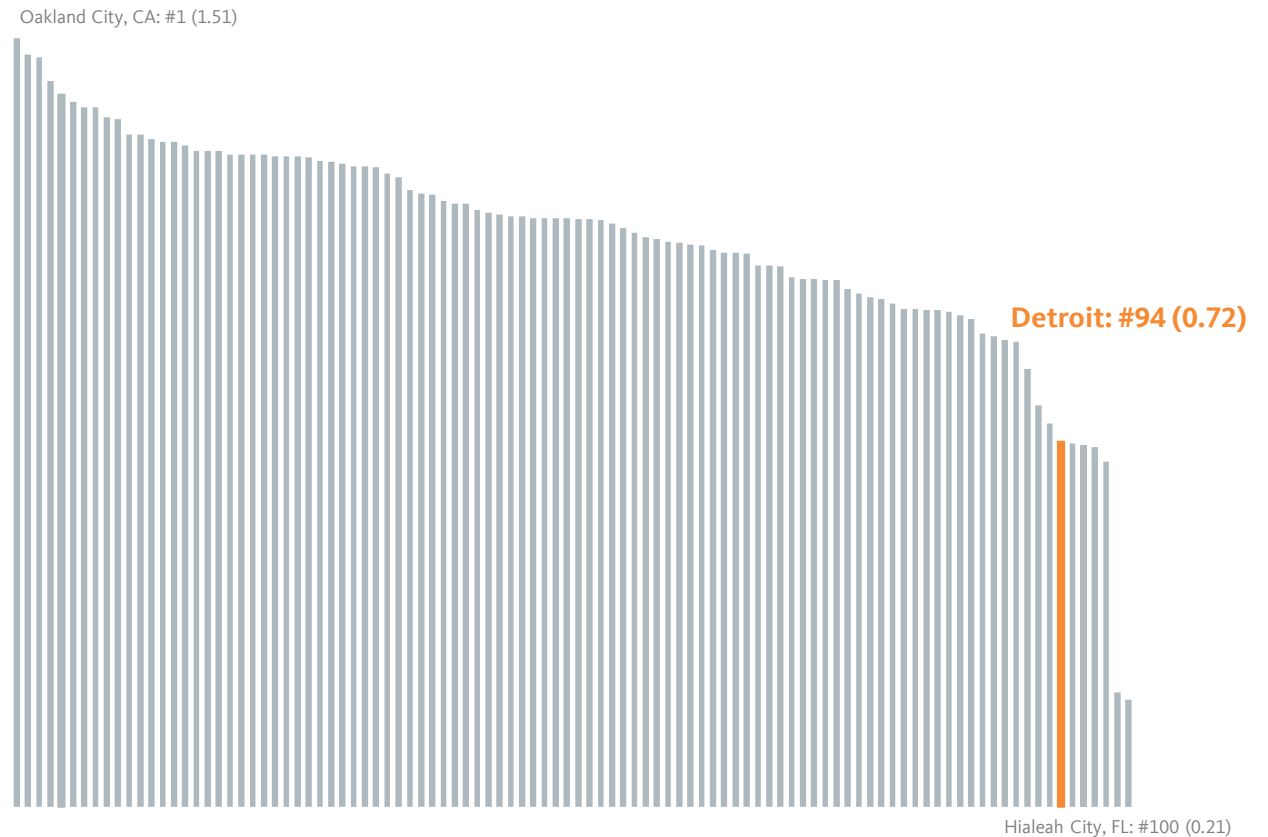
Oakland City, CA: #1 (1.51)

Detroit: #94 (0.72)

Hialeah City, FL: #100 (0.21)

Source: U.S. Census Bureau.
Note: Data represent a 2010 through 2014 average.

Demographics
A narrowing racial generation gap

Today, 95 percent of the city's youth (under age 18) are people of color, compared with approximately 87 percent of the city's seniors (over age 64). This 8 percentage-point difference between the share of people of color among young and old can be measured as the racial generation gap. It is lower than the national average (26 percentage points) and has declined substantially since 1980, when the gap was 35 percentage points.

Examining median age by race/ethnicity reveals how the city's White population is slightly older than any other racial/ethnic group. The median age of the Black population is 36. The median age of both the city's Latino and mixed/other race populations is 25, which is 20 years younger than the median age of 45 for the White population.

The racial generation gap between youth and seniors is narrowing
Percent of People of Color (POC) by Age Group, 1980 to 2014

— Percent of seniors who are POC
— Percent of youth who are POC

95%
87%
9 percentage point gap
78%
35 percentage point gap
43%

1980   1990   2000   2014
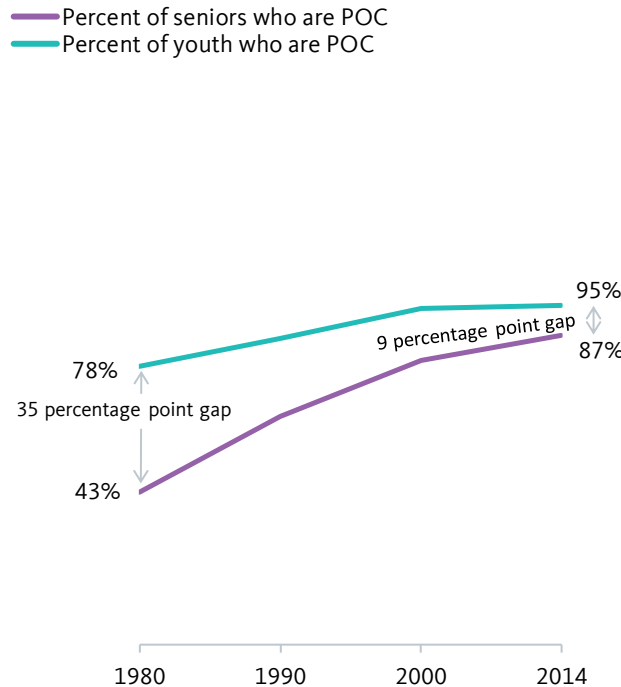
Source: U.S. Census Bureau.
Note: Data for 2014 represent a 2010 through 2014 average.

The city's communities of color are more youthful than its White population
Median Age by Race/Ethnicity, 2014
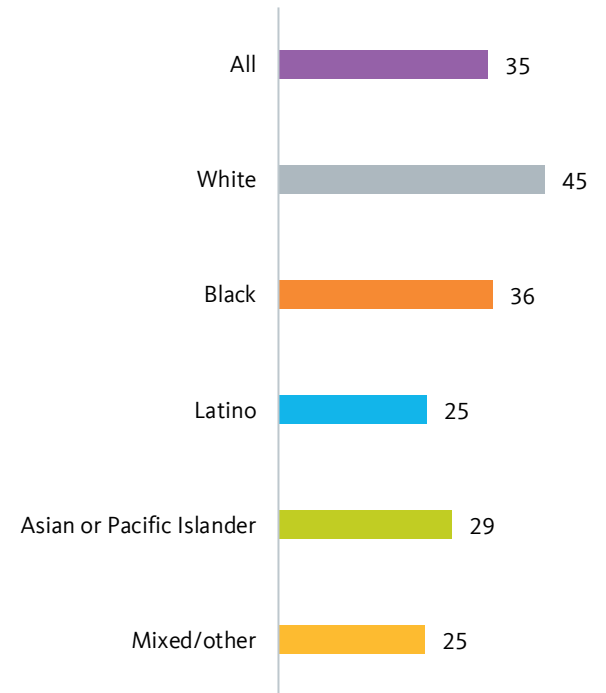
Race/Ethnicity	Median Age
All	35
White	45
Black	36
Latino	25
Asian or Pacific Islander	29
Mixed/other	25

Source: Integrated Public Use Microdata Series.
Note: Data represent a 2010 through 2014 average.

Demographics
A narrowing racial generation gap
(continued)

The City of Detroit's racial generation gap is one of the smallest in the nation at 9 percentage points, as compared to the 100 largest cities. It is significantly smaller than the cities' average of 29 percentage points. The city's racial generation gap is also noticeably small as compared to other large cities in the Midwest. Saint Paul (#3 at 48 percentage points), Milwaukee (#9 at 43 percentage points), and Minneapolis (#10 at 43 percentage points) all have notably larger gaps.

Detroit's racial generation gap is relatively low compared to other cities
The Racial Generation Gap in 2014: Largest 100 Cities, Ranked
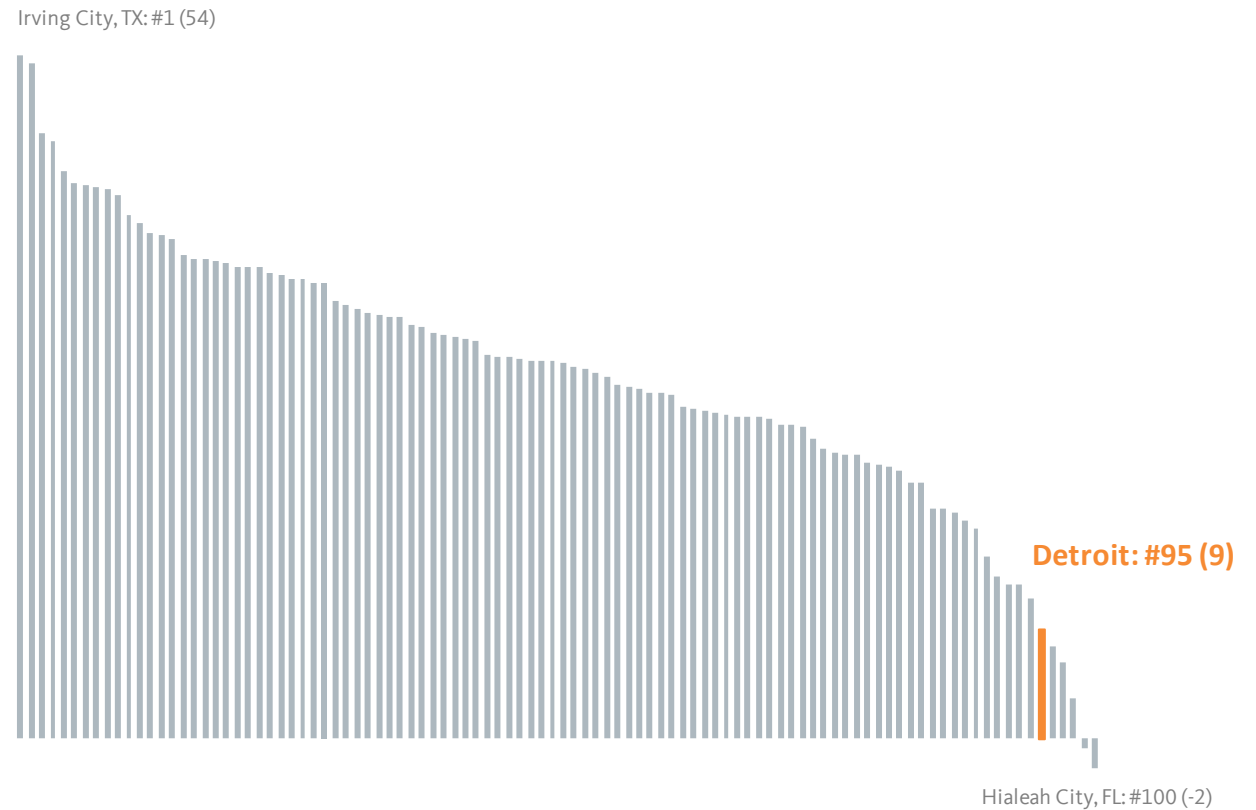
Irving City, TX: #1 (54)

Detroit: #95 (9)

Hialeah City, FL: #100 (-2)

Source: U.S. Census Bureau.
Note: Data for 2014 represent a 2010 through 2014 average.

Demographics
Growth in communities of color are more likely to be found outside of the city's boundaries

Mapping the growth in people of color by census block group illustrates how changes in communities of color can be found throughout the city. The vast majority of neighborhoods in the city saw declines in the number of people of color since 2000, while some neighborhoods – particularly around the border of the city and its suburbs – experienced modest increases.

Growth in communities of color has occurred along the city's borders
Percent Change in People of Color by Census Block Group, 2000 to 2014

- Decline of 51% or more
- Decline of 51% to 34%
- Decline of less than 34% or no growth
- Increase of less than 1.7%
- Increase of 1.7% or more
- ☐ Detroit City Boundary
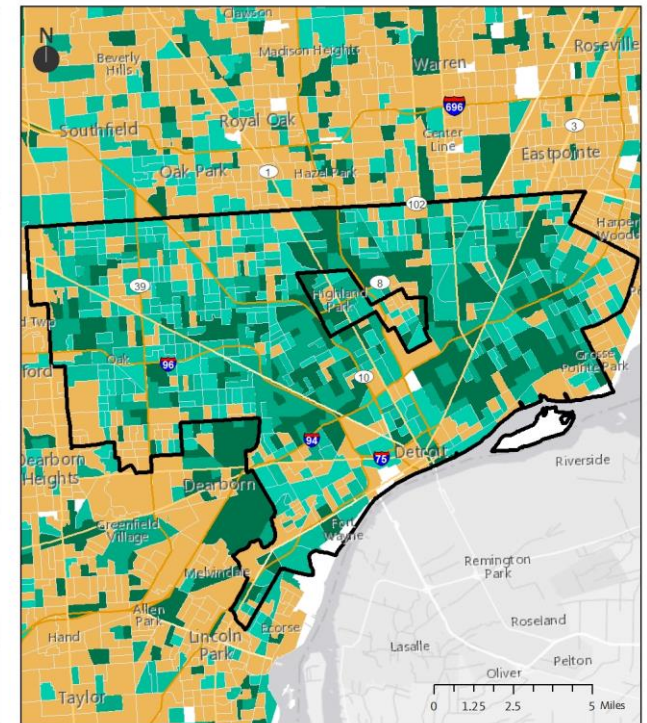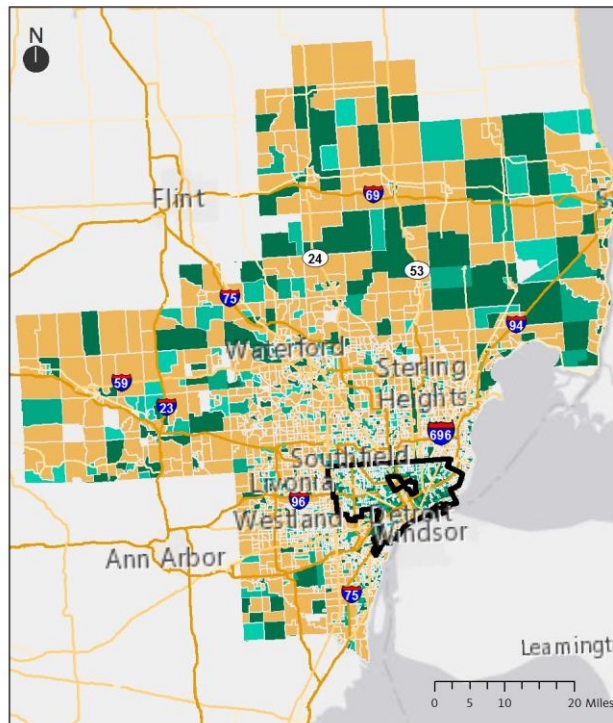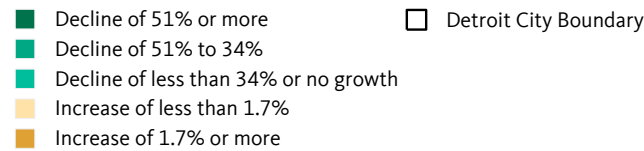
Source: U.S. Census Bureau, GeoLytics, Inc.; TomTom, ESRI, HERE, DeLorme, MaymyIndia, © OpenStreetMap contributors, and the GIS user community.
Note: One should keep in mind when viewing this map and others that display a share or rate that while there is wide variation in the size (land area) of the census block groups in the region, each has a roughly similar number of people. Thus, care should be taken not to assign unwarranted attention to large block groups just because they are large. Data for 2014 represent a 2010 through 2014 average. Areas in white are missing data.

Demographics
Notable racial segregation between the city and suburbs

Much of the residential segregation by race that exists in the region can be summed up as a city-suburban divide between Black and White residents. While the City of Detroit was 81 percent Black in 2014, the remainder of the Detroit metro area was 79 percent White. The geographic split is largely the result of a World War II era population boom, with many Black and White Americans drawn into the city of Detroit by a vibrant defense and manufacturing industry, followed by a pattern of "White flight" to the suburbs alongside a steadily rising Black population. [1]

The emerging Latino and Asian or Pacific Islander (API) populations are more evenly distributed geographically, but Latinos have a larger presence in the city while the API community is more prevalent in the suburbs.

These trends are consistent when comparing the demographic profile of the city as compared to the rest of the state of Michigan.

[1] Thomas J. Sugrue, *The Origin of the Urban Crisis: Race and Inequality in Postwar Detroit* (Princeton, NJ: Princeton University Press, 1996).

High levels of Black-White residential segregation exist between the city and suburbs
Race/Ethnicity in City of Detroit, the Remainder of the Detroit Metro Area, and Michigan State, 2014

Legend:
- Mixed/other
- Native American
- Asian or Pacific Islander
- Latino
- Black
- White

Detroit City, MI:
- 2%
- 1%
- 7%
- 80%
- 9%

Detroit-Warren-Livonia, MI Metro Area:
- 2%
- 4%
- 4%
- 23%
- 67%

Michigan:
- 2%
- 3%
- 5%
- 14%
- 76%

Source: U.S. Census Bureau.
Note: Data for 2014 represent a 2010 through 2014 average.

Demographics
Rapid population decline in the city

Examining the number of people by race/ethnicity in 1990 and 2014 in the city of Detroit and surrounding area, rapid declines in the African American population are apparent throughout the city as is a movement of the Black population to some suburban cities outside of Detroit such as Southfield, Oak Park, and Eastpointe.

The Latino population, whose growth has helped to counter overall population loss, has rapidly increased in the southwest portion of the city near Fort Wayne.

Between 1990 and 2014, a more concentrated community of Asian or Pacific Islander residents also grew along the borders of the city and Hamtramck.

The White population has declined throughout the city as well, but is most noticeable in the far northeast part of the city and the western edge of the city in neighborhoods that were home to large numbers of White residents in 1990.

African American and White populations decline in the city while Latino population increases
Racial/Ethnic Composition by Census Block Group, 1990 and 2014

Race/ethnicity
1 Dot = 50 people
- White
- Black
- Latino
- Asian or Pacific Islander
- Native American
- Mixed/other
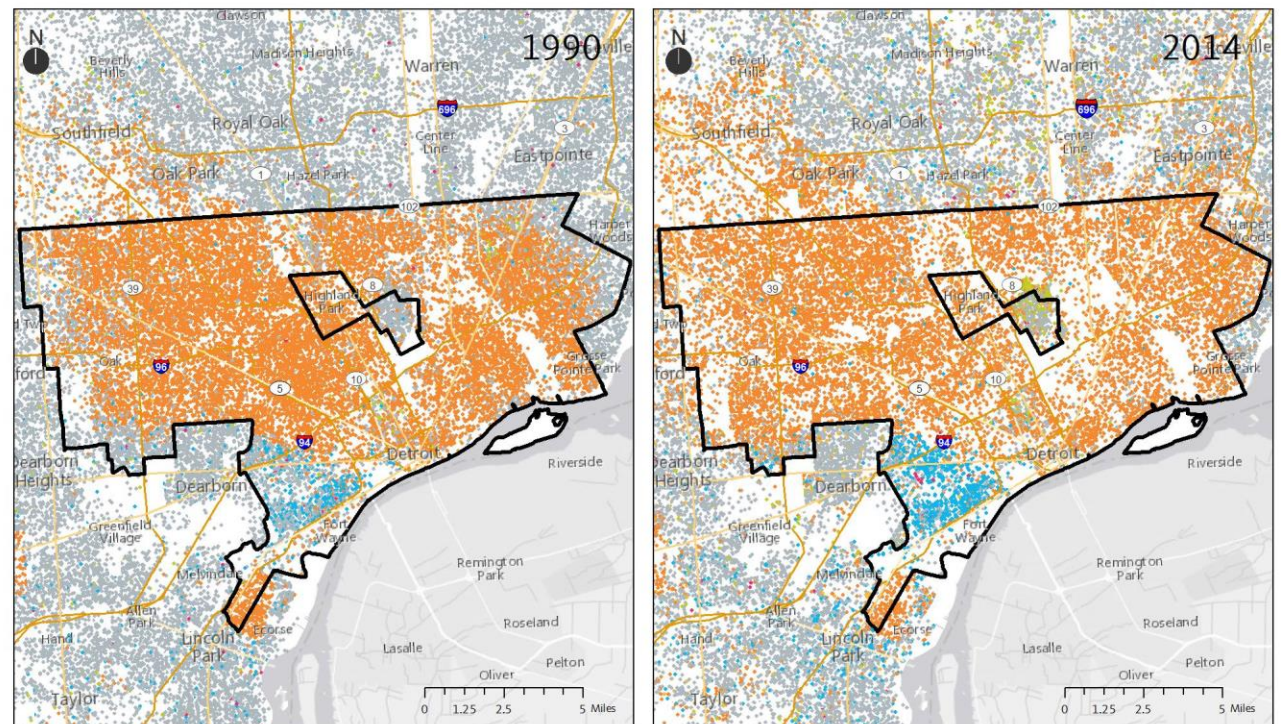
Sources: U.S. Census Bureau, GeoLytics, Inc.; TomTom, ESRI, HERE, DeLorme, MaymyIndia, © OpenStreetMap contributors, and the GIS user community.
Note: Data for 2014 represent a 2010 through 2014 average.

Demographics
By 2050, nearly two-thirds of Wayne County residents will be people of color

Demographic change in Wayne County has been occurring at a faster pace than that of the nation as a whole since 1980, but has slowed to a steadier pace in the past decade. Between 1980 and 2010, the county's White population declined by nearly 10 percentage points, as the county's population of residents of color grew.

While the Black population increased by 5 percentage points between 1980 and 1990, the majority of recent growth has been fueled by growing Latino and API populations.

Looking forward, the county can expect to see this trend continue, with people of color representing nearly two thirds of the population by 2050. Latino and API residents will contribute most to growth. While Latino representation will double from 2020 to 2050 (from 7 percent to 14 percent), the Asian or Pacific Islander community will triple (from 4 percent to 12 percent).

Nearly two-thirds of Wayne County's residents will be people of color by 2050
Projected County Population Change by Race/Ethnicity, 1980 to 2050

Legend:
- U.S. % White
- Mixed/other
- Native American
- Asian or Pacific Islander
- Latino
- Black
- White

	1980	1990	2000	2010	2020	2030	2040	2050
Mixed/other			2%	2%				
Asian or Pacific Islander	2%	2%	2%	3%	2%	2%	2%	2%
			4%	5%	4%	6%	9%	12%
Latino					7%	9%	11%	14%
Black	35%	40%	42%	40%	39%	38%	37%	35%
White	61%	56%	50%	50%	48%	45%	41%	37%

Projected
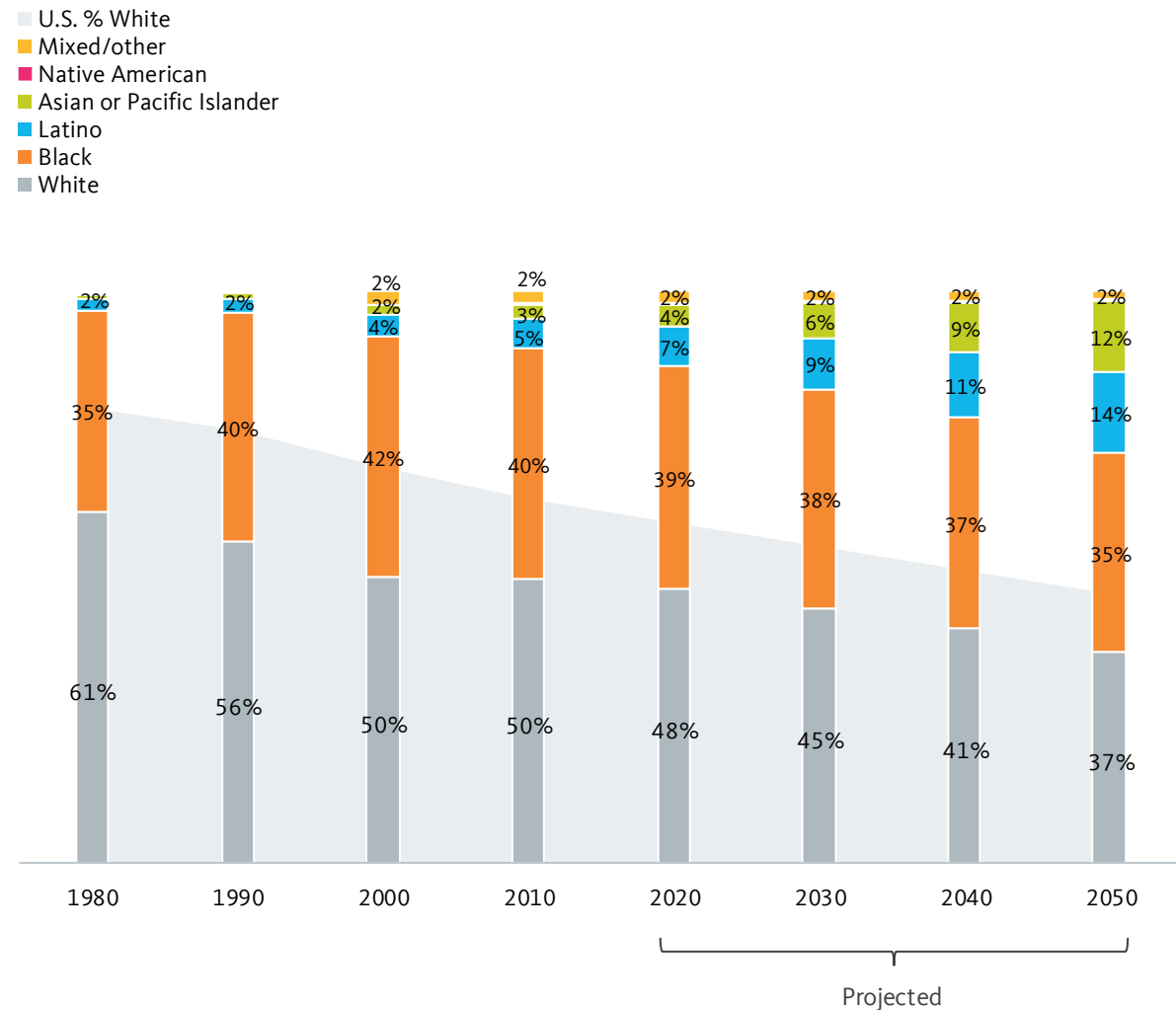
Sources: U.S. Census Bureau; Woods & Poole Economics, Inc. Note: Data is for Wayne County, MI. Much of the increase in the Mixed/other population between 1990 and 2000 is due to a change in the survey question on race.

Economic vitality

Economic vitality
Highlights

How are the city and region doing on measures of economic growth and well-being?

- When compared to the 100 largest cities in the nation, Detroit has the highest poverty rate for residents living at 100 percent, 150 percent, and 200 percent of poverty.

- Wages have declined since 1979 for every group of earners, but most severely for those in the bottom half.

- Although Wayne County has experienced recent job growth and improved unemployment overall, racial employment gaps in the City of Detroit persist. Asian or Pacific Islander and mixed or other race residents have the lowest labor force participation rates, while mixed or other race and African American residents face the highest unemployment rates.

- Residents experience noticeable racial and gender gaps in earnings.

Wage growth for workers at the 10th percentile since 1979:

-29%

African Americans without a high school degree who are unemployed:

43%

Wage gap between college-educated Black and White residents:

$3/hour

Economic vitality
Sluggish economic growth

Economic growth, as measured by increases in jobs and gross regional product (GRP) – the value of all goods and services produced within Wayne County – has been sluggish compared with the national average over the past several decades.

While the county has experienced modest recovery since 2009, cumulative growth in both jobs and Gross Regional Product has been negative since 1979. The number of jobs in the county is 22 percent lower than it was in 1979, while GRP is 28 percent lower.

Despite these stark economic declines since 1979, the county has begun to recover since the Great Recession – although the recovery has also been slower than the national average.

Job growth in Wayne County has lagged behind the national average since 1979
Cumulative Job Growth, 1979 to 2014

Wayne County, MI
United States
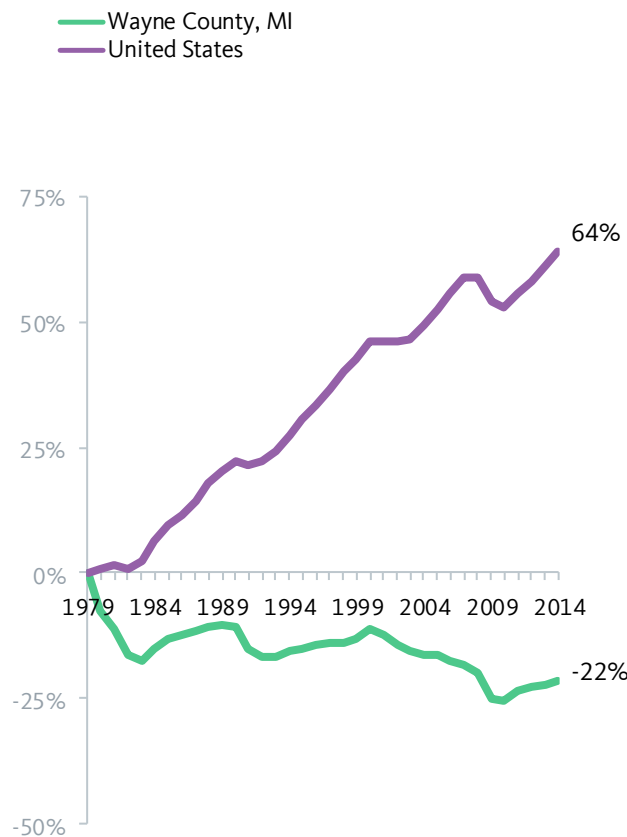
Source: U.S. Bureau of Economic Analysis.

Gross Regional Product (GRP) has slightly improved since a sharp decline during the Great Recession
Cumulative Growth in Real GRP, 1979 to 2014

Wayne County, MI
United States
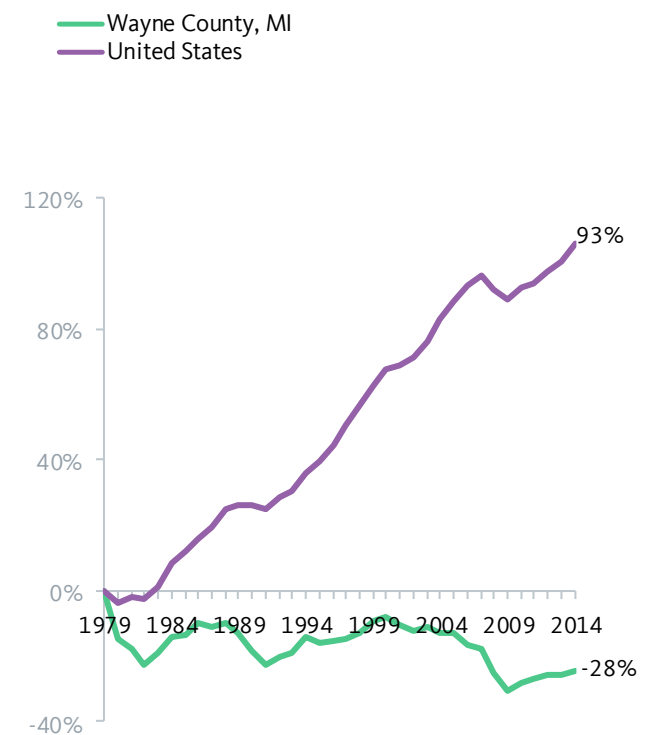
Source: U.S. Bureau of Economic Analysis.

Economic vitality
Job growth per person on the rise

While overall job growth is essential, it's important to consider whether jobs are growing at a fast enough pace to keep up with population growth. The decline in jobs in Wayne County over the past few decades has coincided with population decline, and that has kept the ratio of jobs to population fairly stable over time.

Since 1979, Wayne County has struggled to surpass the jobs-to-population ratio in that year of about 0.49 job per person (or about two people per one job). Since 2009, however, the job-to-population ratio has grown to reach about 5 percent higher than is was in 1979 (to a ratio of about 0.52 jobs per person).

While an increase in the jobs to population ratio is good, it does not speak to the quality of those jobs or whether they are equitably distributed across the working age population.

Job growth relative to population growth has improved in recent years
Cumulative Growth in Jobs-to-Population, 1979 to 2014

Wayne County, MI
United States
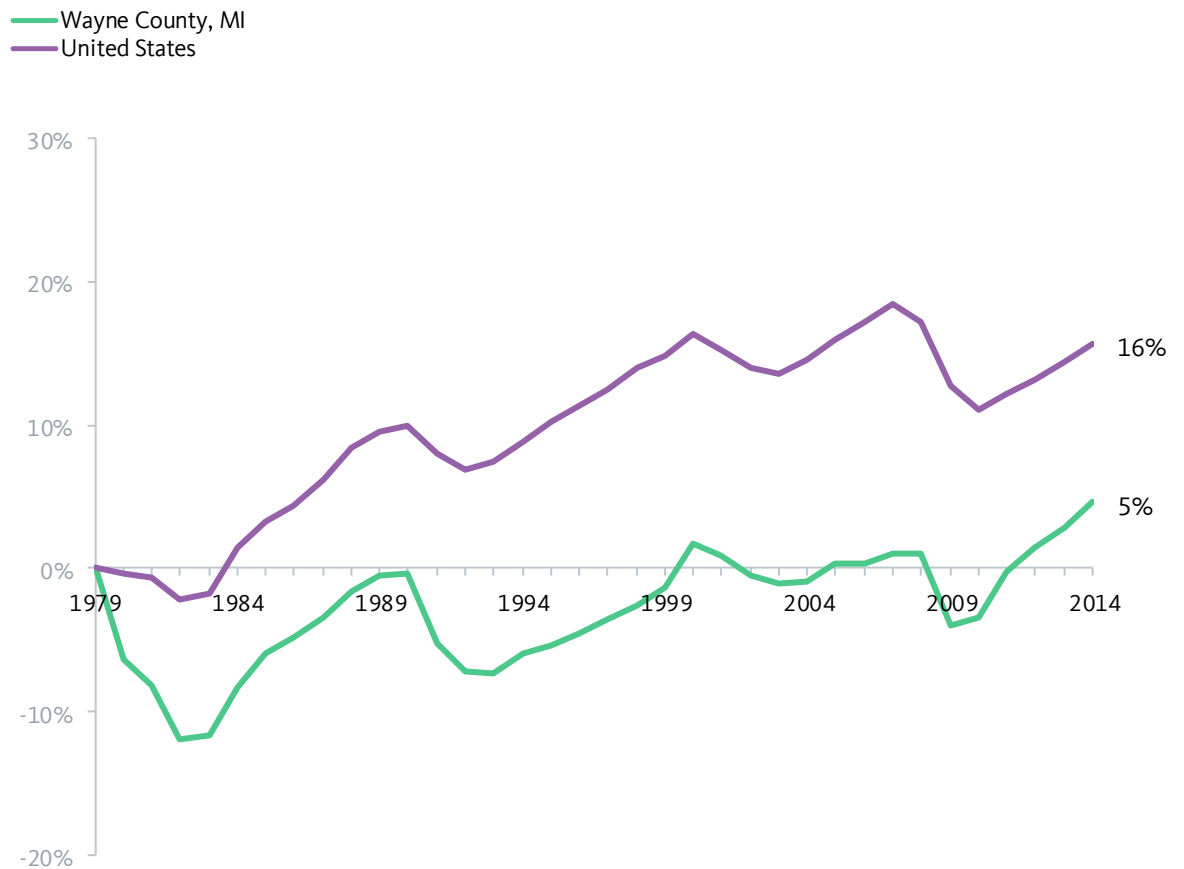
Source: U.S. Bureau of Economic Analysis.

Economic vitality
Economic resilience after the downturn

The Wayne County economy struggled during the economic downturn. While unemployment fell to near national levels during the 1990s, it increased during the 2000s. The spike in unemployment triggered by the Great Recession between 2007 and 2009 was severe. In 2009, the county's unemployment rate was 16 percent – 7 percentage points higher than the national average. Unemployment has since dramatically dropped, however (7.3 percent in 2015), and is now only 2 percentage points higher than the national average.

According to recent data from the Brookings Metro Monitor, the Detroit metropolitan area has rebounded relatively well since the economic downturn. Between 2009-2014, the Detroit region was ranked as 4th most successful in achieving prosperity (defined as wealth and income produced on a per-capita or per-worker basis) and 5th in inclusion (defined as the distribution of economic benefits amongst residents) amongst the 100 largest metro areas. The region ranked 22nd in overall economic growth.

Unemployment has dropped quickly since 2009, but remains above the national average
Unemployment Rate, 1990 to 2015

— Wayne County, MI
— United States

Downturn 2006-2009

7.3%
5.3%
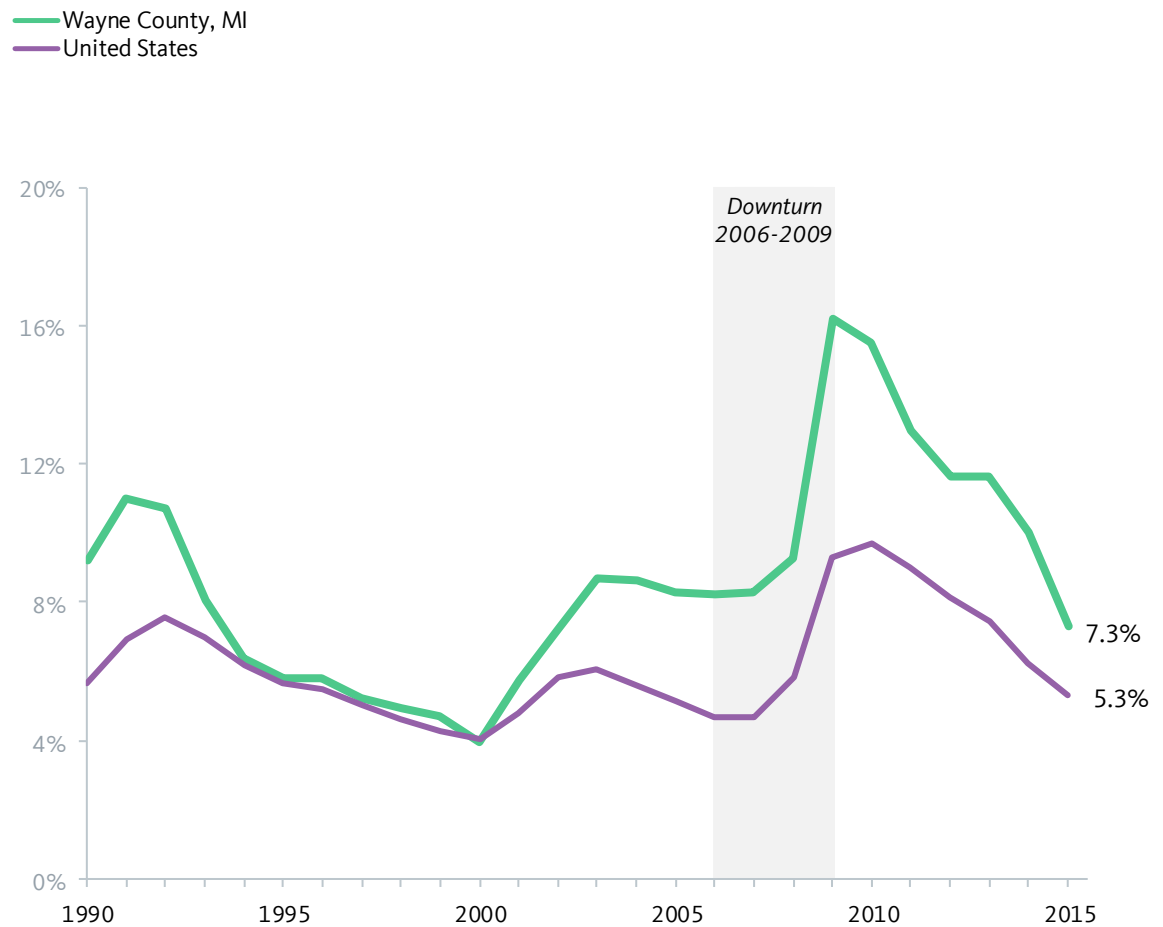
Source: U.S. Bureau of Labor Statistics. Universe includes the civilian noninstitutional population ages 16 and older.

Economic vitality
Decline in labor force participation and rise in unemployment since 1990

Although Wayne County has experienced job growth and improved unemployment overall in recent years, in the city of Detroit, rates of labor force participation are generally lower and unemployment rates are generally higher than they were in 1990.

While labor force participation has increased for Latino residents, it has fallen for Asian or Pacific Islander (API), White, and Black residents in the city. API residents experienced both the lowest participation rate (58 percent) and largest drop in participation (9 percentage points) of any racial/ethnic group in the city since 1990.

Unemployment (defined as not working and not actively seeking employment) increased between 1990 and 2014 for Black and White residents of the city. Residents identifying as mixed/other race had the highest unemployment rate in 2014 (31 percent) and the second lowest rate of labor force participation (59 percent). Nearly one in every three mixed/other residents are unemployed.

Asian or Pacific Islanders and those of mixed/other race have the lowest rates of labor force participation
Labor Force Participation Rate by Race/Ethnicity, 1990 and 2014
■ 1990
■ 2014
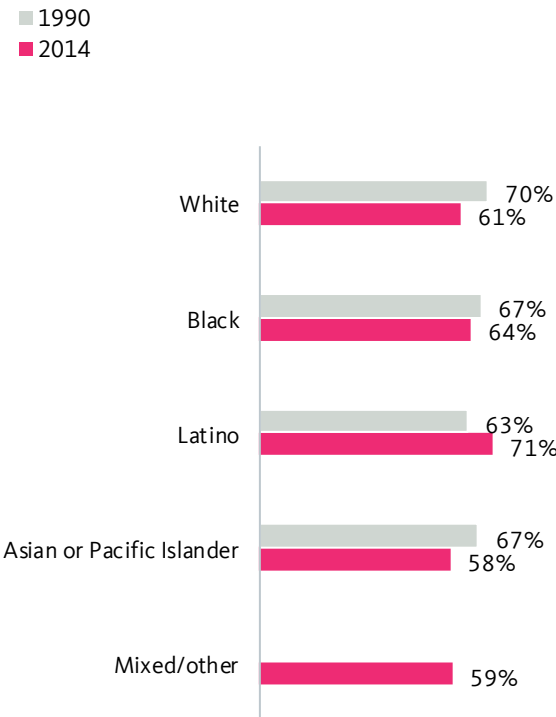
Residents who identify as mixed/other race and African Americans experience the highest rates of unemployment
Unemployment Rate by Race/Ethnicity, 1990 and 2014
■ 1990
■ 2014
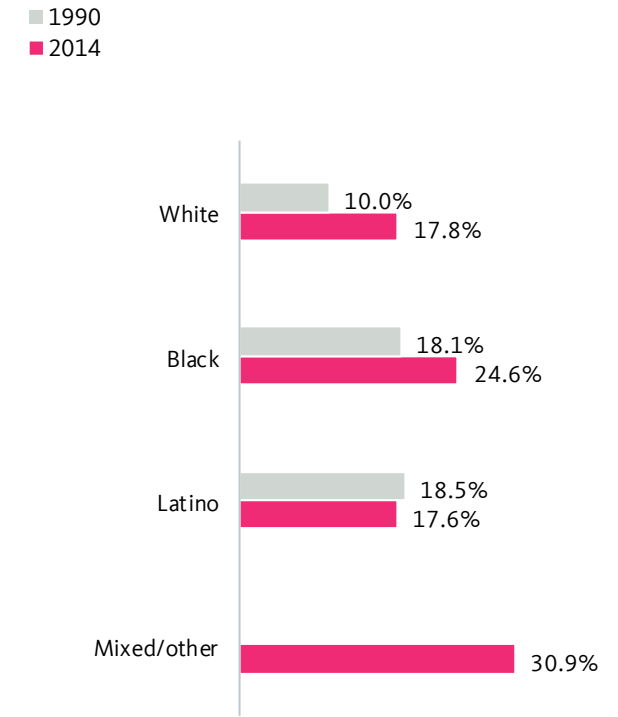
Source: Integrated Public Use Microdata Series. Universe includes the civilian noninstitutional population ages 25 through 64.
Note: Data for 2014 represent a 2010 through 2014 average.

Source: Integrated Public Use Microdata Series. Universe includes the civilian noninstitutional labor force ages 25 through 64.
Note: Data for 2014 represent a 2010 through 2014 average.

Economic vitality
Unemployment rates are higher in the city than in the suburbs outside of the city

Knowing where high-unemployment populations are located can help the city's leaders develop targeted solutions.

Unemployment varies across the city, but the majority of tracts in the city have 25 percent or more unemployment. The tracts with highest unemployment rates also tend to coincide with neighborhoods that have the highest shares of people of color (99 percent or more).

Clusters of high unemployment tend to overlap with neighborhoods in which people of color predominantly live
Unemployment Rate by Census Tract, 2014
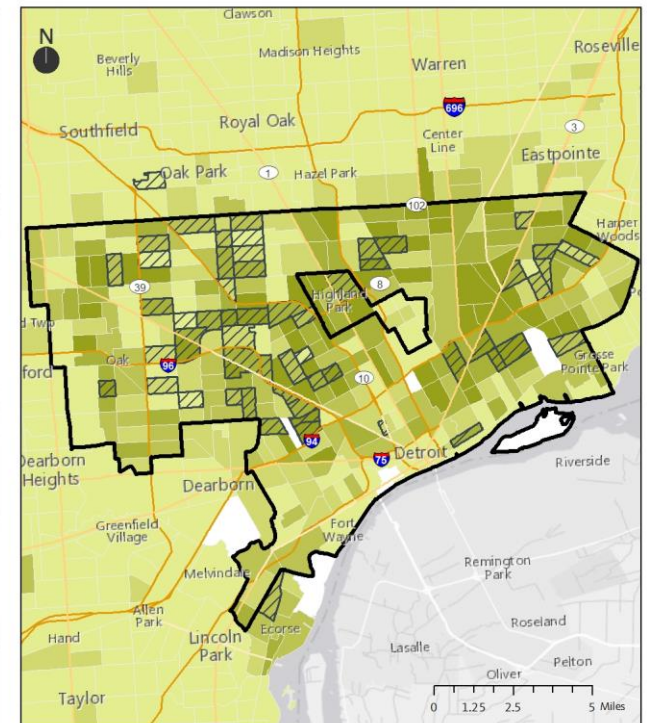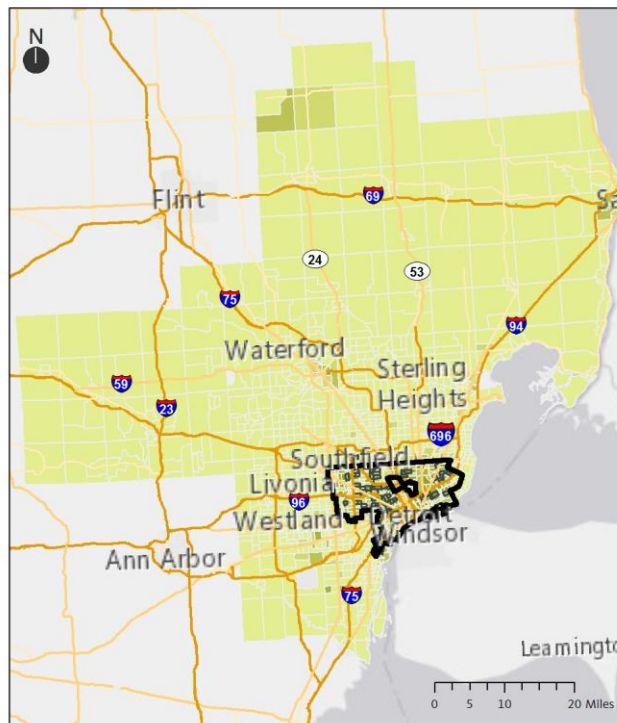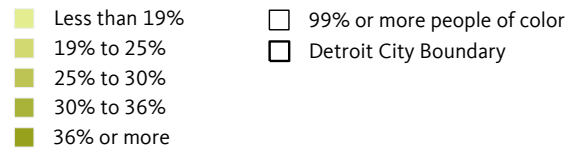
- Less than 19%
- 19% to 25%
- 25% to 30%
- 30% to 36%
- 36% or more

- 99% or more people of color
- Detroit City Boundary

Sources: U.S. Census Bureau; TomTom, ESRI, HERE, DeLorme, MaymyIndia, © OpenStreetMap contributors, and the GIS user community. Universe includes the civilian noninstitutional labor force age 16 and older. Note: Data represent a 2010 through 2014 average. Areas in white are missing data.

Economic Vitality
Increasing income inequality

Income inequality in the city has grown since 1980, increasing from .43 to .50 in 2014. Although inequality dipped very slightly between 1990 and 2000, it increased again in 2014.

Inequality here is measured by the Gini coefficient, which is the most commonly used measure of inequality. The Gini coefficient measures the extent to which the income distribution deviates from perfect equality, meaning that every household has the same income. The value of the Gini coefficient ranges from zero (perfect equality) to one (complete inequality, one household has all of the income).

Inequality in the city has been historically higher than the nation overall
Gini Coefficient, 1979 to 2014

- Detroit
- United States

Gini Coefficent measures income equality on a 0 to 1 scale.
0 (Perfectly *equal*) ------> 1 (Perfectly *unequal*)

Level of Inequality

	1979	1989	1999	2014
Detroit	0.43	0.48	0.48	0.50
United States	0.40	0.43	0.46	0.47

Source: Integrated Public Use Microdata Series. Universe includes all households (no group quarters).
Note: Data for 2014 represent a 2010 through 2014 average.

Economic vitality
Increasing income inequality
(continued)

The city ranks 32nd out of the largest 100 cities in the United States in terms of income inequality. The city, which has a Gini coefficient of .50, is more equal as compared to other Midwestern cities, including Cincinnati (.54), Chicago (.52), and Cleveland (.51) but higher than St. Paul (.48) and Milwaukee (.46).

Household income inequality relatively high in the city of Detroit
Gini Coefficient in 2014: Largest 100 Cities, Ranked

Miami City, FL: #1 (0.57)

Detroit: #32 (0.50)

Virginia Beach City, VA: #100 (0.41)

Source: Integrated Public Use Microdata Series. Universe includes all households (no group quarters).
Note: Data represent a 2010 through 2014 average.

Economic vitality
Declining wages for all workers

Declining wages play an important role in the city's increasing inequality. After adjusting for inflation, wages have declined or stagnated for all of the city's workers over the past three decades.

However, wage decline has been much more severe for the city's lowest-paid workers. In the city of Detroit, wages fell by at least 38 percent for workers at the 10th and 20th percentiles, and by 34 percent for workers at the 50th percentile. A worker at the 10th percentile earns more than 10 percent of all workers, and less than 90 percent of workers; a worker at the 50th percentile earns the median wage of all workers.

Wages have dropped or stagnated for nearly all full-time workers
Real Earned Income Growth for Full-Time Wage and Salary Workers Ages 25-64, 1979 to 2014

■ Detroit
■ United States

	10th Percentile	20th Percentile	50th Percentile	80th Percentile	90th Percentile
Detroit	-39%	-38%	-34%	-23%	-18%
United States	-11%	-10%	-7%	6%	17%

Source: Integrated Public Use Microdata Series. Universe includes civilian noninstitutional full-time wage and salary workers ages 25 through 64.
Note: Data for 2014 represents a 2010 through 2014 average.

Economic vitality
Wages have declined most severely for Latino workers

Between 2000 and 2014, wages declined for White, Black, and Latino workers in the city. However, the degree to which wages declined varied by race. While the average White worker's median hourly wage has decreased by about 8 percent in real terms ($1.60 per hour), Black workers' wages have dropped by 20 percent ($4.00 per hour). Wage disparity is most severe for Latino workers who not only earn the lowest median hourly wage of the three groups ($12.50) but have also experienced the most severe decline ($4.60 an hour or 27 percent).

Median hourly wages have declined for all workers since 2000
Median Hourly Wage by Race/Ethnicity, 2000 and 2014

■ 2000
■ 2014
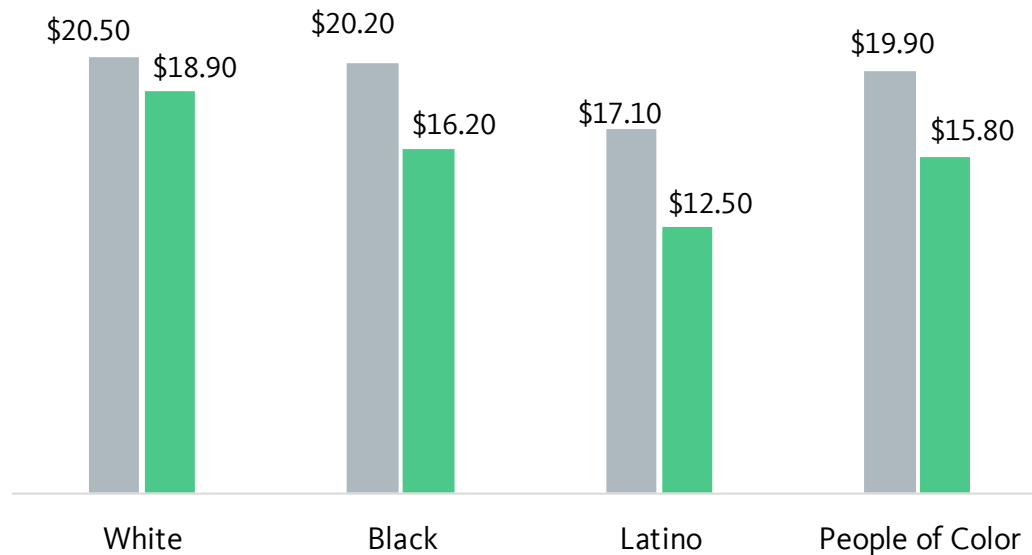
	White	Black	Latino	People of Color
2000	$20.50	$20.20	$17.10	$19.90
2014	$18.90	$16.20	$12.50	$15.80

Source: Integrated Public Use Microdata Series. Universe includes civilian noninstitutional full-time wage and salary workers ages 25 through 64.
Note: Data for 2014 represent a 2010 through 2014 average. Values are in 2014 dollars.

Economic vitality
A shifting middle class

The City of Detroit's middle class has remained relatively stable, although the share of middle-class households has fluctuated since 1979. It fell sharply over the 1980s, then rose during the 1990s, and has fallen once again since 1999.

In this analysis, middle-income households are defined as having incomes in the middle 40 percent of household income distribution. In 1979, middle household incomes ranged from $24,098 to $71,673. To assess change in the middle class and the other income ranges, we calculated what the income range would be today if incomes had increased at the same rate as average household income growth. Today's middle-class incomes would be $16,093 to $47,864, and 39 percent of households fall in that income range.

The share of upper-income households declined from 30 to 26 percent during the same period, while the share of lower-income households grew from 30 to 35 percent.

The share of middle-class households has declined slightly since 1979
Households by Income Level, 1979 and 2014
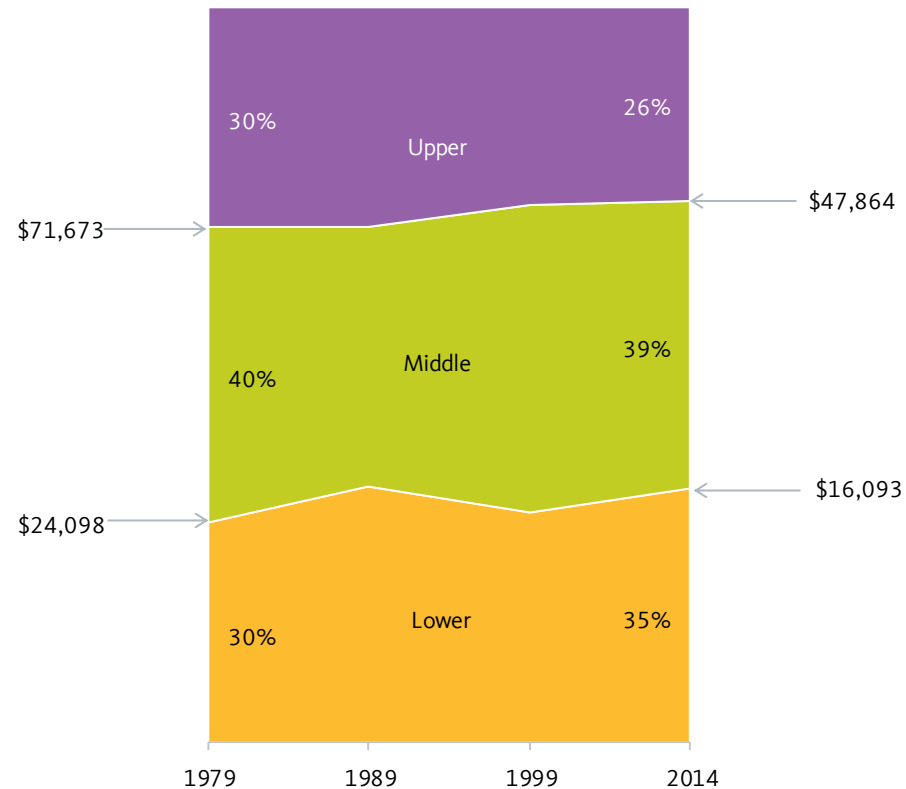
	1979	1989	1999	2014
Upper	30%			26%
Middle	40%			39%
Lower	30%			35%

$71,673 → (1979 boundary)   ← $47,864 (2014 boundary)
$24,098 → (1979 boundary)   ← $16,093 (2014 boundary)

Source: Integrated Public Use Microdata Series. Universe includes all households (no group quarters).
Note: Data for 2014 represent a 2010 through 2014 average. Dollar values are in 2014 dollars.

Economic vitality
The middle class is growing more diverse

The demographics of the middle class reflect the city's changing population. While the share of households with middle-class incomes has declined by 1 percentage point since 1979, middle-class households have become more racially and ethnically diverse as the population has become more diverse.

The middle class reflects the city's racial/ethnic composition

Racial Composition of Middle-Class Households and All Households, 1979 and 2014

- Asian, Native American or Other
- Latino
- Black
- White
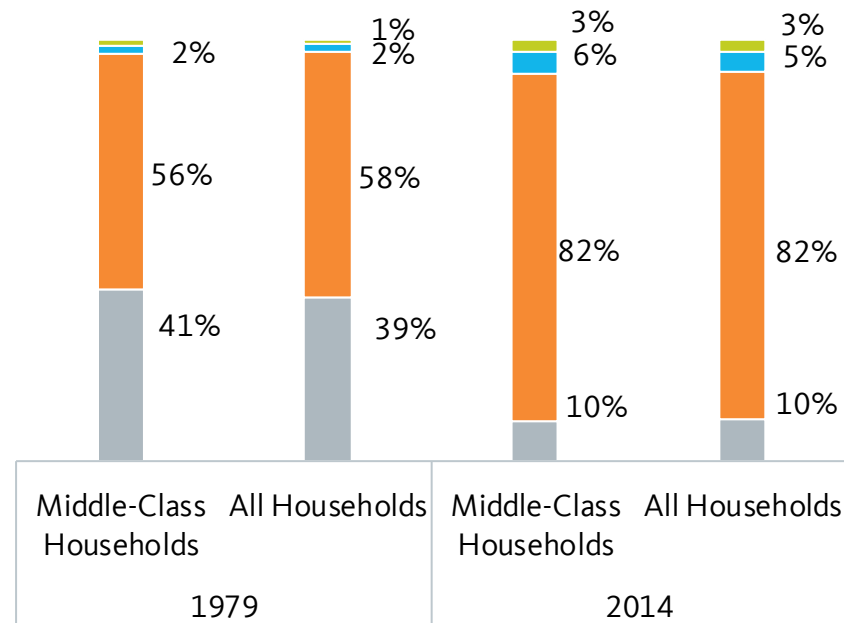
Middle-Class Households   All Households

1979

Middle-Class Households   All Households

2014

1979 Middle-Class Households: 2%, 56%, 41%
1979 All Households: 1%, 2%, 58%, 39%
2014 Middle-Class Households: 3%, 6%, 82%, 10%
2014 All Households: 3%, 5%, 82%, 10%

Source: Integrated Public Use Microdata Series. Universe includes all households (no group quarters).
Note: Data for 2014 represents a 2010 through 2014 average. Figures may not add up to total due to rounding.

Economic vitality
Growing poverty and working poverty

Detroit has the highest poverty rate among the 100 largest cities in the nation at 40 percent. The percentage of residents living in poverty in the city peaked after 2000, increasing by 14 percent (from 26 percent).

The rate of working poverty in the city, defined as working full-time with a family income below 200 percent of the poverty level (roughly $48,000 for a family of four), is also well above the national average. Fifteen percent of the city's 25-to-64-year-olds are working poor, compared with 9 percent nationally.

Poverty has risen sharply
Poverty Rate, 1980 to 2014
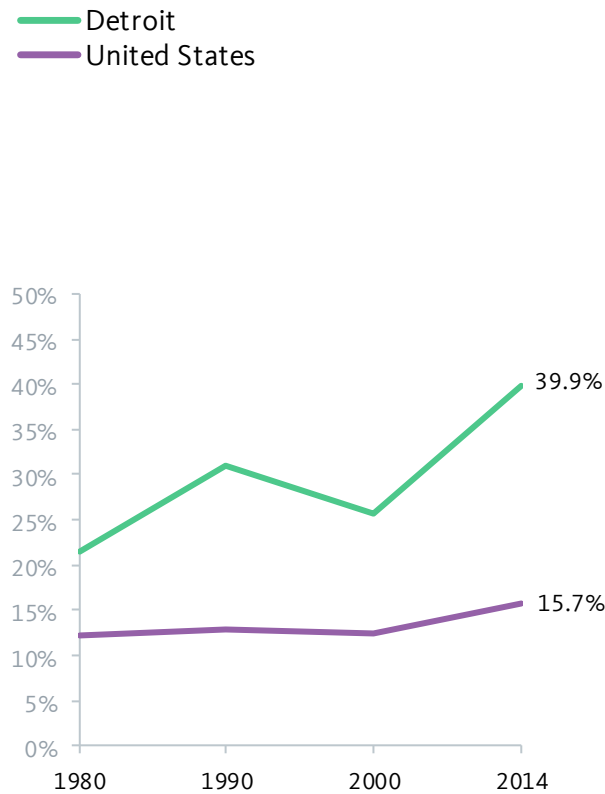
— Detroit
— United States

Working poverty is also increasing
Working Poverty Rate, 1980 to 2014
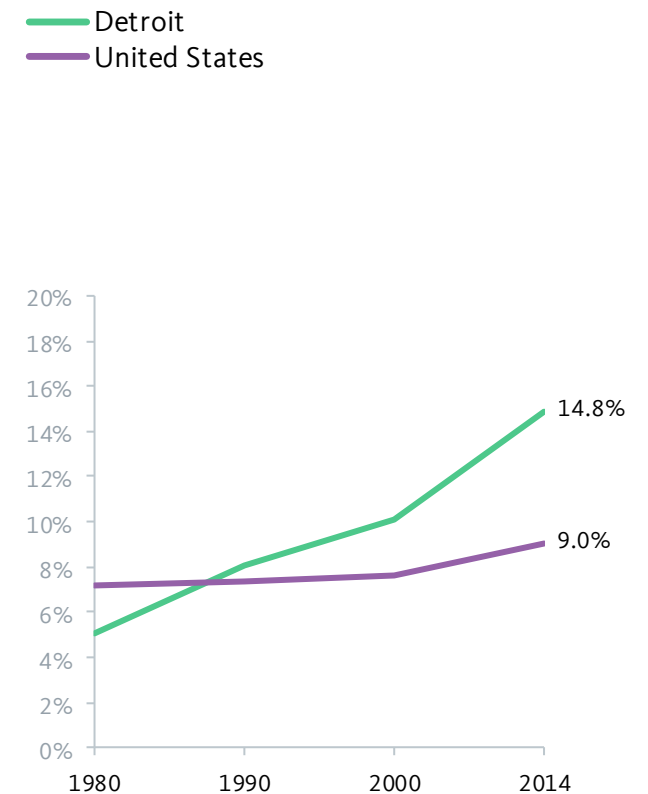
— Detroit
— United States

Source: Integrated Public Use Microdata Series. Universe includes all persons not in group quarters. Note: Data for 2014 represent a 2010 through 2014 average.

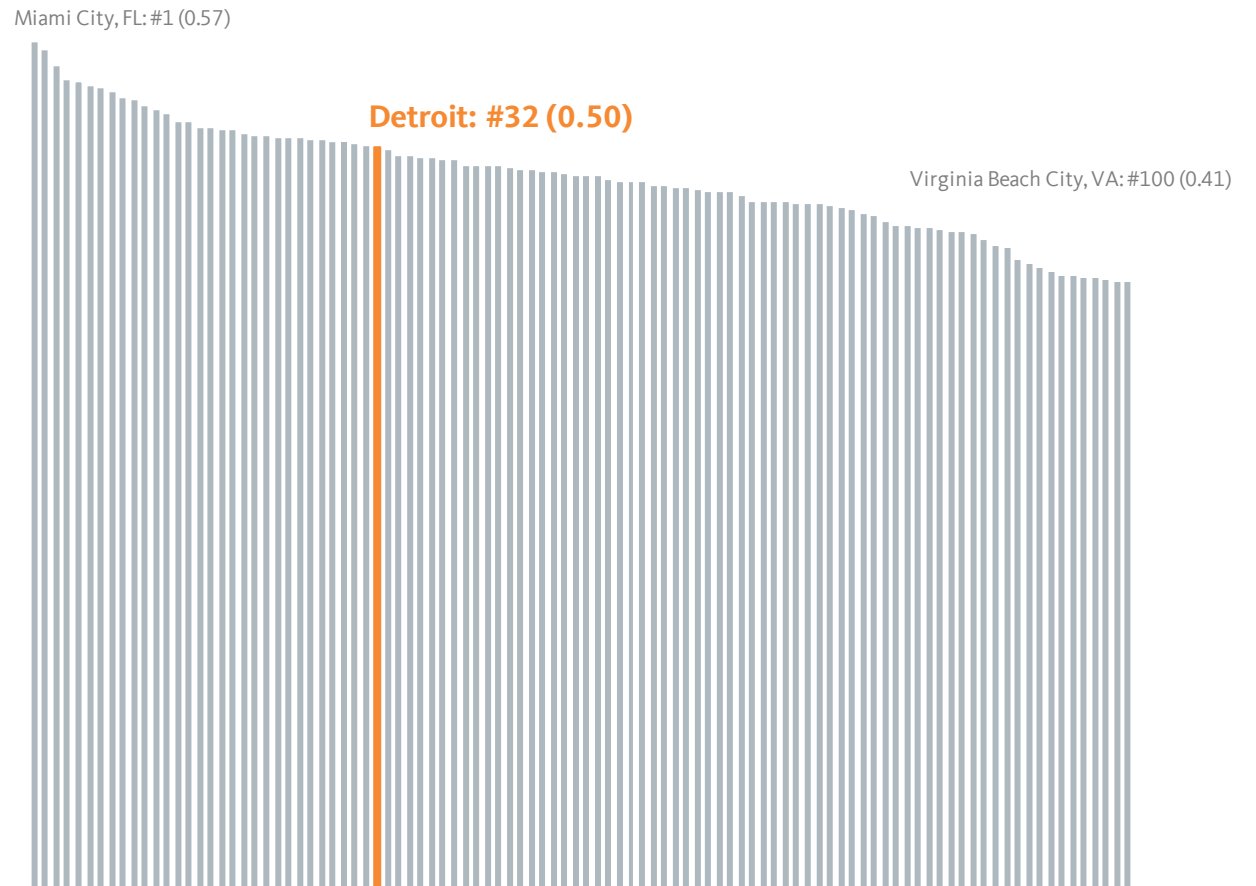Source: Integrated Public Use Microdata Series. Universe includes the civilian noninstitutional population ages 25 through 64 not in group quarters. Note: Data for 2014 represent a 2010 through 2014 average.

Economic vitality
Growing poverty and working poverty
(continued)

When compared to the 100 largest cities in the nation, Detroit has had the highest poverty rate for residents living below 100 percent, 150 percent, and 200 percent of the federal poverty level. In 2014, 40 percent of residents lived below 100 percent of poverty, 54 percent lived below 150 percent of poverty, and 64 percent of residents lived below 200 percent of poverty.

Detroit has the highest rate of economic insecurity among the largest 100 cities
Percent of the Population Below 200 Percent of Poverty: Largest 100 Cities, Ranked
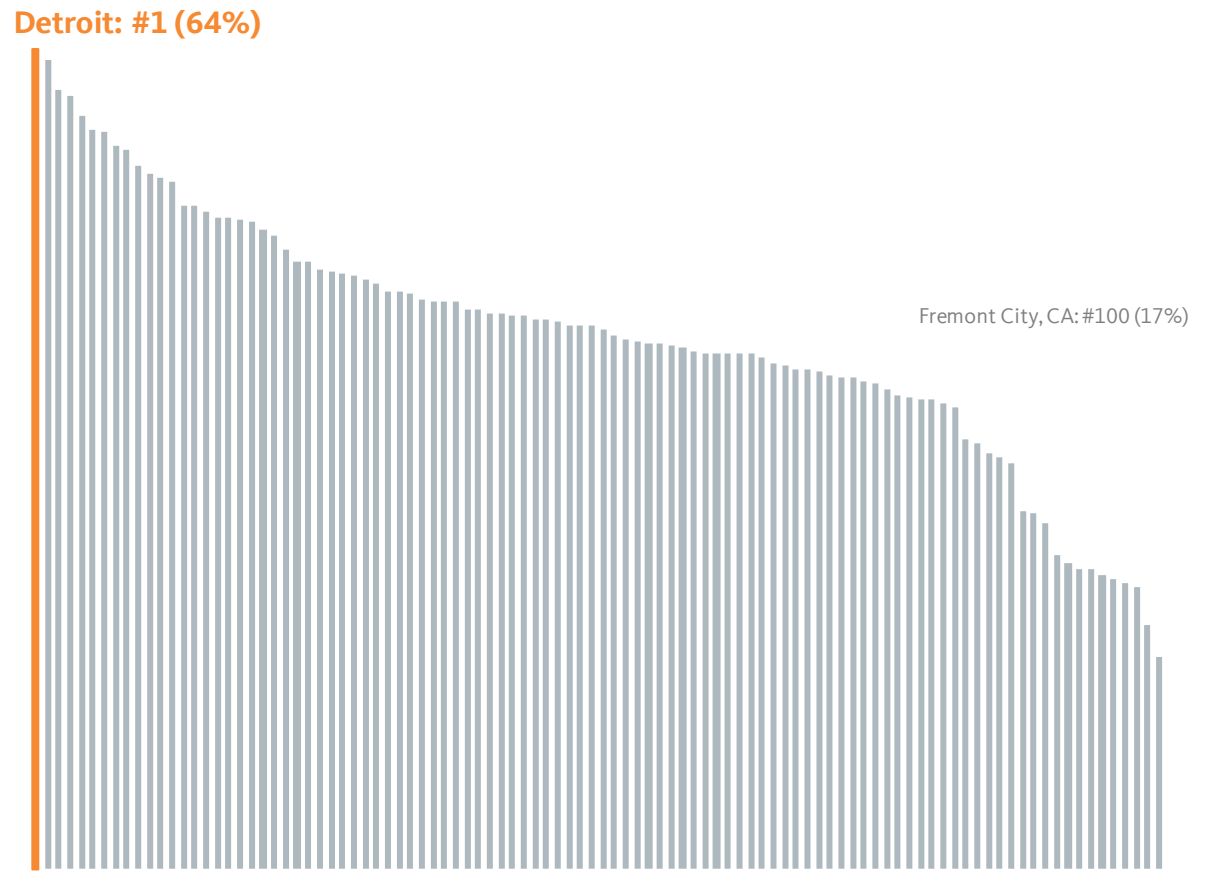
Detroit: #1 (64%)

Fremont City, CA: #100 (17%)

Source: Integrated Public Use Microdata Series. Universe includes all persons not in group quarters.
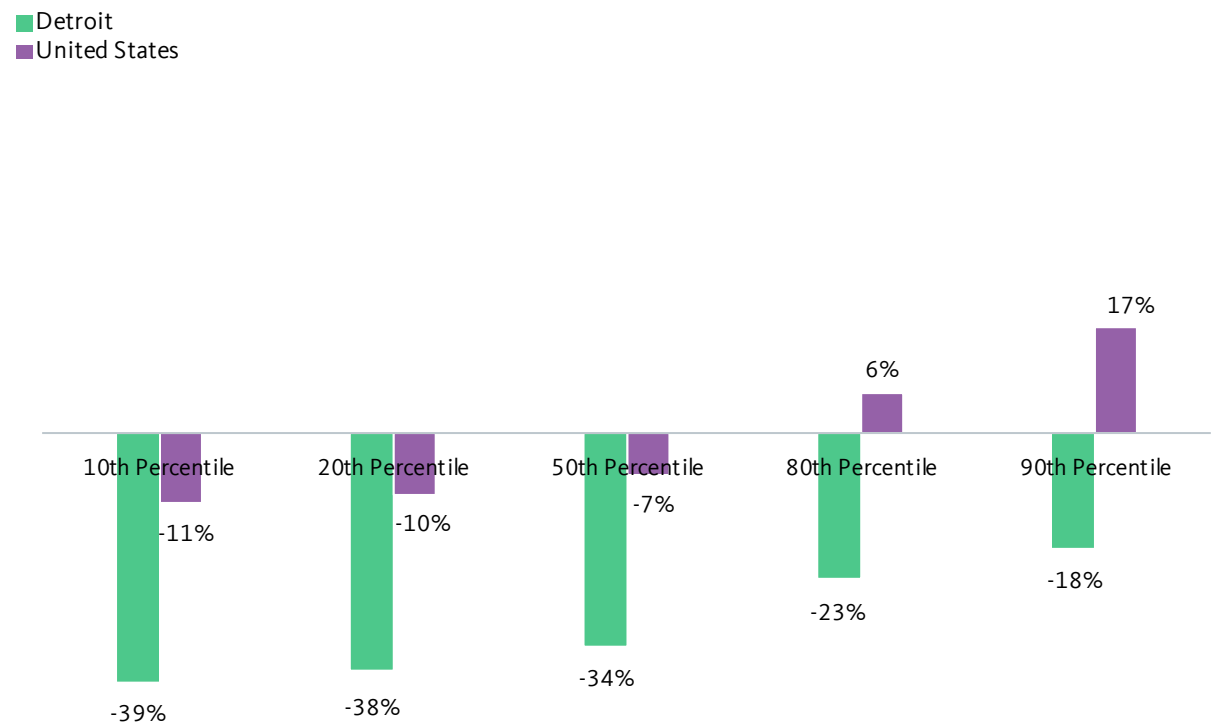Note: Data represent a 2010 through 2014 average.

Economic vitality
Rates of poverty are high for most residents; working poverty is disparately high for people of color

Poverty rates in the city of Detroit are generally high for all residents. However, there are disparities in how poverty and working poverty are experienced.

Poverty, defined here as living below the federal poverty line, is highest for Asian or Pacific Islander residents (61 percent). Forty-seven percent of residents who identify as mixed/other race are impoverished. Poverty rates are similar for Black, Latino, and White residents.

Residents who are people of color are much more likely to be poor despite working full time. Twenty-four percent of Latinos, 21 percent of Asians or Pacific Islanders, and 15 percent of African Americans live in working poverty, as compared to only 10 percent of White residents.

Poverty rate is highest for API residents
Share of the Population Below Poverty by Race/Ethnicity, 2014
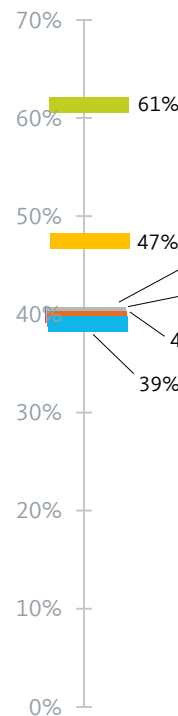
- All
- White
- Black
- Latino
- Asian or Pacific Islander
- Mixed/other

61%
47%
40%
40%
40%
39%

Source: Integrated Public Use Microdata Series. Universe includes all persons not in group quarters.
Note: Data represent a 2010 through 2014 average.

Working poverty is highest for Latino and API residents
Working Poverty Rate by Race/Ethnicity, 2014
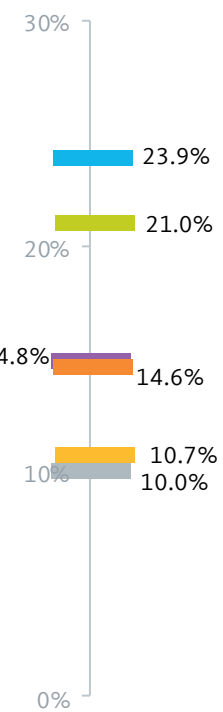
- All
- White
- Black
- Latino
- Asian or Pacific Islander
- Mixed/other

23.9%
21.0%
14.8%
14.6%
10.7%
10.0%

Source: Integrated Public Use Microdata Series. Universe includes the civilian noninstitutional population ages 25 through 64 not in group quarters.
Note: Data represent a 2010 through 2014 average.

Economic vitality
High rates of poverty among Middle Eastern/North African and Arab residents

About 40 percent of all residents considered to be non-Hispanic White live in poverty. However, even within this racial/ethnic category, there are marked disparities.

Residents whose ancestry is Middle Eastern or North African are much more likely to live in poverty than other White residents. Sixty-five percent of all White residents of Middle Eastern/North African ancestry live in poverty, and the poverty rate is 72 percent for those who identify as being specifically of Arab ancestry. Other white ancestral groups, such as those of Eastern or Western European ancestry, have much lower poverty rates.

Poverty rates are higher for Middle Eastern and North African residents than other White subgroups
Poverty Rates for Whites by Ancestry, 2014
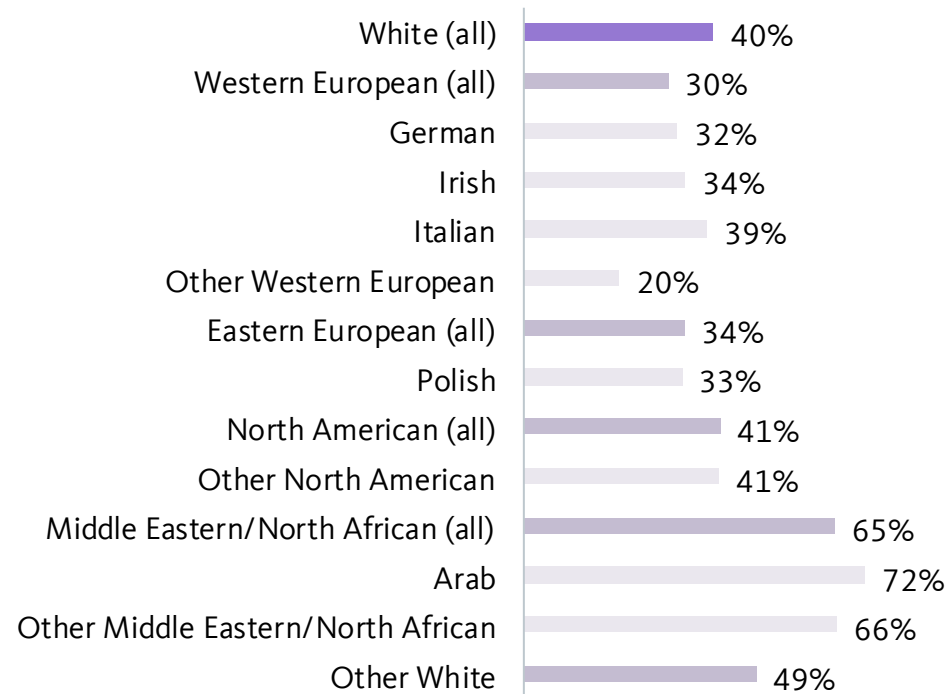
Ancestry	Poverty Rate
White (all)	40%
Western European (all)	30%
German	32%
Irish	34%
Italian	39%
Other Western European	20%
Eastern European (all)	34%
Polish	33%
North American (all)	41%
Other North American	41%
Middle Eastern/North African (all)	65%
Arab	72%
Other Middle Eastern/North African	66%
Other White	49%

Source: Integrated Public Use Microdata Series. Universe includes all persons not in group quarters.
Note: Data represent a 2010 through 2014 average.

Economic vitality
Racial economic gaps improve with educational attainment

In general, unemployment decreases as educational attainment increases for all groups. As the average Detroit resident obtains a high school diploma and then graduates from college, his or her chances of being unemployed decrease from 35 percent to 11 percent.

Among those with less than a high school diploma, African Americans face an unemployment rate of 43 percent, compared with 19 percent for Latinos and 35 percent for city residents overall. African American residents continue to experience higher rates of unemployment than their peers at every educational level, until reaching a bachelor's degree, at which point African American unemployment is the same as the overall city average.

African Americans experience the highest rates of unemployment at any level of education
Unemployment Rate by Educational Attainment and Race/Ethnicity, 2014

- All
- White
- Black
- Latino
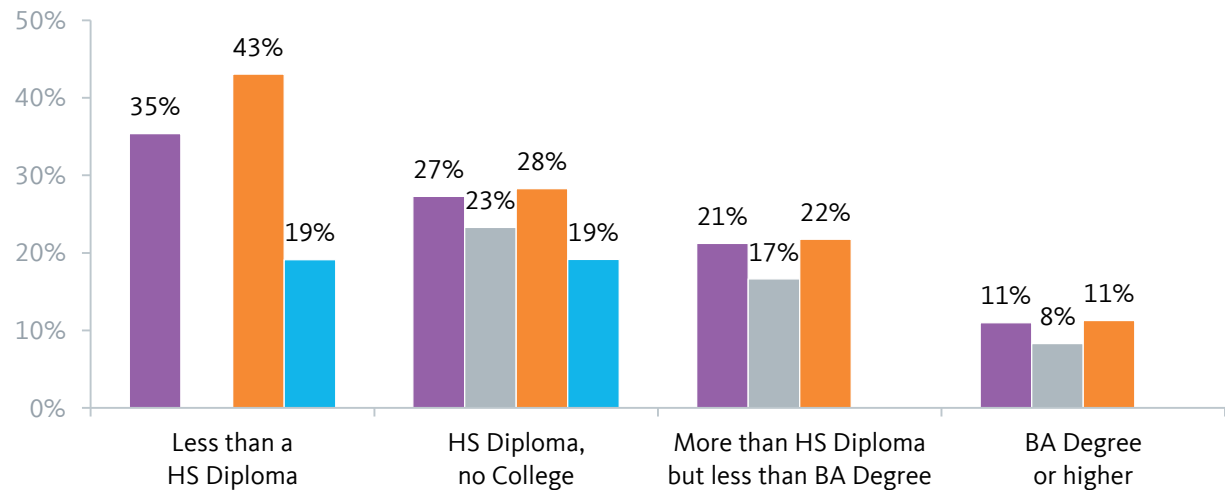
Source: Integrated Public Use Microdata Series. Universe includes the civilian noninstitutional labor force ages 25 through 64.
Note: Data represent a 2010 through 2014 average. Data for some racial/ethnic groups are excluded due to small sample size.

Economic vitality
Wage disparities exist between Black and White residents

There are noticeable wage disparities between Black and White residents, even when educational levels are the same. This is most visible for those workers who hold a bachelor's degree or higher. Black workers make, on average, $3.20/hour less than their White counterparts.

There is a clear financial benefit in obtaining at least a bachelor's degree in Detroit. Compared with those with only a high school diploma, workers only earn $2-3/hour more by obtaining some college (including associate's degree) but about $10/hour more with a bachelor's degree or higher.

Black residents earn lower wages than Whites at every education level
Median Hourly Wage by Educational Attainment and Race/Ethnicity, 2014
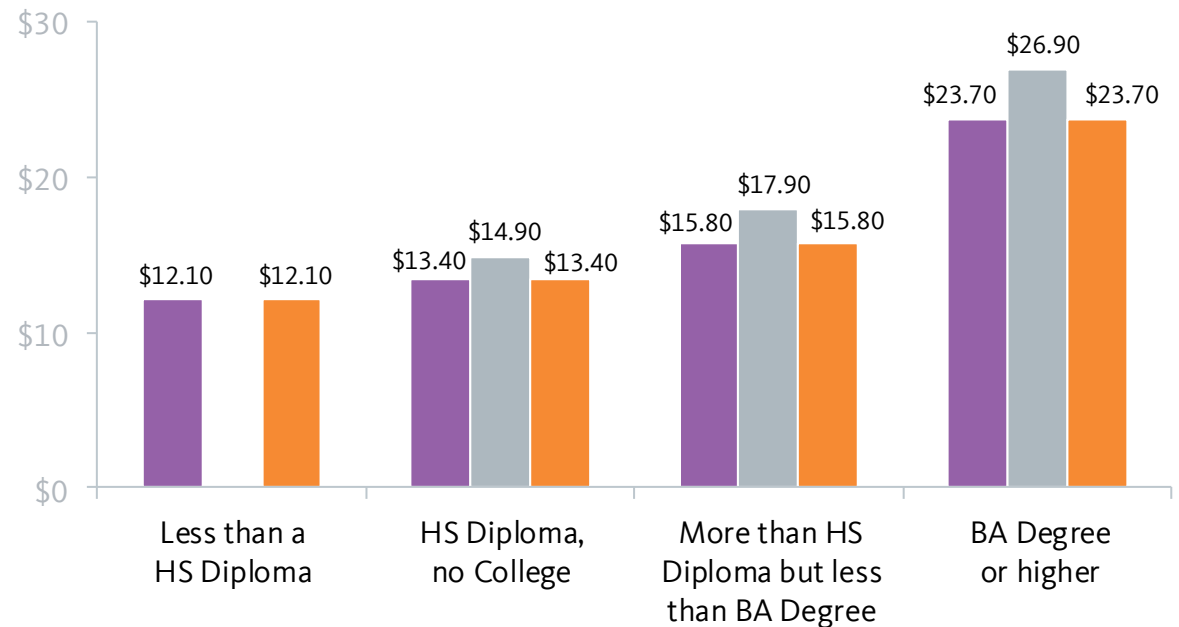
Legend:
- All
- White
- Black

Chart data:

Education Level	All	White	Black
Less than a HS Diploma	$12.10		$12.10
HS Diploma, no College	$13.40	$14.90	$13.40
More than HS Diploma but less than BA Degree	$15.80	$17.90	$15.80
BA Degree or higher	$23.70	$26.90	$23.70

Source: Integrated Public Use Microdata Series. Universe includes civilian noninstitutional full-time wage and salary workers ages 25 through 64.
Note: Data represent a 2010 through 2014 average. Data for some racial/ethnic groups are excluded due to small sample size. Values are in 2014 dollars.

Economic vitality
Men and women face different challenges regarding work and pay

On average, men in Detroit face higher rates of unemployment than their female counterparts, regardless of educational attainment. At every education level, men experience an unemployment rate that is at least 3 percentage points higher than women. Unemployment decreases substantially for both genders as educational attainment increases.

However, women consistently earn less than their male counterparts. Across education levels, women earn about $2/hour less than their male counterparts.

While men are unemployed at higher rates, women earn less than their male counterparts at every education level

Unemployment Rate by Educational Attainment and Gender, 2014

■ Female
■ Male

Education Level	Female	Male
BA Degree or higher	10%	13%
More than HS Diploma, Less than BA	19%	24%
HS Diploma, no College	25%	29%
Less than a HS Diploma	34%	37%

Median Hourly Wage by Educational Attainment and Gender, 2014

■ Female
■ Male

Education Level	Female	Male
BA Degree or higher	$23.00	$24.90
More than HS Diploma, Less than BA	$15.10	$17.00
HS Diploma, no College	$12.40	$14.40
Less than a HS Diploma	$10.70	$13.80

Source: Integrated Public Use Microdata Series. Universe includes the civilian noninstitutional labor force ages 25 through 64. Note: Data represent a 2010 through 2014 average.

Source: Integrated Public Use Microdata Series. Universe includes civilian noninstitutional full-time wage and salary workers ages 25 through 64. Note: Data represent a 2010 through 2014 average. Values are in 2014 dollars.

Economic vitality
Disparate earnings growth across wage levels

Between 1990 and 2015, Wayne County experienced job losses in industries across the wage spectrum, but losses were most severe in high-wage industries, where the number of jobs fell by 34 percent.

Despite this, average earnings per worker increased across all industries by wage level. The largest earnings growth was seen in high- and middle-wage industries, at 18 and 21 percent, respectively, while earnings in low-wage industries grew by 9 percent.

This pattern of earnings growth across industry wage levels since 1990 appears to be inconsistent with the data showing a decline in earnings for full-time workers since 1979 that is reported on page 38. However, it is important to note that, aside from the time period differing, the graph shown here is for jobs located in Wayne County while the graph on page 38 is for workers living in the city of Detroit. This, along with the fact that employee-provided benefits are included in the earning data shown here, explain the differing trends.

Low- and middle-wage jobs have grown in the city, while high-wage jobs have decreased significantly
Growth in Jobs and Earnings by Industry Wage Level, 1990 to 2015

- Low wage
- Middle wage
- High wage
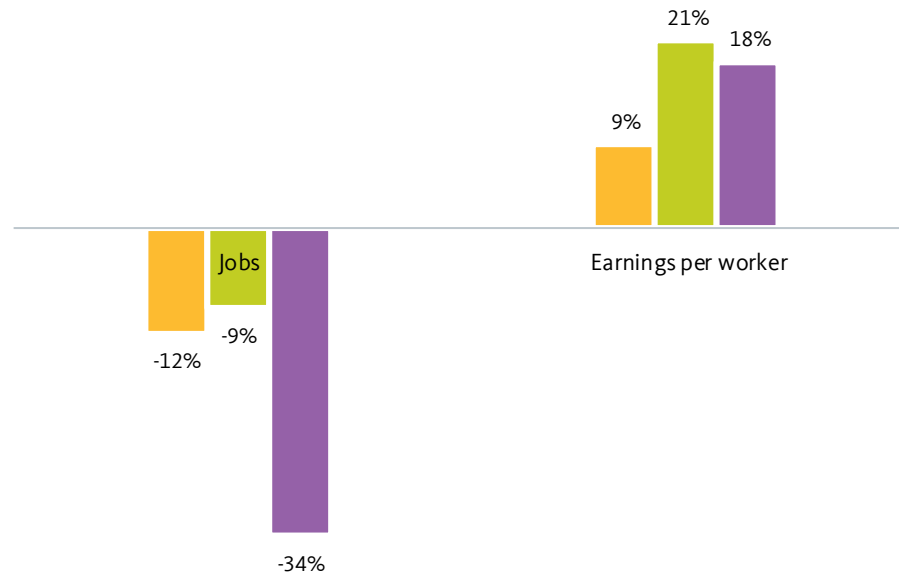
Sources: U.S. Bureau of Labor Statistics; Woods & Poole Economics, Inc. Universe includes all private sector jobs covered by the federal Unemployment Insurance (UI) program. Note: Data is for Wayne County, MI.

Economic vitality
Uneven wage growth across industry sectors

Wage growth in Wayne County has been uneven across industry sectors, though most industries have seen significant earnings increases since 1990.

Among low-wage industries, earnings growth has ranged from -1 percent (in retail trade) to 33 percent (in accommodation and food services). Among middle-wage jobs, highest earnings growth is found in art, entertainment, and recreation (76 percent), followed by finance and insurance (57 percent). The highest increases for high-wage jobs have been in utilities (49 percent), mining (42 percent) and management of companies and enterprises (29 percent).

The largest industries in terms of employment in 2015 were health care, manufacturing, retail trade, accommodation and food services, and professional services. Among these industries, health care and accommodation and food services have seen the most employment growth since 1990.

Moderate wage growth for workers in many of Wayne County's largest industries
Industries by Wage Level Category in 1990 and 2015

Wage Category	Industry	Average Annual Earnings 1990	Average Annual Earnings 2015	Percent Change in Earnings 1990-2015	Share of Jobs 2015
High	Management of Companies and Enterprises	$105,052	$135,929	29%	
	Professional, Scientific, and Technical Services	$80,566	$93,327	16%	
	Utilities	$77,893	$116,211	49%	28%
	Manufacturing	$71,165	$76,398	7%	
	Mining	$63,074	$89,850	42%	
	Information	$62,276	$66,860	7%	
Middle	Wholesale Trade	$61,043	$75,610	24%	
	Construction	$57,980	$64,091	11%	
	Transportation and Warehousing	$57,542	$60,439	5%	
	Finance and Insurance	$53,362	$84,000	57%	38%
	Health Care and Social Assistance	$42,692	$51,507	21%	
	Arts, Entertainment, and Recreation	$37,108	$65,301	76%	
	Real Estate and Rental and Leasing	$34,706	$45,684	32%	
Low	Other Services (except Public Administration)	$32,911	$33,034	0%	
	Education Services	$32,423	$39,555	22%	
	Administrative and Support and Waste Management	$31,169	$39,109	25%	33%
	Retail Trade	$29,384	$28,964	-1%	
	Agriculture, Forestry, Fishing and Hunting	$26,953	$28,859	7%	
	Accommodation and Food Services	$15,253	$20,325	33%	

Sources: U.S. Bureau of Labor Statistics; Woods & Poole Economics, Inc. Universe includes all private sector jobs covered by the federal Unemployment Insurance (UI) program. Note: Data is for Wayne County, MI.

Economic vitality
Which industries are projected to grow?

Looking forward, the broader Detroit region is projected to add nearly 172,000 jobs from 2012 to 2022. The construction industry and the professional, scientific, and technical services industry are projected to grow the most of any regional industry – by 22 and 21 percent, respectively. The health care and social assistance industry as well as the administrative support/waste management/remediation industry will also see increases of at least 18 percent.

The overall number of jobs in the Detroit region is expected to grow by nearly 10 percent
Industry Employment Projections, 2012 to 2022

Industry	2012 Estimated Employment	2022 Projected Employment	Total 2012 to 2022 Employment Change	Annual Avg. Percent Change	Total Percent Change
Total Self-Employed and Unpaid Family Workers, Non-Agriculture	66,280	72,850	6,570	0.9%	10%
Agriculture, Forestry, Fishing and Hunting	2,250	2,260	10	0.0%	0%
Mining	640	690	50	0.8%	8%
Construction	50,220	61,030	10,810	2.0%	22%
Non-Durable Goods Manufacturing	30,340	32,240	1,900	0.6%	6%
Durable Goods Manufacturing	168,700	186,410	17,710	1.0%	10%
Utilities	4,920	5,010	90	0.2%	2%
Wholesale Trade	80,030	85,010	4,980	0.6%	6%
Retail Trade	181,700	188,000	6,300	0.3%	3%
Transportation and Warehousing	50,130	56,600	6,470	1.2%	13%
Information	25,540	25,600	60	0.0%	0%
Finance and Insurance	68,120	72,250	4,130	0.6%	6%
Real Estate and Rental and Leasing	25,780	27,490	1,710	0.6%	7%
Professional, Scientific, and Technical Services	163,990	198,540	34,550	1.9%	21%
Management of Companies and Enterprises	38,490	41,850	3,360	0.8%	9%
Administrative and Support and Waste Management and Remediation Services	129,700	154,380	24,680	1.8%	19%
Educational Services	113,070	104,970	-8,100	-0.7%	-7%
Health Care and Social Assistance	253,230	299,650	46,420	1.7%	18%
Arts, Entertainment, and Recreation	20,170	22,280	2,110	1.0%	10%
Accommodation and Food Services	143,010	156,170	13,160	0.9%	9%
Other Services (Except Government)	71,620	74,290	2,670	0.4%	4%
Government	87,370	79,420	-7,950	-0.9%	-9%
Total, All Industries	**1,775,280**	**1,946,980**	**171,700**	**0.9%**	**10%**

Source: Michigan Department of Technology, Management and Budget, Bureau of Labor Market Information and Strategic Initiatives.
Note: Data is for the Detroit Metro Prosperity Region, including Wayne, Oakland, and Macomb counties. Figures may not sum to total due to rounding.

Economic vitality
Which occupations are projected to grow?

In addition to understanding projected industry growth, it's important to look at projections for individual occupations, which may span several industries.

Nearly 18 percent of new employment opportunities will be in healthcare-related occupations; another 11 percent will be in production and 8 percent will be in food preparation and serving.

Business and financial occupations and computer and mathematic operations are also expected to add between over 12,000 jobs each.

Production occupations are projected to add the most jobs
Occupational Employment Projections, 2012 to 2022

Occupation	2012 Estimated Employment	2022 Projected Employment	Total 2012 to 2022 Employment Change	Annual Avg. Percent Change	Total Percent Change
Management Occupations	99,850	109,930	10,080	1.0%	10.1%
Business and Financial Operations Occupations	98,855	110,900	12,045	1.2%	12.2%
Computer and Mathematical Occupations	59,085	71,845	12,760	2.0%	21.6%
Architecture and Engineering Occupations	74,185	84,665	10,480	1.3%	14.1%
Life, Physical, and Social Science Occupations	6,935	7,675	740	1.0%	10.7%
Community and Social Service Occupations	24,480	27,175	2,695	1.0%	11.0%
Legal Occupations	14,960	16,410	1,450	0.9%	9.7%
Education, Training, and Library Occupations	81,430	79,425	-2,005	-0.2%	-2.5%
Arts, Design, Entertainment, Sports, and Media Occupations	24,670	26,615	1,945	0.8%	7.9%
Healthcare Practitioners and Technical Occupations	114,755	130,710	15,955	1.3%	13.9%
Healthcare Support Occupations	62,275	76,460	14,185	2.1%	22.8%
Protective Service Occupations	35,385	36,215	830	0.2%	2.3%
Food Preparation and Serving Related Occupations	143,120	156,155	13,035	0.9%	9.1%
Building and Grounds Cleaning and Maintenance Occupations	59,020	64,980	5,960	1.0%	10.1%
Personal Care and Service Occupations	52,540	59,125	6,585	1.2%	12.5%
Sales and Related Occupations	185,310	195,885	10,575	0.6%	5.7%
Office and Administrative Support Occupations	264,780	275,145	10,365	0.4%	3.9%
Farming, Fishing, and Forestry Occupations	2,380	2,435	55	0.2%	2.3%
Construction and Extraction Occupations	50,205	58,585	8,380	1.6%	16.7%
Installation, Maintenance, and Repair Occupations	62,895	69,535	6,640	1.0%	10.6%
Production Occupations	153,610	171,750	18,140	1.1%	11.8%
Transportation and Material Moving Occupations	104,565	115,360	10,795	1.0%	10.3%
Total, All Occupations	**1,775,285**	**1,946,980**	**171,695**	**0.9%**	**9.7%**

Source: Michigan Department of Technology, Management and Budget, Bureau of Labor Market Information and Strategic Initiatives.
Note: Data is for the Detroit Metro Prosperity Region, including Wayne, Oakland, and Macomb counties. Figures may not sum to total due to rounding.

Economic vitality
Identifying the region's strong industries

Understanding which industries are strong and competitive in the region is critical for developing effective strategies to attract and grow businesses. To identify strong industries in the region, 19 industry sectors were categorized according to an **"industry strength index"** that measures four characteristics: size, concentration, job quality, and growth. Each characteristic was given an equal weight (25 percent each) in determining the index value. "Growth" was an average of three indicators of growth (change in the number of jobs, percent change in the number of jobs, and real wage growth). These characteristics were examined over the last decade to provide a current picture of how the region's economy is changing.

Given that the regional economy has experienced widespread employment decline in almost all industries, it is important to note that this index is only meant to provide general guidance on the strength of various industries. Its interpretation should be informed by examining all four metrics of size, concentration, job quality, and growth.

Industry strength index =

Size (2015)	+	**Concentration** (2015)	+	**Job quality** (2015)	+	**Growth** (2005-2015)

Total Employment
The total number of jobs in a particular industry.

Location Quotient
A measure of employment concentration calculated by dividing the share of employment for a particular industry in the region by its share nationwide. A score >1 indicates higher-than-average concentration.

Average Annual Wage
The estimated total annual wages of an industry divided by its estimated total employment.

Change in the number of jobs

Percent change in the number of jobs

Real wage growth

Note: This industry strength index is only meant to provide general guidance on the strength of various industries in the region, and its interpretation should be informed by an examination of individual metrics used in its calculation, which are presented in the table on the next page. Each indicator was normalized as a cross-industry z-score before taking a weighted average to derive the index.

Economic vitality

Management, Health Care, and Professional services dominate

According to the industry strength index, the strongest industries in Wayne County are management of companies and enterprises, health care and social assistance, and professional, scientific, and technical services. Management ranks first due to a high level of concentration in the county, high wages, and moderate wage growth. Health care

ranks highly due to a large employment base, and moderate employment concentration and growth since 2005. Despite declines in employment and wages, manufacturing ranks fourth on the index because it still has a large employment base and relatively high wages and employment concentration in the county.

The professional, scientific, and technical services industry is strong and significantly concentrated in the region

Industry Strength Index

Industry	Size Total employment	Concentration Location Quotient	Job Quality Average annual wage	Growth Change in employment	% Change in employment	Real wage growth	Industry Strength Index
	(2015)	(2015)	(2015)	(2005 to 2015)	(2005 to 2015)	(2005 to 2015)	
Management of Companies and Enterprises	20,778	1.9	$135,929	-3,761	-15%	14%	109.3
Health Care and Social Assistance	115,263	1.3	$51,507	12,167	12%	6%	103.0
Professional, Scientific, and Technical Services	54,857	1.3	$93,327	732	1%	4%	73.5
Manufacturing	88,566	1.4	$76,398	-14,331	-14%	-6%	67.0
Utilities	3,310	1.2	$116,211	-712	-18%	30%	48.3
Transportation and Warehousing	36,192	1.6	$60,439	-2,263	-6%	-2%	38.2
Accommodation and Food Services	64,165	1.0	$20,325	3,313	5%	20%	15.5
Wholesale Trade	26,993	0.9	$75,610	-3,211	-11%	8%	7.4
Finance and Insurance	23,516	0.8	$84,000	-4,205	-15%	17%	6.7
Retail Trade	67,257	0.9	$28,964	-7,156	-10%	-3%	-12.4
Arts, Entertainment, and Recreation	9,713	0.9	$65,301	-7,429	-43%	54%	-15.8
Administrative and Support and Waste Management and Remediation Services	40,748	0.9	$39,109	-9,243	-18%	-10%	-31.6
Mining	579	0.2	$89,850	-84	-13%	31%	-32.7
Other Services (except Public Administration)	21,502	1.0	$33,034	-3,053	-12%	-5%	-35.4
Construction	18,958	0.6	$64,091	-5,098	-21%	3%	-37.9
Education Services	11,750	0.9	$39,555	-28	0%	-15%	-40.4
Real Estate and Rental and Leasing	6,899	0.7	$45,684	-1,850	-21%	20%	-47.5
Information	6,731	0.5	$66,860	-8,360	-55%	-15%	-82.0
Agriculture, Forestry, Fishing and Hunting	379	0.1	$28,859	-68	-15%	10%	-101.5

Sources: U.S. Bureau of Labor Statistics; Woods & Poole Economic, Inc. Universe includes all private sector jobs covered by the federal Unemployment Insurance (UI) program.
Note: Data is for Wayne County, MI. Dollar values are in 2015 dollars.

Economic vitality
Identifying high-opportunity occupations

Understanding which occupations are strong and competitive in the region can help leaders develop strategies to connect and prepare workers for good jobs. To identify "high-opportunity" occupations in the region, we developed an **"occupation opportunity index"** based on measures of job quality and growth, including median annual wage, real wage growth, job growth (in number and share), and median age of workers. A high median age of workers indicates that there will be replacement job openings as older workers retire.

Job quality, measured by the median annual wage, accounted for two-thirds of the occupation opportunity index, and growth accounted for the other one third. Within the growth category, half was determined by wage growth and the other half was divided equally between the change in number of jobs, percent change in jobs, and median age of workers.

Occupation opportunity index =

Job quality   +   **Growth**

Median annual wage

Real wage growth

Change in the number of jobs

Percent change in the number of jobs

Median age of workers
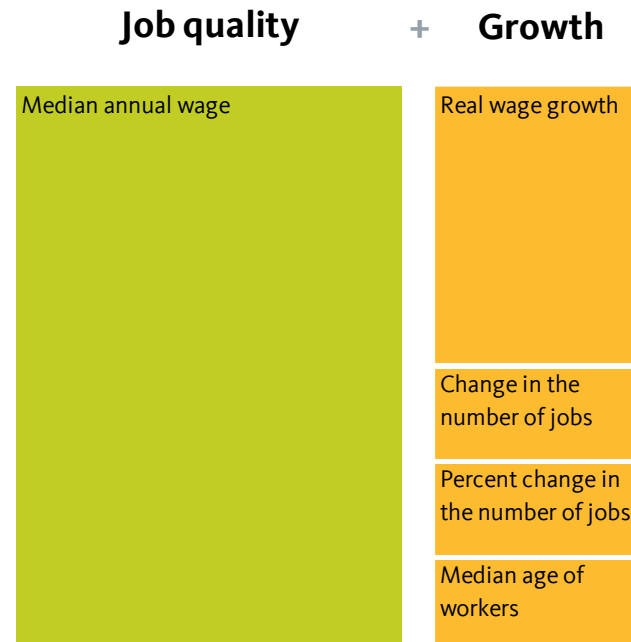
Note: Each indicator was normalized as a cross-occupation z-score before taking a weighted average to derive the index.

Economic vitality
Management positions rank highly in opportunity

According to the occupation opportunity index, the most competitive occupations are top executives, and management positions in advertising, marketing, promotions, public relations, and sales. Supervisors of protective service workers, and assemblers and fabricators saw the largest increases in real wage growth while

business operations specialists saw the greatest absolute increase in employment.

Top executives and advertising, marketing, promotions, public relations and sales managers rank highest on the occupation opportunity index
Occupation Opportunity Index

Occupation	Employment	Job Quality Median Annual Wage	Real Wage Growth	Growth Change in Employment	% Change in Employment	Median Age	Occupation Opportunity Index
	(2011)	(2011)	(2011)	(2005-11)	(2005-11)	(2010)	
Top Executives	26,490	$112,621	-7%	-1,390	-5%	47	1.87
Advertising, Marketing, Promotions, Public Relations, and Sales Managers	7,730	$106,235	2%	-880	-10%	43	1.76
Operations Specialties Managers	20,060	$100,956	-1%	-2,810	-12%	44	1.57
Lawyers, Judges, and Related Workers	9,230	$91,291	-14%	-220	-2%	48	1.20
Health Diagnosing and Treating Practitioners	72,890	$84,501	-3%	7,850	12%	44	1.20
Other Management Occupations	27,470	$84,149	-7%	5,930	28%	45	1.14
Business Operations Specialists	54,530	$67,383	6%	30,950	131%	44	1.12
Supervisors of Protective Service Workers	2,920	$65,559	24%	1,390	91%	45	1.05
Engineers	29,130	$82,048	0%	-5,570	-16%	42	1.01
Postsecondary Teachers	4,900	$66,300	15%	1,030	27%	47	0.91
Computer Occupations	47,590	$68,012	1%	15,050	46%	40	0.84
Physical Scientists	1,730	$66,434	-4%	220	15%	41	0.60
Sales Representatives, Wholesale and Manufacturing	33,170	$61,853	-1%	2,980	10%	45	0.56
Supervisors of Construction and Extraction Workers	4,040	$67,890	-10%	-2,770	-41%	45	0.52
Supervisors of Production Workers	9,220	$63,050	-7%	-3,800	-29%	45	0.43
Supervisors of Installation, Maintenance, and Repair Workers	4,550	$62,670	-15%	-2,360	-34%	48	0.35
Financial Specialists	33,360	$58,169	-8%	200	1%	43	0.32
Legal Support Workers	3,980	$50,756	8%	300	8%	42	0.32
Fire Fighting and Prevention Workers	2,810	$53,058	7%	-1,270	-31%	40	0.31
Law Enforcement Workers	9,190	$57,272	-2%	-2,250	-20%	39	0.30
Preschool, Primary, Secondary, and Special Education School Teachers	37,560	$58,251	-10%	-40	0%	42	0.28
Art and Design Workers	8,570	$56,912	-6%	-3,000	-26%	42	0.25
Electrical and Electronic Equipment Mechanics, Installers, and Repairers	5,220	$48,695	3%	1,160	29%	43	0.23
Assemblers and Fabricators	38,490	$37,107	16%	16,550	75%	41	0.22
Drafters, Engineering Technicians, and Mapping Technicians	16,760	$51,297	-5%	1,600	11%	43	0.19
Social Scientists and Related Workers	1,900	$56,748	-20%	90	5%	45	0.15
Plant and System Operators	2,670	$47,679	-17%	1,540	136%	49	0.11
Media and Communication Workers	5,490	$50,906	-8%	-2,260	-29%	44	0.08
Supervisors of Office and Administrative Support Workers	13,170	$49,770	-6%	-3,980	-23%	45	0.08
Supervisors of Transportation and Material Moving Workers	3,860	$50,109	-14%	-1,580	-29%	44	-0.01

High-Opportunity

Source: U.S. Bureau of Labor Statistics; Integrated Public Use Microdata Series. Universe includes all nonfarm wage and salary jobs.
Note: Analysis reflects the Detroit-Warren-Livonia, MI Metropolitan Statistical Area as defined by the U.S. Office of Management and Budget. Dollar values are in 2011 dollars.

Economic vitality
Identifying high-opportunity occupations

Once the occupation opportunity index score was calculated for each occupation, occupations were sorted into three categories (high-, middle-, and low-opportunity). The average index score is zero, so an occupation with a positive value has an above average score while a negative value represents a below average score.

Because education level plays such a large role in determining access to jobs, we present the occupational analysis for each of three educational attainment levels: workers with a high school diploma or less, workers with more than a high school diploma but less than a BA, and workers with a BA or higher.

Given that the regional economy has experienced widespread employment decline across many occupation groups, it is important to note that this index is only meant to provide general guidance on the strength of various occupations. Its interpretation should be informed by examining all metrics of job quality and growth.

All jobs

(2011)

High-opportunity
(30 occupations)

Middle-opportunity
(27 occupations)

Low-opportunity
(20 occupations)

Note: The occupation opportunity index and the three broad categories drawn from it are only meant to provide general guidance on the level of opportunity associated with various occupations in the region, and its interpretation should be informed by an examination of individual metrics used in its calculation, which are presented in the tables on the following pages.

Economic vitality
High-opportunity occupations for workers with a high school diploma or less

Supervisors of construction and extraction workers and supervisors of production workers are high-opportunity jobs for workers without postsecondary education

Occupation Opportunity Index: Occupations by Opportunity Level for Workers with a High School Diploma or Less

	Occupation	Employment	Job Quality Median Annual Wage	Growth Real Wage Growth	Change in Employment	% Change in Employment	Median Age	Occupation Opportunity Index
		(2011)	(2011)	(2011)	(2005-11)	(2005-11)	(2010)	
High-Opportunity	Supervisors of Construction and Extraction Workers	4,040	$67,890	-9.8%	-2,770	-40.7%	45	0.52
	Supervisors of Production Workers	9,220	$63,050	-6.7%	-3,800	-29.2%	45	0.43
	Assemblers and Fabricators	38,490	$37,107	15.9%	16,550	75.4%	41	0.22
	Supervisors of Transportation and Material Moving Workers	3,860	$50,109	-13.9%	-1,580	-29.0%	44	-0.01
Middle-Opportunity	Supervisors of Building and Grounds Cleaning and Maintenance Workers	2,950	$41,290	-2.9%	-1,040	-26.1%	44	-0.11
	Construction Trades Workers	35,350	$51,491	-9.1%	-23,020	-39.4%	40	-0.13
	Metal Workers and Plastic Workers	44,880	$42,175	-4.7%	-12,240	-21.4%	45	-0.18
	Other Construction and Related Workers	2,220	$45,174	-12.7%	-2,770	-55.5%	43	-0.18
	Vehicle and Mobile Equipment Mechanics, Installers, and Repairers	17,790	$41,912	-16.4%	-1,010	-5.4%	42	-0.27
	Other Installation, Maintenance, and Repair Occupations	31,180	$40,874	-16.9%	-6,240	-16.7%	43	-0.34
	Printing Workers	2,280	$33,446	-9.8%	-1,010	-30.7%	45	-0.41
	Textile, Apparel, and Furnishings Workers	5,640	$24,623	-2.9%	130	2.4%	48	-0.49
	Grounds Maintenance Workers	9,880	$26,670	5.3%	-3,300	-25.0%	34	-0.52
	Motor Vehicle Operators	46,180	$32,289	-13.4%	-10,560	-18.6%	46	-0.54
Low-Opportunity	Material Recording, Scheduling, Dispatching, and Distributing Workers	53,480	$31,568	-10.3%	-9,050	-14.5%	41	-0.55
	Other Production Occupations	25,960	$32,718	-13.4%	-9,800	-27.4%	42	-0.57
	Supervisors of Food Preparation and Serving Workers	13,260	$30,595	-14.5%	1,420	12.0%	36	-0.58
	Nursing, Psychiatric, and Home Health Aides	39,170	$23,681	-7.9%	8,530	27.8%	38	-0.60
	Other Protective Service Workers	17,420	$25,942	-7.1%	-4,560	-20.7%	41	-0.64
	Food Processing Workers	5,340	$24,543	-15.3%	470	9.7%	44	-0.69
	Other Transportation Workers	3,010	$24,282	-4.6%	-1,280	-29.8%	31	-0.74
	Personal Appearance Workers	7,240	$21,124	-9.5%	60	0.8%	39	-0.77
	Building Cleaning and Pest Control Workers	38,000	$22,868	-15.7%	-3,590	-8.6%	45	-0.78
	Other Personal Care and Service Workers	22,760	$21,325	-9.3%	-1,600	-6.6%	39	-0.78
	Animal Care and Service Workers	2,200	$19,944	-8.1%	970	78.9%	31	-0.78
	Cooks and Food Preparation Workers	34,930	$21,859	1.3%	-5,420	-13.4%	27	-0.79
	Other Food Preparation and Serving Related Workers	19,490	$18,538	3.8%	3,980	25.7%	21	-0.80
	Food and Beverage Serving Workers	77,170	$18,565	6.2%	-11,290	-12.8%	25	-0.88
	Retail Sales Workers	105,290	$21,026	-1.8%	-22,270	-17.5%	32	-0.93
	Material Moving Workers	46,090	$25,471	-17.4%	-20,060	-30.3%	38	-0.95

Sources: U.S. Bureau of Labor Statistics; Integrated Public Use Microdata Series. Universe includes all nonfarm wage and salary jobs for which the typical worker is estimated to have a high school diploma or less.
Note: Analysis reflects the Detroit-Warren-Livonia, MI Metropolitan Statistical Area as defined by the U.S. Office of Management and Budget. Dollar values are in 2011 dollars.
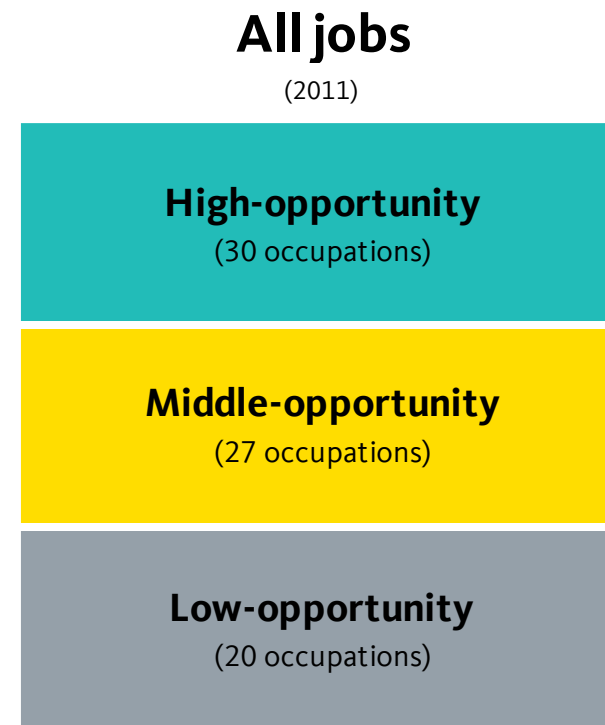
Economic vitality

High-opportunity occupations for workers with more than a high school diploma but less than a BA

Supervisors of protective service workers and supervisors of installation, maintenance, and repair workers are high-opportunity jobs for workers with more than a high school diploma but less than a bachelor's degree

Occupation Opportunity Index: Occupations by Opportunity Level for Workers with More Than a High School Diploma but Less Than a Bachelor's Degree

	Occupation	Employment	Job Quality Median Annual Wage	Growth Real Wage Growth	Change in Employment	% Change in Employment	Median Age	Occupation Opportunity Index
		(2011)	(2011)	(2011)	(2005-11)	(2005-11)	(2010)	
High-Opportunity	Supervisors of Protective Service Workers	2,920	$65,559	23.8%	1,390	90.8%	45	1.05
	Supervisors of Installation, Maintenance, and Repair Workers	4,550	$62,670	-15.3%	-2,360	-34.2%	48	0.35
	Legal Support Workers	3,980	$50,756	8.0%	300	8.2%	42	0.32
	Fire Fighting and Prevention Workers	2,810	$53,058	7.5%	-1,270	-31.1%	40	0.31
	Law Enforcement Workers	9,190	$57,272	-1.9%	-2,250	-19.7%	39	0.30
	Electrical and Electronic Equipment Mechanics, Installers, and Repairers	5,220	$48,695	2.8%	1,160	28.6%	43	0.23
	Drafters, Engineering Technicians, and Mapping Technicians	16,760	$51,297	-5.0%	1,600	10.6%	43	0.19
	Plant and System Operators	2,670	$47,679	-17.2%	1,540	136.3%	49	0.11
	Supervisors of Office and Administrative Support Workers	13,170	$49,770	-6.2%	-3,980	-23.2%	45	0.08
Middle-Opportunity	Health Technologists and Technicians	39,220	$42,759	-5.3%	6,830	21.1%	41	-0.02
	Occupational Therapy and Physical Therapist Assistants and Aides	1,900	$39,553	3.7%	50	2.7%	36	-0.11
	Supervisors of Personal Care and Service Workers	2,140	$38,805	-1.8%	40	1.9%	42	-0.15
	Supervisors of Sales Workers	19,160	$43,434	-14.7%	-2,050	-9.7%	42	-0.21
	Financial Clerks	37,230	$34,194	-8.4%	6,020	19.3%	43	-0.29
	Secretaries and Administrative Assistants	34,970	$38,039	-2.9%	-17,230	-33.0%	47	-0.30
	Life, Physical, and Social Science Technicians	2,020	$38,615	-23.4%	-470	-18.9%	41	-0.47
	Information and Record Clerks	66,110	$31,157	-8.2%	-5,870	-8.2%	40	-0.52
	Other Office and Administrative Support Workers	57,700	$29,078	-6.4%	-7,170	-11.1%	44	-0.52
Low-Opportunity	Other Healthcare Support Occupations	21,770	$28,507	-13.1%	2,900	15.4%	38	-0.58
	Entertainment Attendants and Related Workers	6,300	$20,304	6.2%	-190	-2.9%	34	-0.64
	Other Education, Training, and Library Occupations	15,620	$28,009	-15.7%	-6,120	-28.2%	45	-0.67
	Communications Equipment Operators	1,850	$27,154	N/A	N/A	N/A	39	-0.77

Sources: U.S. Bureau of Labor Statistics; Integrated Public Use Microdata Series. Universe includes all nonfarm wage and salary jobs for which the typical worker is estimated to have more than a high school diploma but less than a BA.
Note: Analysis reflects the Detroit-Warren-Livonia, MI Metropolitan Statistical Area as defined by the U.S. Office of Management and Budget. Dollar values are in 2011 dollars. "N/A" indicates that data are not available.

Economic vitality
High-opportunity occupations for workers with a BA degree or higher

Top executives and sales managers are high-opportunity occupations for workers with a bachelor's degree or higher

Occupation Opportunity Index: All Levels of Opportunity for Workers with a Bachelor's Degree or Higher

	Occupation	Employment	Job Quality Median Annual Wage	Growth				Occupation Opportunity Index
				Real Wage Growth	Change in Employment	% Change in Employment	Median Age	
	Occupation	(2011)	(2011)	(2011)	(2005-11)	(2005-11)	(2010)	
High-Opportunity	Top Executives	26,490	$112,621	-7.1%	-1,390	-5.0%	47	1.87
	Advertising, Marketing, Promotions, Public Relations, and Sales Managers	7,730	$106,235	1.6%	-880	-10.2%	43	1.76
	Operations Specialties Managers	20,060	$100,956	-1.0%	-2,810	-12.3%	44	1.57
	Lawyers, Judges, and Related Workers	9,230	$91,291	-14.1%	-220	-2.3%	48	1.20
	Health Diagnosing and Treating Practitioners	72,890	$84,501	-3.0%	7,850	12.1%	44	1.20
	Other Management Occupations	27,470	$84,149	-7.1%	5,930	27.5%	45	1.14
	Business Operations Specialists	54,530	$67,383	5.6%	30,950	131.3%	44	1.12
	Engineers	29,130	$82,048	-0.4%	-5,570	-16.1%	42	1.01
	Postsecondary Teachers	4,900	$66,300	14.6%	1,030	26.6%	47	0.91
	Computer Occupations	47,590	$68,012	1.1%	15,050	46.3%	40	0.84
	Physical Scientists	1,730	$66,434	-3.8%	220	14.6%	41	0.60
	Sales Representatives, Wholesale and Manufacturing	33,170	$61,853	-1.4%	2,980	9.9%	45	0.56
	Financial Specialists	33,360	$58,169	-7.7%	200	0.6%	43	0.32
	Preschool, Primary, Secondary, and Special Education School Teachers	37,560	$58,251	-10.0%	-40	-0.1%	42	0.28
	Art and Design Workers	8,570	$56,912	-6.0%	-3,000	-25.9%	42	0.25
	Social Scientists and Related Workers	1,900	$56,748	-19.7%	90	5.0%	45	0.15
	Media and Communication Workers	5,490	$50,906	-8.2%	-2,260	-29.2%	44	0.08
Middle-Opportunity	Librarians, Curators, and Archivists	2,620	$41,648	N/A	N/A	N/A	49	-0.07
	Entertainers and Performers, Sports and Related Workers	4,220	$38,725	2.6%	1,440	51.8%	36	-0.09
	Specialists	19,670	$42,000	-12.3%	-310	-1.6%	45	-0.17
	Sales Representatives, Services	10,630	$46,332	-17.8%	-2,370	-18.2%	42	-0.18
	Media and Communication Equipment Workers	2,190	$38,888	-8.2%	270	14.1%	41	-0.22
	Religious Workers	1,720	$32,152	-11.7%	880	104.8%	53	-0.24
	Other Teachers and Instructors	14,870	$32,456	-8.1%	6,110	69.7%	43	-0.28
	Other Sales and Related Workers	7,190	$34,616	-15.0%	-8,090	-52.9%	46	-0.51

Sources: U.S. Bureau of Labor Statistics; Integrated Public Use Microdata Series. Universe includes all nonfarm wage and salary jobs for which the typical worker is estimated to have a BA degree or higher. Note: Analysis reflects the Detroit-Warren-Livonia, MI Metropolitan Statistical Area as defined by the U.S. Office of Management and Budget. Dollar values are in 2011 dollars. "N/A" indicates that data are not available.

Economic vitality
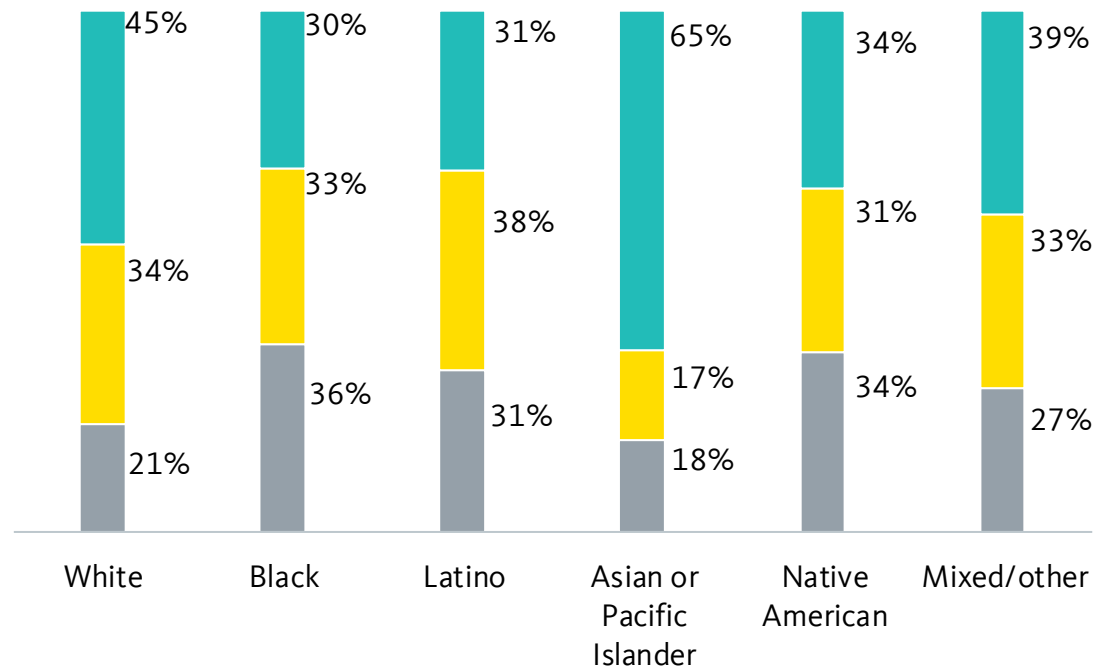# Black workers most likely to have low-opportunity jobs

When examining access to high-opportunity jobs by race/ethnicity, we find that Whites and Asians or Pacific Islanders are most likely to be employed in high-opportunity occupations. Blacks and Latinos are the least likely to be in these occupations.

Differences in education levels play a large role in determining access to high-opportunity jobs (and this is examined next), but racial discrimination, work experience, social networks, and – for immigrants – legal status and English language ability are also contributing factors.

Black and Latino workers are the least likely to access high-opportunity jobs
Opportunity Ranking of Occupations by Race/Ethnicity, All Workers

- High opportunity
- Middle opportunity
- Low opportunity

	White	Black	Latino	Asian or Pacific Islander	Native American	Mixed/other
High opportunity	45%	30%	31%	65%	34%	39%
Middle opportunity	34%	33%	38%	17%	31%	33%
Low opportunity	21%	36%	31%	18%	34%	27%

Sources: U.S. Bureau of Labor Statistics; Integrated Public Use Microdata Series. Universe includes the employed civilian noninstitutional population ages 25 through 64. Note: Analysis reflects the Detroit-Warren-Livonia, MI Metropolitan Statistical Area as defined by the U.S. Office of Management and Budget. Figures may not add up to total due to rounding.

Economic vitality
Black and API workers with a high school diploma or less are the most likely to have low-opportunity jobs
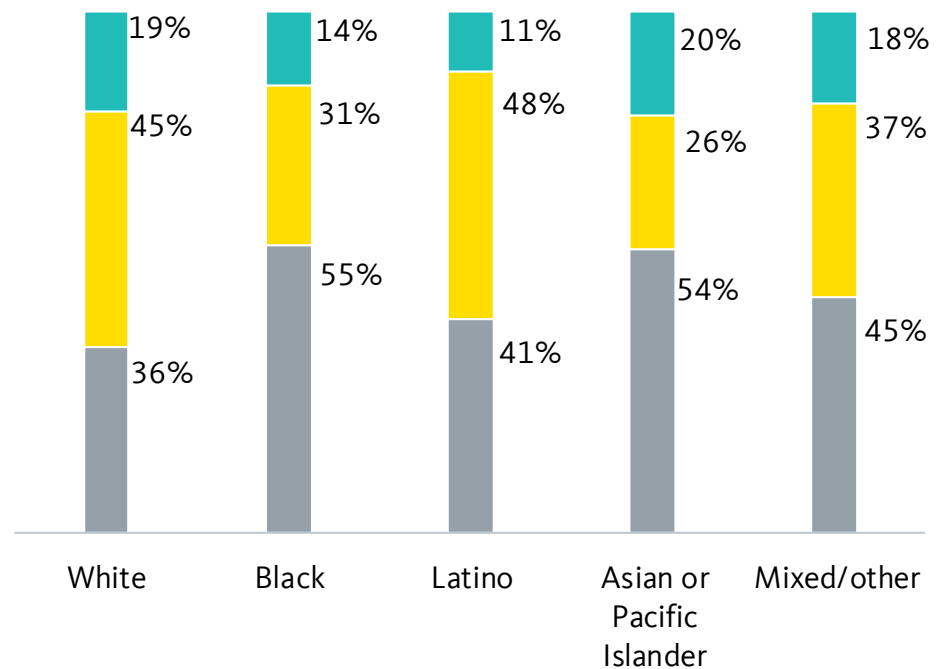
Among workers with a high school diploma or less, Whites and Asians or Pacific Islanders are more likely than others to be in the high-opportunity occupations, while Latinos and African Americans are the least likely to be in these jobs.

However, White and Latino workers with low levels of education are most often in middle-opportunity jobs, while Blacks and Asians or Pacific Islanders are most likely to be in low-opportunity jobs. That Asians or Pacific Islanders have among the highest shares in both low- and high-opportunity jobs reflects the diversity within this population.

Of those with low education levels, Latinos and African Americans are least likely to hold high-opportunity jobs
Opportunity Ranking of Occupations by Race/Ethnicity, Workers with Low Educational Attainment

- High opportunity
- Middle opportunity
- Low opportunity

	White	Black	Latino	Asian or Pacific Islander	Mixed/other
High opportunity	19%	14%	11%	20%	18%
Middle opportunity	45%	31%	48%	26%	37%
Low opportunity	36%	55%	41%	54%	45%

Sources: U.S. Bureau of Labor Statistics; Integrated Public Use Microdata Series. Universe includes the employed civilian noninstitutional population ages 25 through 64 with a high school diploma or less. Note: Analysis reflects the Detroit-Warren-Livonia, MI Metropolitan Statistical Area as defined by the U.S. Office of Management and Budget. Data for some racial/ethnic groups are excluded due to small sample size.
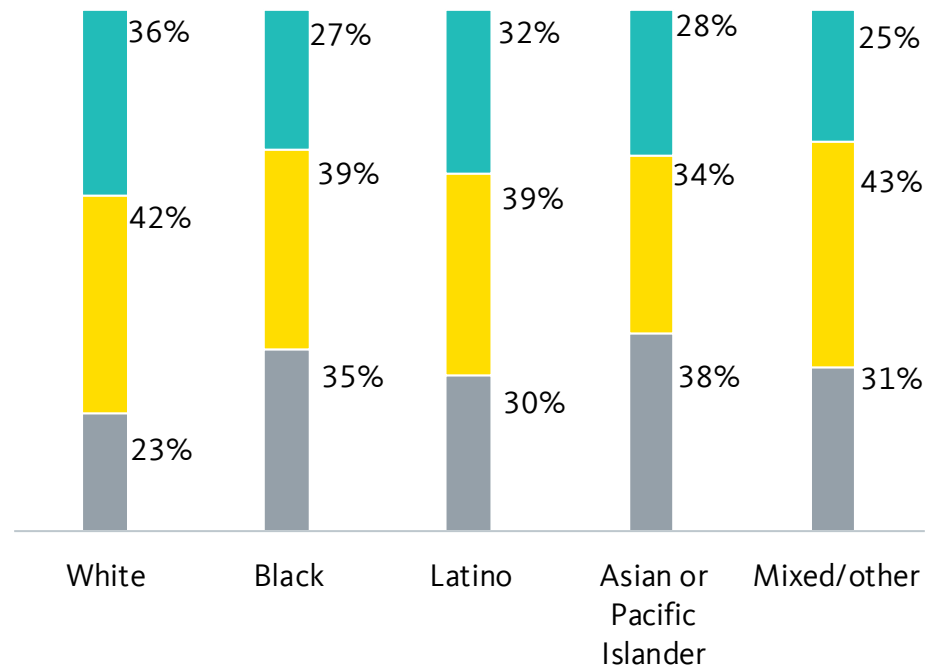
Economic vitality
Asian or Pacific Islander workers with some higher education are most likely to have low-opportunity jobs

Differences in job opportunity are generally smaller for workers with middle education levels, but Whites are more likely than people of color to be in high-opportunity jobs. Of those with middle education levels, residents who identify as two or more races or another race are most likely to be in middle-opportunity jobs, and Asian or Pacific Islanders are most likely to be in low-opportunity jobs.

Of those with middle education levels, people of color are much less likely than Whites to access high-opportunity jobs
Opportunity Ranking of Occupations by Race/Ethnicity, Workers with Middle Educational Attainment

■ High opportunity
■ Middle opportunity
■ Low opportunity

	White	Black	Latino	Asian or Pacific Islander	Mixed/other
High opportunity	36%	27%	32%	28%	25%
Middle opportunity	42%	39%	39%	34%	43%
Low opportunity	23%	35%	30%	38%	31%

Sources: U.S. Bureau of Labor Statistics; Integrated Public Use Microdata Series. Universe includes the employed civilian noninstitutional population ages 25 through 64 with more than a high school diploma but less than a BA. Note: Analysis reflects the Detroit-Warren-Livonia, MI Metropolitan Statistical Area as defined by the U.S. Office of Management and Budget. Data for some racial/ethnic groups are excluded due to small sample size. Figures may not add up to total due to rounding.
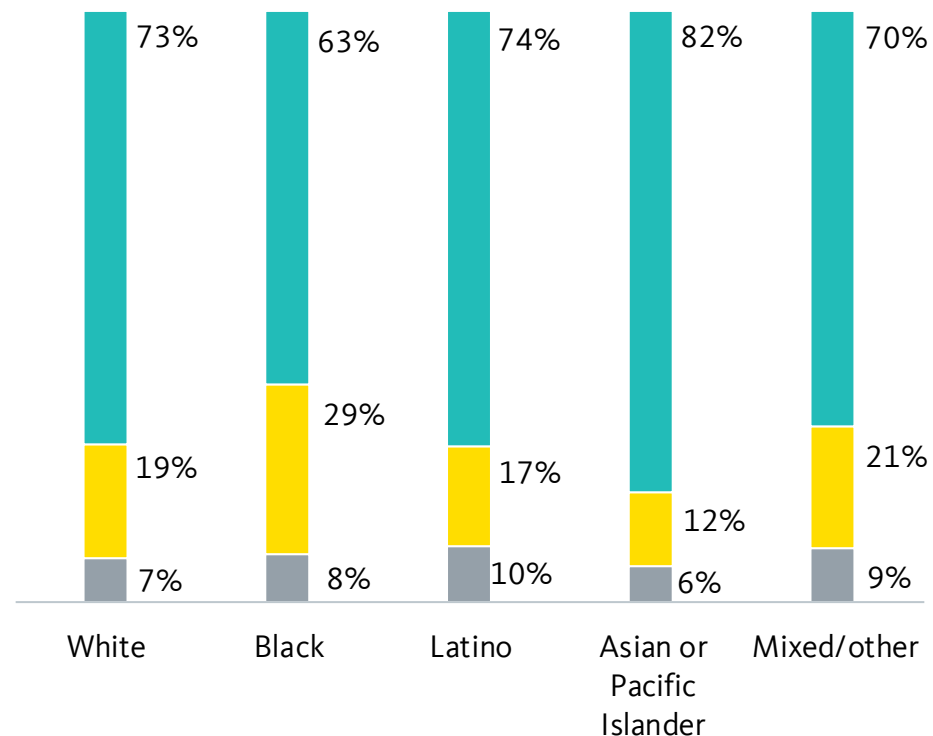
Economic vitality
African American workers with a BA or higher are the least likely to have high-opportunity jobs

Differences in access to high-opportunity occupations tend to increase again for workers with college degrees, though access to high-opportunity jobs is high across groups.

Among the most educated workers, Asian or Pacific Islander, Latino, and White workers are the most likely to be in high-opportunity occupations, followed by workers who identify with two or more races or another race. Among the college educated, African Americans have the least access to high-opportunity jobs; they are 10 percentage points less likely to hold a high-opportunity job than their White peers.

Differences in occupational opportunity by race/ethnicity persist for college-educated workers
Opportunity Ranking of Occupations by Race/Ethnicity, Workers with High Educational Attainment

- ■ High opportunity
- ■ Middle opportunity
- ■ Low opportunity

	White	Black	Latino	Asian or Pacific Islander	Mixed/other
High opportunity	73%	63%	74%	82%	70%
Middle opportunity	19%	29%	17%	12%	21%
Low opportunity	7%	8%	10%	6%	9%

Sources: U.S. Bureau of Labor Statistics; Integrated Public Use Microdata Series. Universe includes the employed civilian noninstitutional population ages 25 through 64 with a BA degree or higher. Note: Analysis reflects the Detroit-Warren-Livonia, MI Metropolitan Statistical Area as defined by the U.S. Office of Management and Budget. Data for some racial/ethnic groups are excluded due to small sample size.

Readiness

Readiness
Highlights
How prepared are the city's residents for the 21st century economy?

- There is a looming skills and education gap for people of color. The share of residents in all major groups by race/ethnicity and nativity who have obtained at least an associate's degree in the City of Detroit is lower than the share of future jobs that will require that level of education statewide.

- Educational attainment for youth of color has improved over the past decade, but Latino youth, and especially those who have immigrated to the U.S., are more likely to be behind. Sixty-five percent of immigrant Latino residents have less than a high school diploma.

- The number of disconnected youth who are not working or in school has decreased by more than half since 1980. However, the percentage of all youth who are disconnected has increased since 2000 and the overwhelming majority of them continue to be Black youth.

Percent of Latino immigrants with an associate's degree or higher:

4%

Number of Black youth who are disconnected:

25,500

Share of jobs in 2020 statewide requiring an associate's degree or higher

44%

Readiness
An education and skills gap for people of color, especially Latinos

There are wide gaps in educational attainment among racial/ethnic groups in the city. Latinos have the lowest levels of educational attainment – two thirds of U.S.-born Latinos (68 percent) have no college credit. Of Latino immigrants, 65 percent have not completed a high school degree.

Comparatively, Asian or Pacific Islanders, African Americans, and Whites have the highest education levels – half of whom have at least completed some college. However, there is great disparity amongst these groups in the number of residents who have completed college. While 37 percent of Asian or Pacific Islanders and 24 percent of U.S.-born White residents have obtained at least a B.A., only 12 percent of U.S.-born Black residents have. Of all U.S.-born Black residents in the city, nearly a third have begun college but have not completed an associate's or bachelor's degree – the highest of any group, followed by U.S.-born Whites (21 percent) and U.S-born Latinos (19 percent).

There are wide gaps in educational attainment
Educational Attainment by Race/Ethnicity and Nativity, 2014

■ Bachelor's degree or higher
■ Associate's degree
■ Some college
■ High school grad
■ Less than high school diploma
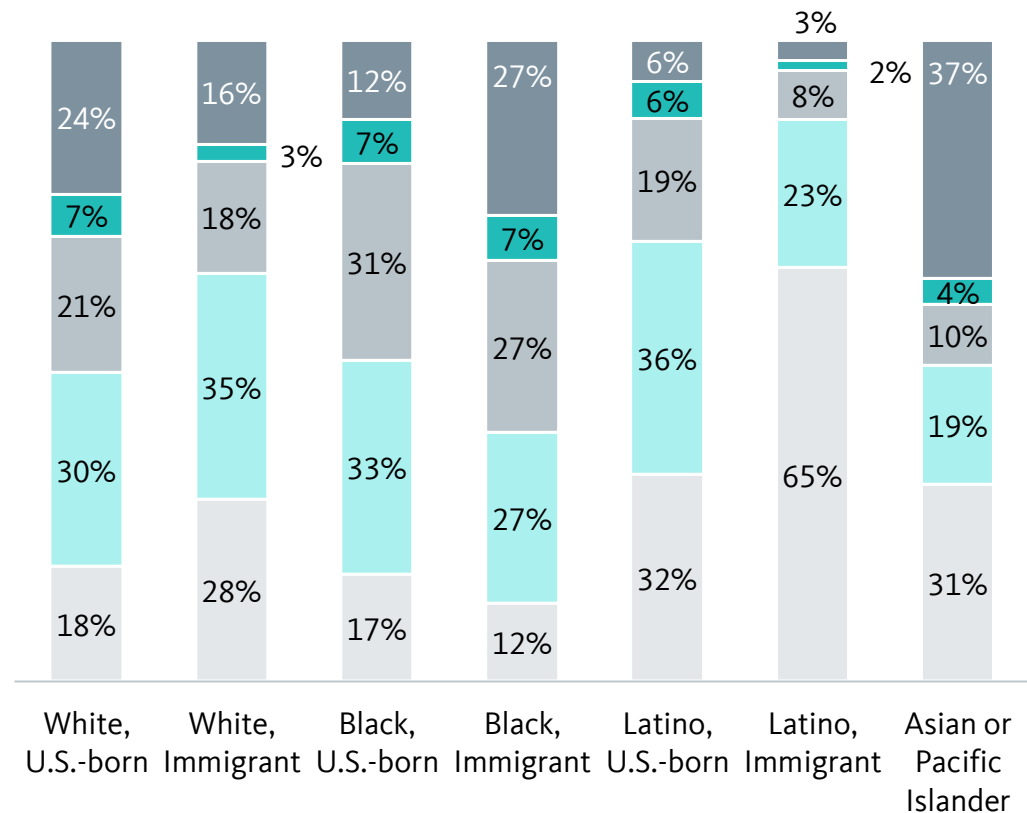
Source: Integrated Public Use Microdata Series. Universe includes all persons ages 25 through 64.
Note: Data represent a 2010 through 2014 average. Data for some racial/ethnic groups are excluded due to small sample size. Figures may not add up to total due to rounding.
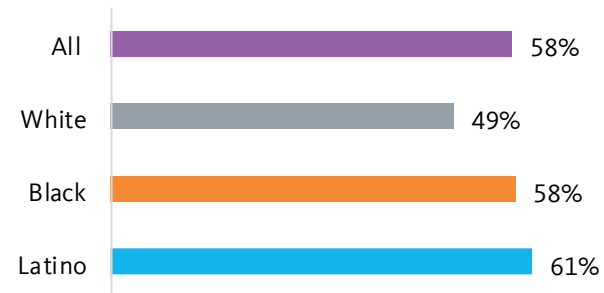
Readiness
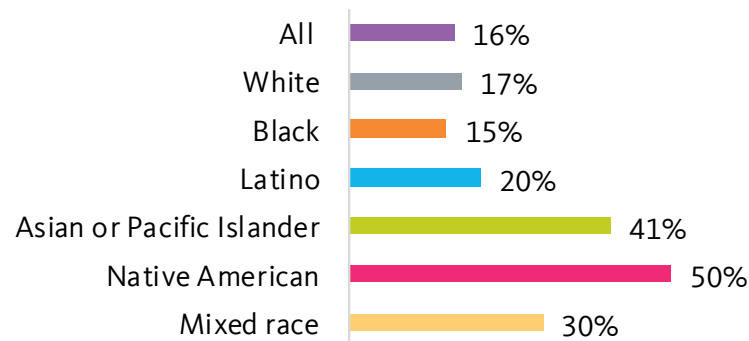## Racial inequities in access to early education

Overall, access to early learning opportunities is low in Detroit. Only 58 percent of all children attend either pre-Kindergarten or Kindergarten. Rates are slightly higher for Latino children (61 percent), and lower for White children (49 percent).

Research by Robert Balfanz of Johns Hopkins University stresses the importance of key transitions and academic behaviors that predict whether or not students will be academically successful and graduating from high school on time. Among them is reading and math proficiency. In Detroit, only 16 percent of third graders are proficient in reading. While rates are slightly better for Latino students (20 percent), rates are comparatively low for Black students (15 percent) and White students (17 percent). API and Native American students tend to fare better, but this may be skewed by small sample size.

Children of color are more likely to attend pre-kindergarten or kindergarten than White children
Public or Private Pre-Kindergarten or Kindergarten Attendance, 2010 to 2014

Group	Percent
All	58%
White	49%
Black	58%
Latino	61%

Share Achieving 3rd Grade Reading Proficiency, 2015

Group	Percent
All	16%
White	17%
Black	15%
Latino	20%
Asian or Pacific Islander	41%
Native American	50%
Mixed race	30%

Sources: diversitydatakids.org calculations of data from the American Community Survey, 2010-2014 and the Michigan Department of Education. Note: Data for some racial/ethnic groups are excluded due to data availability. Estimates for pre-kindergarten and kindergarten attendance are derived from survey data and subject to sampling variability; please interpret accordingly. Estimates based on survey data are not reported if the margin of error at the 95 percent confidence interval is one-third of the estimate value or more.
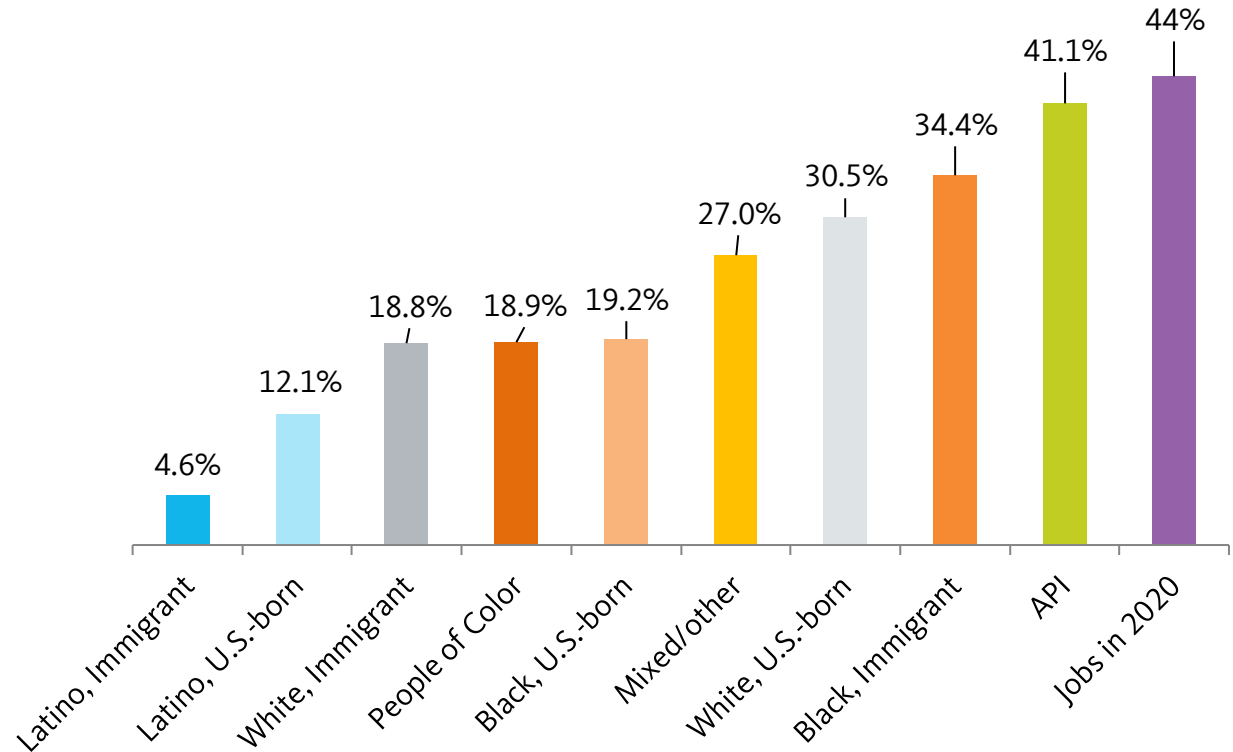
Readiness
An education and skills gap for people of color

According to the Georgetown Center on Education and the Workforce, in three years 44 percent of Michigan's jobs will require an associate's degree or higher. Only 20 percent of the working-age population in the City of Detroit currently have that level of education, and there are large differences in educational attainment by race/ethnicity and nativity. Only five percent of Latino immigrants and 12 percent of U.S.-born Latinos have an associate's degree or higher.

Detroit will face a skills gap unless education levels increase
Share of Working-Age Population with an Associate's Degree or Higher by Race/Ethnicity and Nativity, 2014 and Projected Share of Jobs that Require an Associate's Degree or Higher, 2020

Category	Value
Latino, Immigrant	4.6%
Latino, U.S.-born	12.1%
White, Immigrant	18.8%
People of Color	18.9%
Black, U.S.-born	19.2%
Mixed/other	27.0%
White, U.S.-born	30.5%
Black, Immigrant	34.4%
API	41.1%
Jobs in 2020	44%

Sources: Georgetown Center on Education and the Workforce; Integrated Public Use Microdata Series. Universe for education levels of workers includes all persons ages 25 through 64. Note: Data for 2014 by race/ethnicity and nativity represent a 2010 through 2014 average for the city of Detroit; data on jobs in 2020 represent a state-level projection for Michigan. Some racial/ethnic groups are excluded due to small sample size.

Readiness
Relatively low education levels

The city of Detroit ranks amongst the lowest of the largest 100 cities nationwide in the share of residents with an associate's degree or higher. Compared to other similarly sized cities in the Midwest, Detroit's 20 percent of residents with an associate's degree or higher is far lower than most Midwestern cities, including Madison (65 percent), Minneapolis (56 percent), and St. Paul (48 percent), but is similar to cities like Cleveland (24 percent) and Milwaukee (29 percent).

The city is among the lowest of the largest 100 cities ranked for residents with an associate's degree or higher
Percent of the Population with an Associate's Degree or Higher in 2014: Largest 100 Cities, Ranked
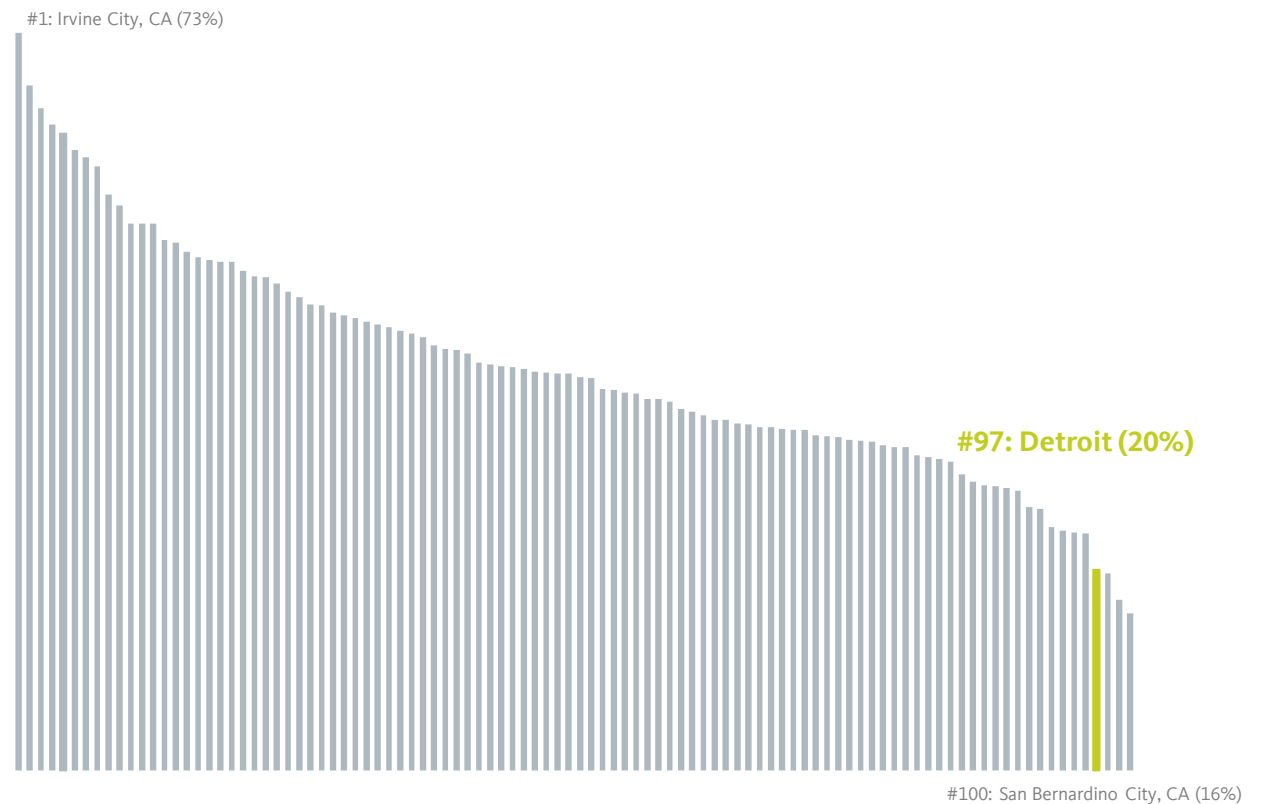
#1: Irvine City, CA (73%)

#97: Detroit (20%)

#100: San Bernardino City, CA (16%)

Source: Integrated Public Use Microdata Series. Universe includes all persons ages 25 through 64.
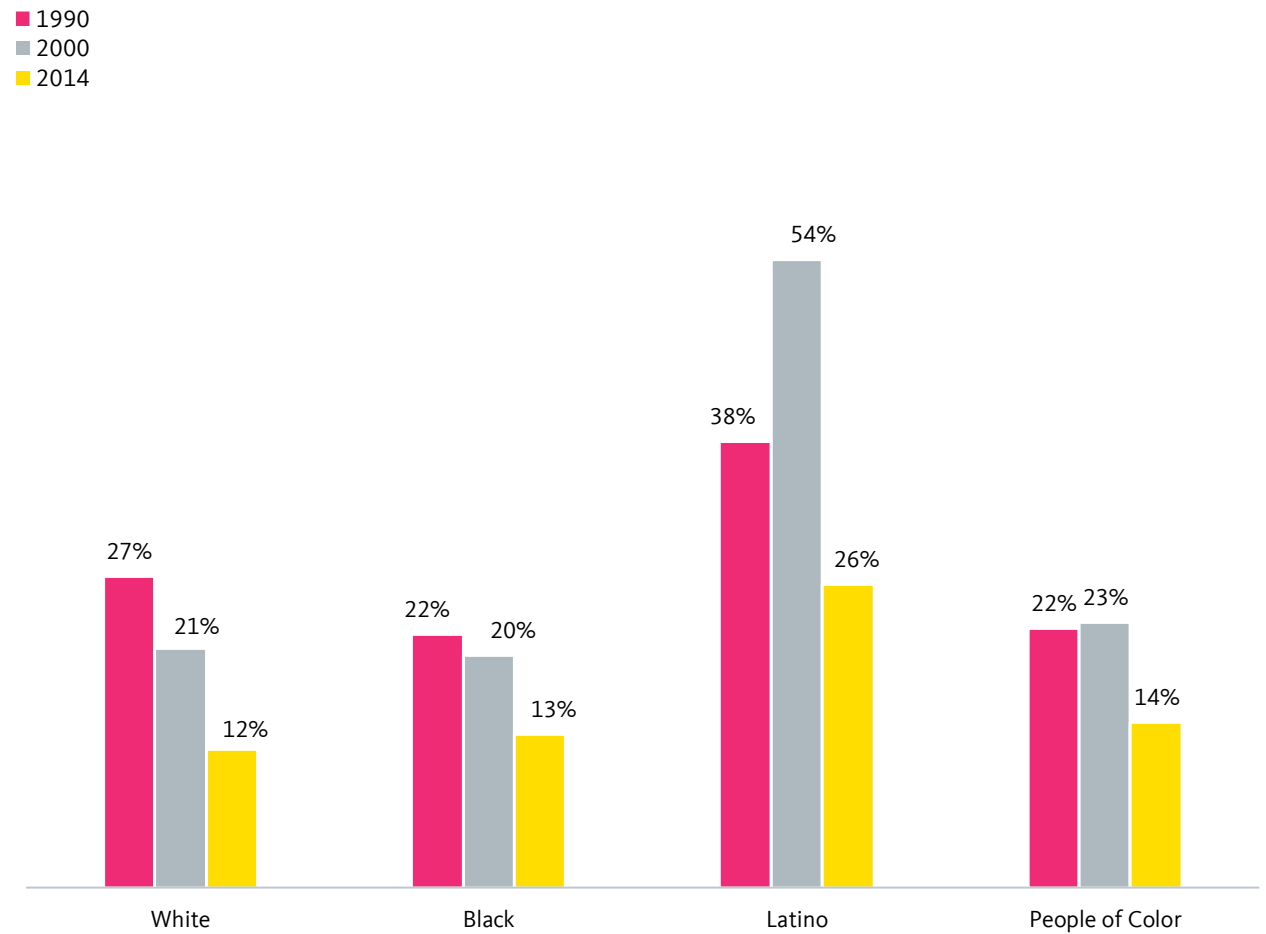Note: Data represent a 2010 through 2014 average.

Readiness
More youth are getting high school diploma, but Latino youth are more likely to be behind

The share of youth who do not have a high school education and are not pursuing one has declined considerably since 1990 for Black, Latino, and White students. Black and White students have experienced similar rates of high school completion since 1990. However, Latino youth are still roughly twice as likely to not be enrolled in school or without a high school diploma, as compared to their White and Black peers.

Rates of incompletion are especially high for Latino youth who are immigrants. Although updated data for 2014 is not available, in 2000, more than 3 in 4 immigrant Latino youth had not completed a high school diploma and were not enrolled in school.

Educational attainment and enrollment among youth has improved for all groups since 1990
Percent of 16-24-Year-Olds Not Enrolled in School and Without a High School Diploma, 1990 to 2014

- 1990
- 2000
- 2014

White: 27%, 21%, 12%
Black: 22%, 20%, 13%
Latino: 38%, 54%, 26%
People of Color: 22%, 23%, 14%

Source: Integrated Public Use Microdata Series.
Note: Data for 2014 represent a 2010 through 2014 average. Data for some racial/ethnic groups are excluded due to small sample size.
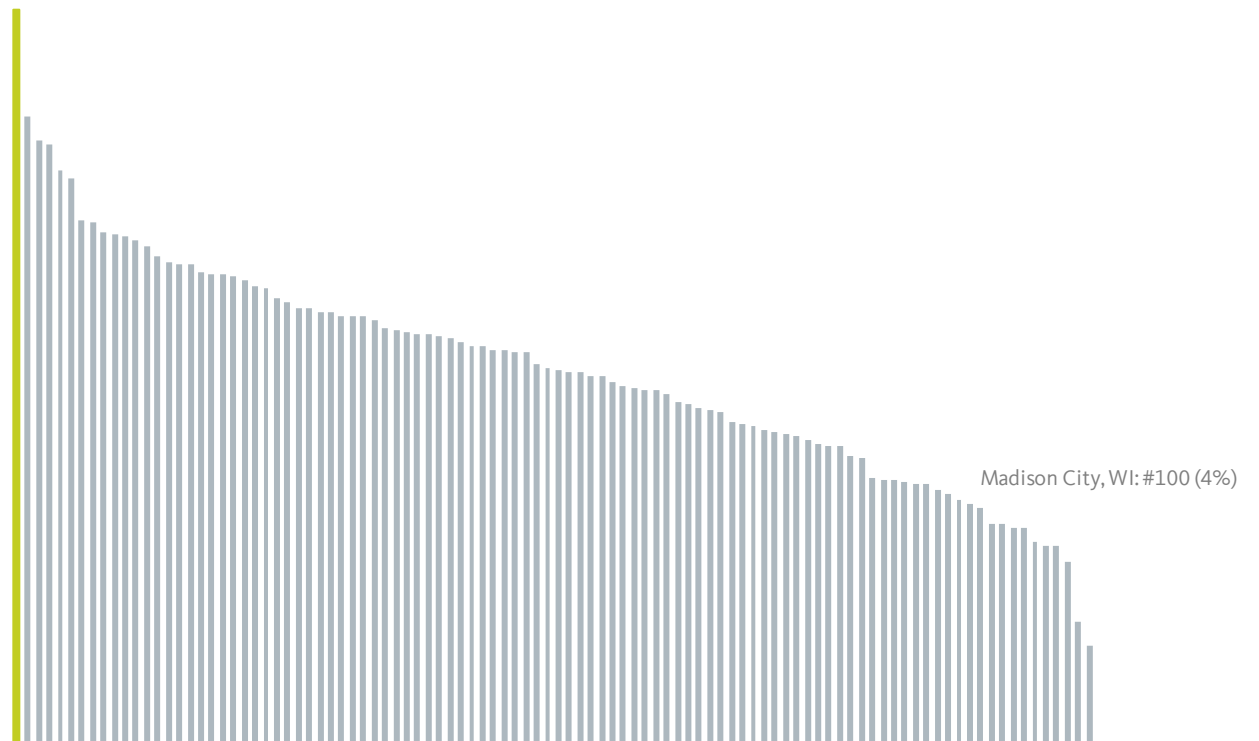
Readiness
Many youth remain disconnected from work or school

Detroit has the largest share of disconnected youth – those aged 16-24 and not in school or working – as compared to the largest 100 cities in the nation. Nearly one in three Detroit youth is disconnected from work and school.

Detroit has the largest share of disconnected youth in the nation
Percent of 16- to 24 Year-Olds Not in Work or School, 2014: Largest 100 Cities, Ranked

Detroit: #1 (29%)

Madison City, WI: #100 (4%)

Source: Integrated Public Use Microdata Series.
Note: Data represent a 2010 through 2014 average.

Readiness
Many youth remain disconnected from work or school
**(continued)**

The number of disconnected youth in the city has improved dramatically since 1980 – today the number of disconnected youth is half of what it was then. However, this is largely driven by overall population decline because the percentage of youth who are disconnected has only fallen from 32 percent to 29 percent.

There are currently more than 30,000 youth who are not working or in school. More than 25,000 – or 84 percent – of these youth are Black. It is important to note that the number of disconnected youth declined very slightly between 2000 and 2014, even as the city's overall population declined significantly. The rate of disconnection among youth increased from 27 percent to 29 since 2000.

There are over 30,000 disconnected youth in the city
Disconnected Youth: 16- to 24 Year-Olds Not in Work or School, 1980 to 2014

- Asian, Native American or Other
- Latino
- Black
- White
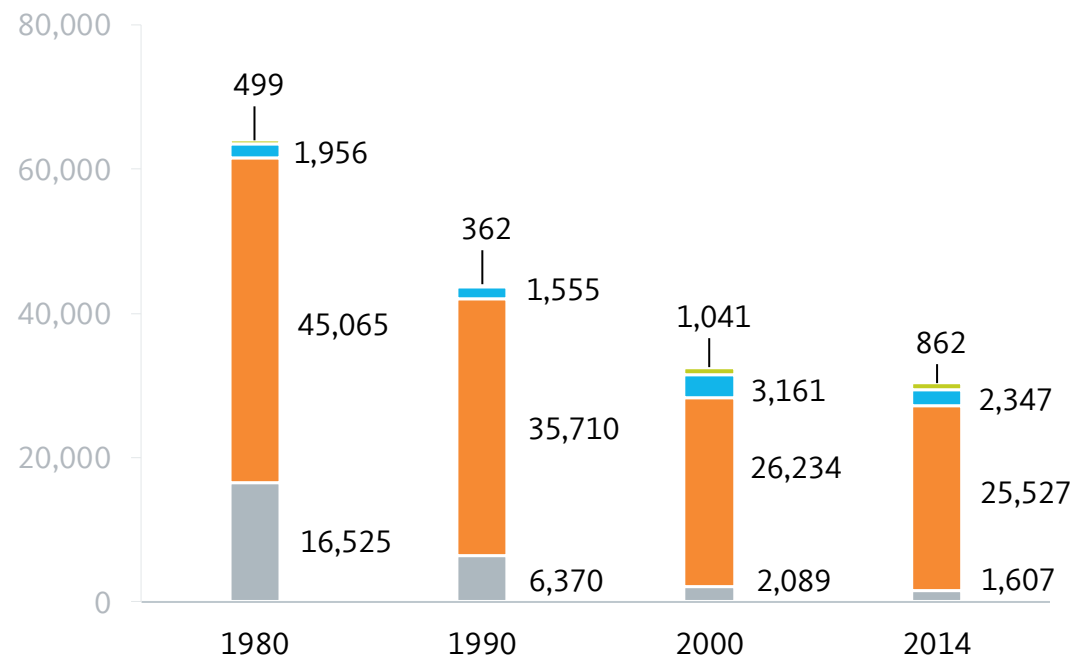
Source: Integrated Public Use Microdata Series.
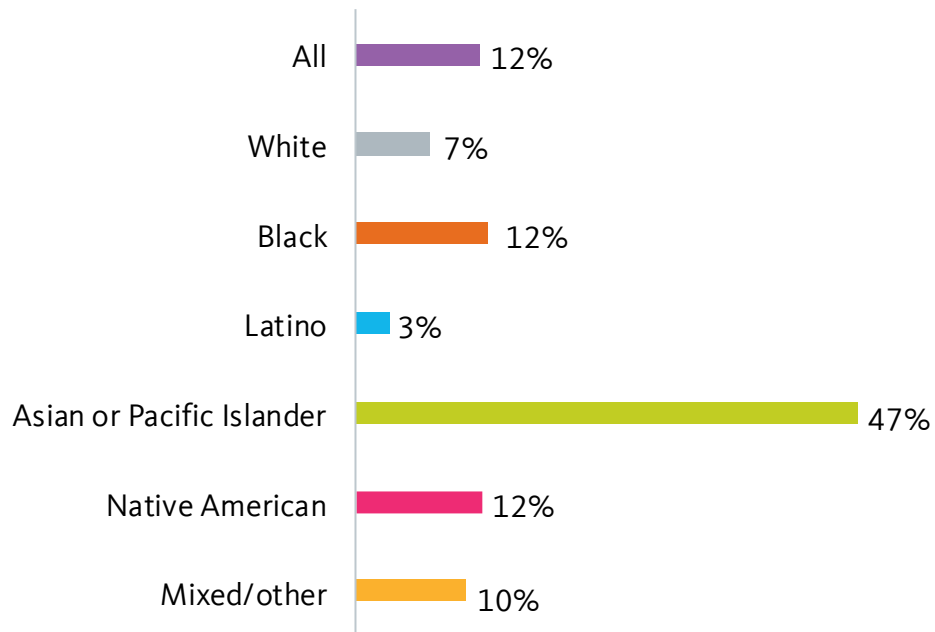Note: Data for 2014 represent a 2010 through 2014 average.

Readiness
Nearly half of Latinos live in neighborhoods with below average access to healthy food

Limited Supermarket Access areas (LSAs) are defined as areas where residents must travel significantly farther to reach a supermarket than the "comparatively acceptable" distance traveled by residents in well-served areas with similar population densities and car ownership rates.

Latinos are by far the most likely to live in LSAs in Detroit, followed by African Americans and Native Americans. Lack of access to supermarkets and healthier food options can lead to obesity, diabetes, and a number of other negative health outcomes.

Access to supermarkets in the city varies by race/ethnicity
Percent Living in Limited Supermarket Access Areas by Race/Ethnicity, 2014

Race/Ethnicity	Percent
All	12%
White	7%
Black	12%
Latino	3%
Asian or Pacific Islander	47%
Native American	12%
Mixed/other	10%

Sources: U.S. Census Bureau; The Reinvestment Fund.
Note: Data on population by race/ethnicity represent a 2010 through 2014 average.

Readiness
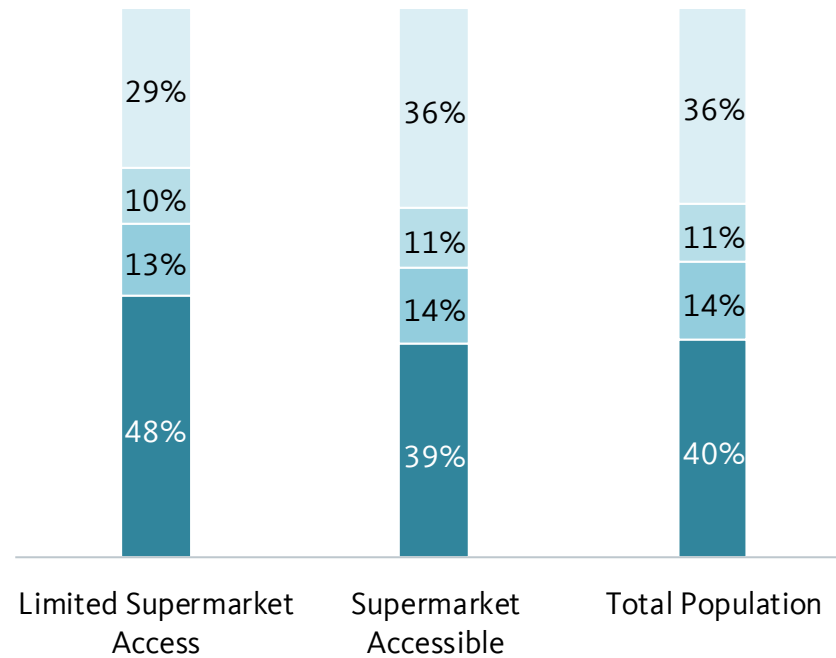## Access to healthy food varies by income

Those living in limited supermarket access areas (LSAs) are more likely to fall below the federal poverty level than those living in areas with better access to healthy food, and they also have a similar likelihood of being between 100 and 200 percent of the poverty level.

People at 200 percent of poverty or above are less likely to live in an LSA: they make up 36 percent of the total population but only 29 percent of those living in LSAs. Nearly 80,000 Detroit residents live in neighborhoods with below-average access to supermarkets.

Economically insecure residents are disproportionately represented in limited supermarket access areas
Poverty Composition of Food Environments, 2014
- 200% poverty or above
- 150-199% poverty
- 100-149% poverty
- Below poverty

	Limited Supermarket Access	Supermarket Accessible	Total Population
200% poverty or above	29%	36%	36%
150-199% poverty	10%	11%	11%
100-149% poverty	13%	14%	14%
Below poverty	48%	39%	40%

Source: U.S. Census Bureau; The Reinvestment Fund. Universe includes all persons not in group quarters.
Note: Data on population by poverty status represent a 2010 through 2014 average. Figures may not add up to total due to rounding.

Readiness
Limited supermarket access persists in the city

The city's limited supermarket access areas (LSAs) are located in different parts of the city, but most of them are in neighborhoods with high shares of people of color. Based on the data reported on page 28, these are likely neighborhoods with large populations of Black residents. Some of these neighborhoods are also predominantly Latino.

There are also many LSAs located outside the city in the counties comprising the Detroit metro area.

Limited access to supermarkets are concentrated in communities of color

Percent People of Color by Census Block Group and Limited Supermarket Access Block Groups, 2014

Less than 85%
85% to 95%
95% to 98%
98% to 99%
99% or more

☐ Limited Supermarket Access
☐ Detroit City Boundary
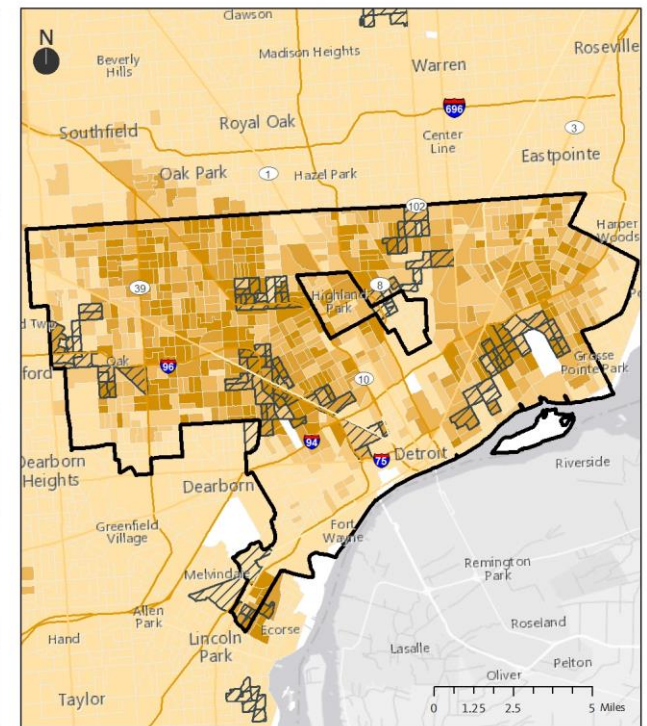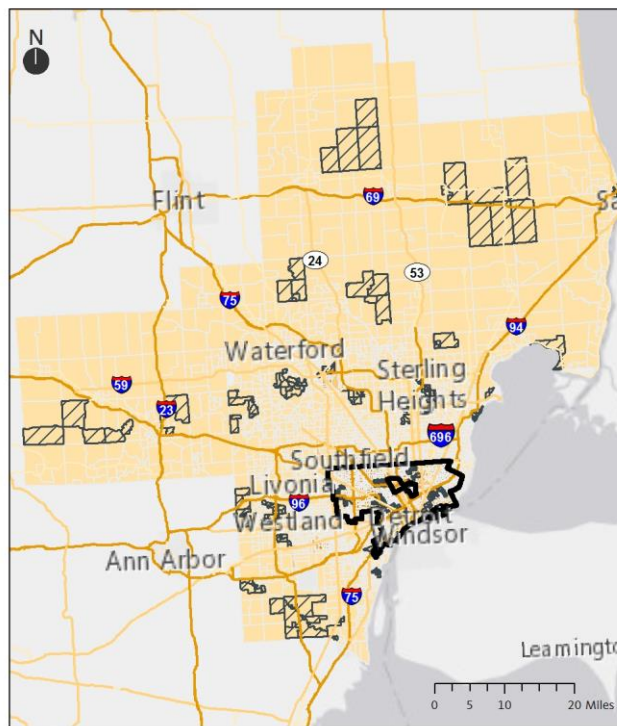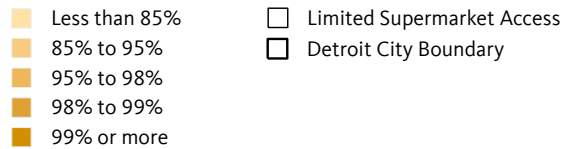
Sources: The Reinvestment Fund, 2014 LSA analysis; U.S. Census Bureau; TomTom, ESRI, HERE, DeLorme, MaymyIndia, © OpenStreetMap contributors, and the GIS user community. Note: Data on population by race/ethnicity represent a 2010 through 2014 average. Areas in white are missing data.
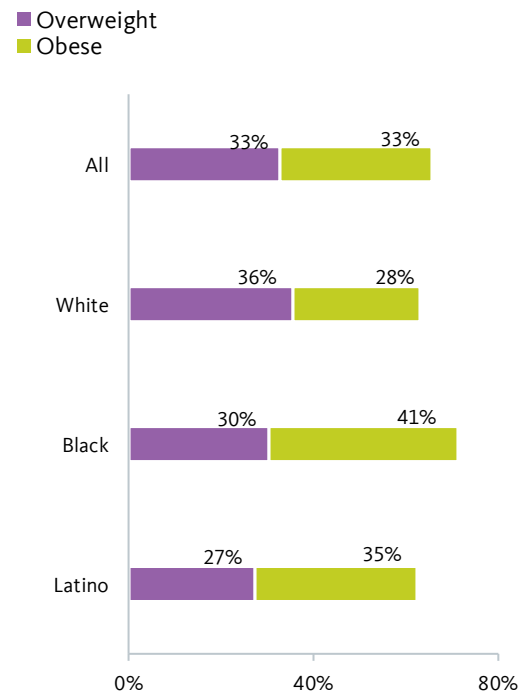
Readiness
Health challenges among communities of color, especially African Americans

Wayne County's share of adults who are overweight or obese (66 percent is comparable to the U.S. rate overall (63 percent). African Americans in the county have the highest prevalence of obesity and diabetes, and nearly the highest prevalence of asthma compared to other racial/ethnic groups. Seventy-one percent of Blacks are
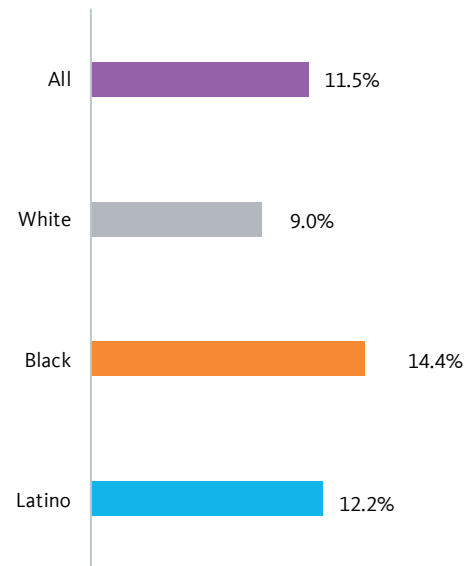
overweight or obese and 14 percent have adult diabetes. Latino adults also have higher than average rates of diabetes and asthma. White adults fare better than average across all three measures.

African American adults have the highest rates of obesity, diabetes, and asthma

Adult Overweight and Obesity Rates by Race/Ethnicity, 2014
- ■ Overweight
- ■ Obese

	Overweight	Obese
All	33%	33%
White	36%	28%
Black	30%	41%
Latino	27%	35%

Adult Diabetes Rates by Race/Ethnicity, 2012

All	11.5%
White	9.0%
Black	14.4%
Latino	12.2%

Adult Asthma Rates by Race/Ethnicity, 2012
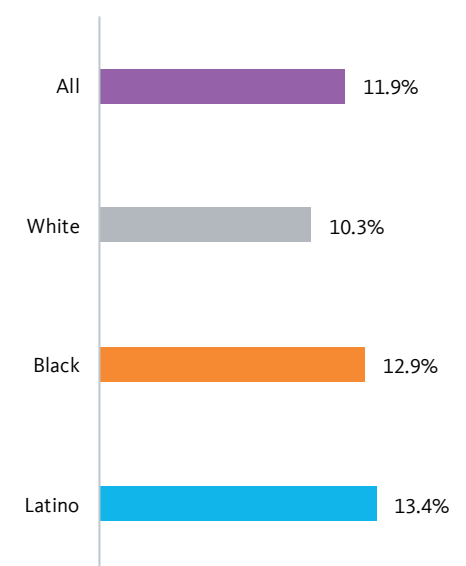
All	11.9%
White	10.3%
Black	12.9%
Latino	13.4%

Source: Centers for Disease Control and Prevention. Universe includes adults ages 18 and older. Note: Data is for Wayne County, MI. Data represent a 2008 through 2012 average.

Source: Centers for Disease Control and Prevention. Universe includes adults ages 18 and older. Note: Data is for Wayne County, MI. Data represent a 2008 through 2012 average.

Source: Centers for Disease Control and Prevention. Universe includes adults ages 18 and older. Note: Data is for Wayne County, MI. Data represent a 2008 through 2012 average.

Readiness
Air pollution impacts Latinos most

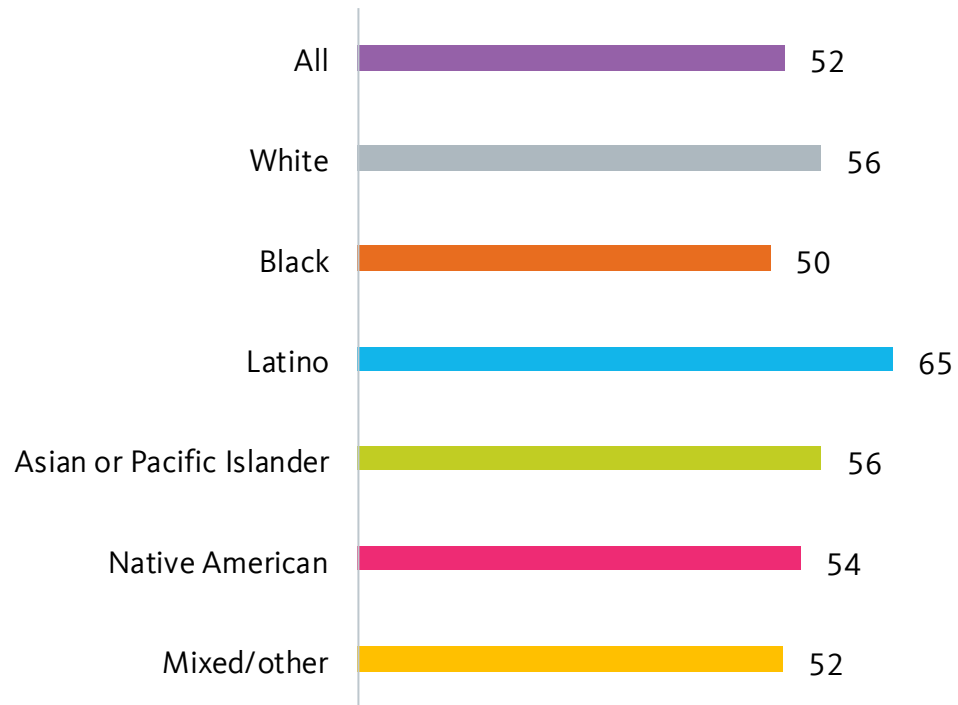On average, Detroit residents have a higher exposure to air pollution than 52 percent of neighborhoods in the United States. Exposure rates are fairly comparable across most racial groups, but are lower for African Americans and the mixed/other population. Latinos stand out as having the highest exposure to air pollution.

The exposure index values range from 1 (lowest risk) to 100 (highest risk) on a national scale. The index value is based on percentile ranking each risk measure across all census tracts in the United States and taking the average ranking for each geography and demographic group.

Exposure to air pollution varies by race/ethnicity
Air Pollution: Exposure Index by Race/Ethnicity, 2014

Group	Value
All	52
White	56
Black	50
Latino	65
Asian or Pacific Islander	56
Native American	54
Mixed/other	52

Sources: U.S. EPA, 2011 National Air Toxics Assessment; U.S. Census Bureau.
Note: Data on population by race/ethnicity represent a 2010 through 2014 average.

Readiness
## Race matters more than income in exposure to air pollution

Both race and socioeconomic status impact exposure to pollutants. Detroit residents living below poverty have higher exposure rates than those living above poverty. However, people of color in each socioeconomic class have lower rates of exposure than their White peers. It is important to note however, given the data presented on the previous page, that this trend is likely driven by the African American population which has lower levels of air pollution exposure than other groups, such as Latinos.

The exposure index values range from 1 (lowest risk) to 100 (highest risk) on a national scale. The index value is based on percentile ranking each risk measure across all census tracts in the U.S. and taking the average ranking for each geography and demographic group.

Low-income people of color have greatest exposure to air pollution
Air Pollution: Exposure Index by Poverty Status, 2014

◼ White
◼ People of color

Below poverty
- White: 57.0
- People of color: 51.5

Above poverty
- White: 55.6
- People of color: 51.1
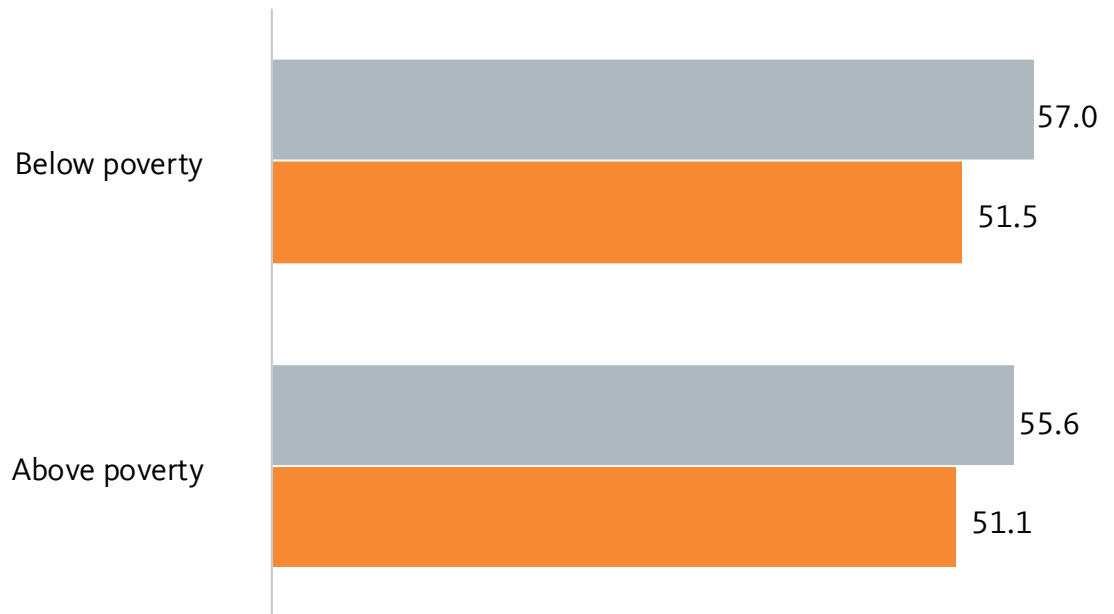
Sources: U.S. EPA, 2011 National Air Toxics Assessment; U.S. Census Bureau. Universe includes all persons not in group quarters.
Note: Data on population by race/ethnicity represent a 2010 through 2014 average.

Connectedness

Connectedness
Highlights

Are the city's residents and neighborhoods connected to one another and to the city and region's assets and opportunities?

- Detroit ranks second in the nation for residents burdened by high rental costs, defined as spending more than 30 percent of income on rent.

- Residential segregation has increased between almost every racial/ethnic group, with the exception of Black-White segregation, which has decreased slightly. Today, 59 percent of White residents would need to move to achieve racial integration with Black residents, as opposed to 64 percent in 1990.

- Access to vehicles is a challenge for residents in the city. One in every four households does not own a car.

Rent-burden ranking among the 100 largest cities:

#2

Percent of renters who experience rent burden:

67%

Percent of Black households without access to a car:

26%

Connectedness
Segregation has increased in the city since 2000

Since 2000, segregation in Detroit has increased. For the first time since 1980, the city is more segregated than the national average.

Segregation is measured by the entropy index, which ranges from a value of 0, meaning that all census tracts have the same racial/ethnic composition as the entire metropolitan area (maximum integration), to a high of 1, if all census tracts contained one group only (maximum segregation).

Residential segregation in the city is greater than the national average
Residential Segregation, 1980 to 2014

Detroit City, MI
United States
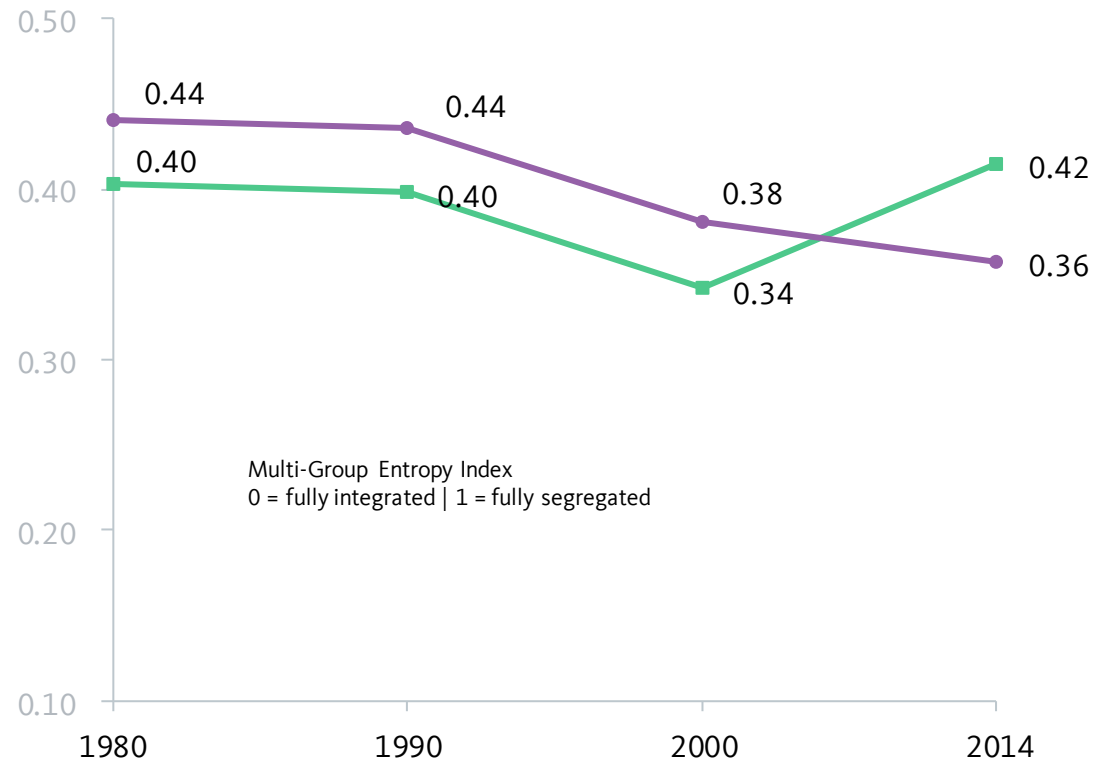
Multi-Group Entropy Index
0 = fully integrated | 1 = fully segregated

Sources: U.S. Census Bureau; Geolytics, Inc.
Note: Data for 2014 represent a 2010 through 2014 average.

Connectedness
Increased segregation among people of color

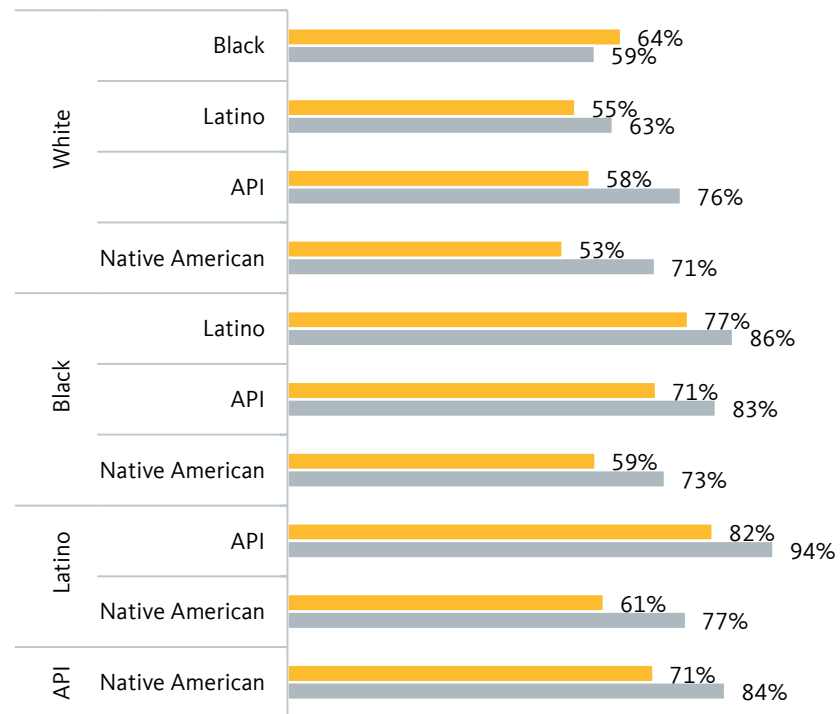The dissimilarity index estimates the share of a given racial/ethnic group that would need to move to a new neighborhood to achieve complete integration. Using this measure, segregation between almost all groups has increased since 1990. The exception is the rate of segregation between Black and White residents. Today, 59 percent of White residents would need to move to achieve integration with Black residents, as opposed to 64 percent in 1990.

Although segregation between Black and White residents has declined in the city, the Detroit region ranked first in Black-White segregation among the 50 metro areas with the largest African American populations in 2010.

The largest increase in segregation was between Native Americans and other subgroups, but this could be attributable to the very small size of the Native American population. Otherwise, segregation increased most between API residents and all other subgroups.

Segregation among all groups has increased, except between Black and White residents
Residential Segregation, 1990 and 2010-2014, measured by the Dissimilarity Index

■ 1990
■ 2014

		1990	2014
White	Black	64%	59%
White	Latino	55%	63%
White	API	58%	76%
White	Native American	53%	71%
Black	Latino	77%	86%
Black	API	71%	83%
Black	Native American	59%	73%
Latino	API	82%	94%
Latino	Native American	61%	77%
API	Native American	71%	84%

Sources: U.S. Census Bureau; Geolytics, Inc.
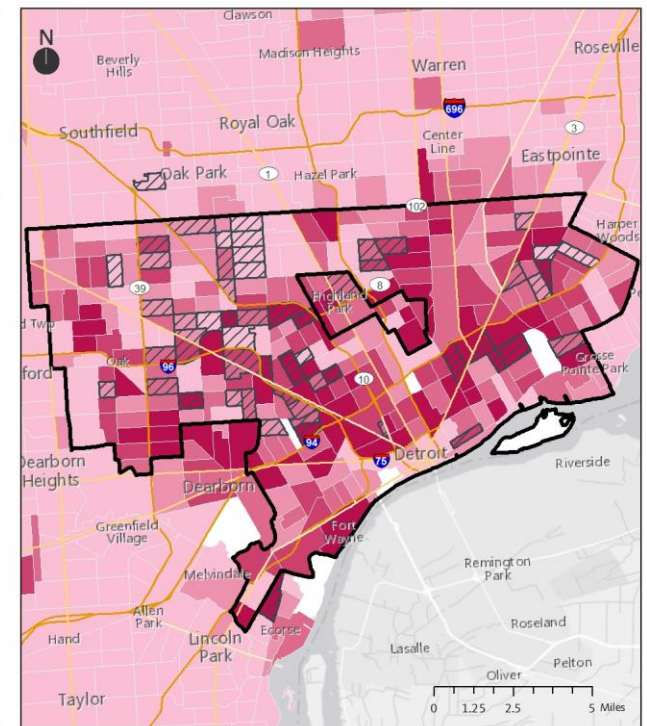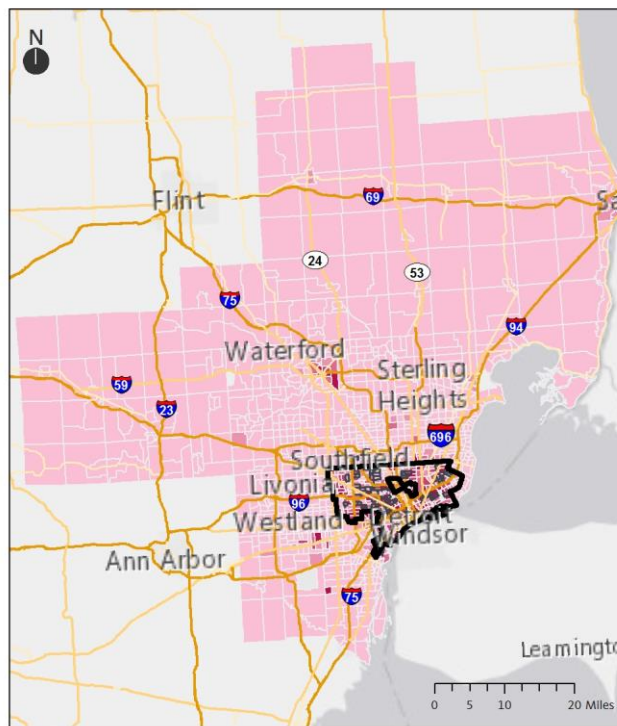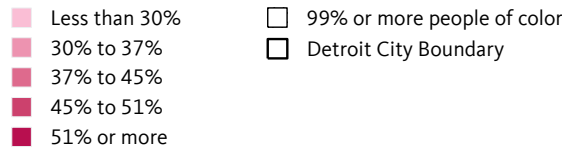Note: Data for 2014 represents a 2010 through 2014 average.

Connectedness
Concentrated poverty is a challenge in many communities of color

Like most cities, Detroit's neighborhoods vary tremendously in terms of their socioeconomic status. As the map illustrates, there are many high-poverty neighborhoods. A majority of census tracts in Detroit city have a poverty rate of 45 percent or more.

Neighborhoods with the highest poverty rates tend to be found in the central part of the city. They also tend to correlate with those neighborhoods that have highest rates of unemployment. Many of them are also census tracts in which virtually all residents (99 percent or more) are people of color.

Areas of high poverty (51 percent or higher) are found primarily in areas with high populations of people of color
Percent Population Below the Poverty Level by Census Tract, 2014

Less than 30%
30% to 37%
37% to 45%
45% to 51%
51% or more

99% or more people of color
Detroit City Boundary

Sources: U.S. Census Bureau; TomTom, ESRI, HERE, DeLorme, MaymyIndia, © OpenStreetMap contributors, and the GIS user community. Universe includes all persons not in group quarters. Note: Data represent a 2010 through 2014 average. Areas in white are missing data.

Connectedness
How residents commute varies by income and race

Income and race both play a role in determining who uses the region's public transit system to get to work. From the data available, Black families are most likely to be dependent on public transit. Very low-income African Americans are most likely to get to work using public transit, but transit use declines rapidly as incomes increase.

While White and Black workers' use of public transit become more similar as their earnings increase between $35,000 and $65,000, Black ridership remains consistent while White ridership plummets as earnings continue to rise.

Interestingly, households headed by Latino and White immigrants are most likely to have access to a car. African American and mixed/other households are most likely to be carless.

Transit use varies by income and race
Percent Using Public Transit by Annual Earnings and Race/Ethnicity, 2014
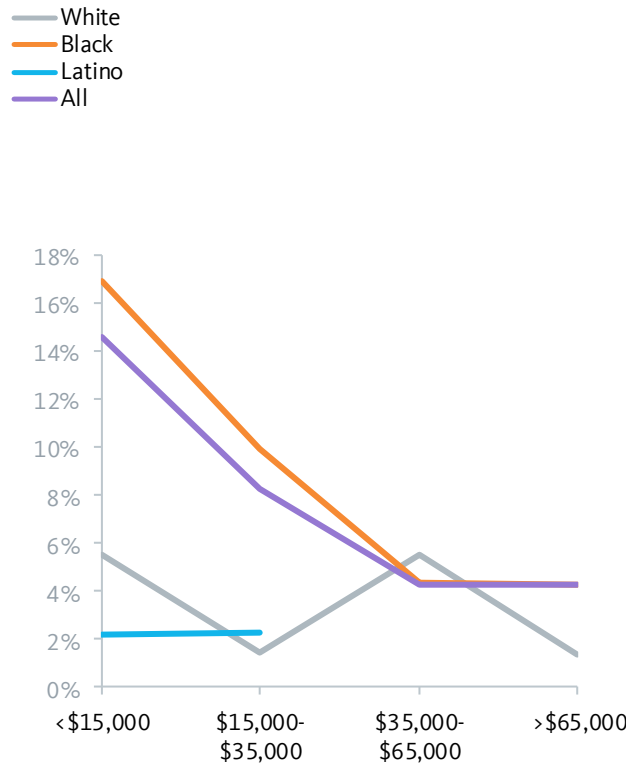
White
Black
Latino
All

1 in 4 Detroit households does not own a car
Percent of Households Without a Vehicle by Race/Ethnicity and Nativity, 2014
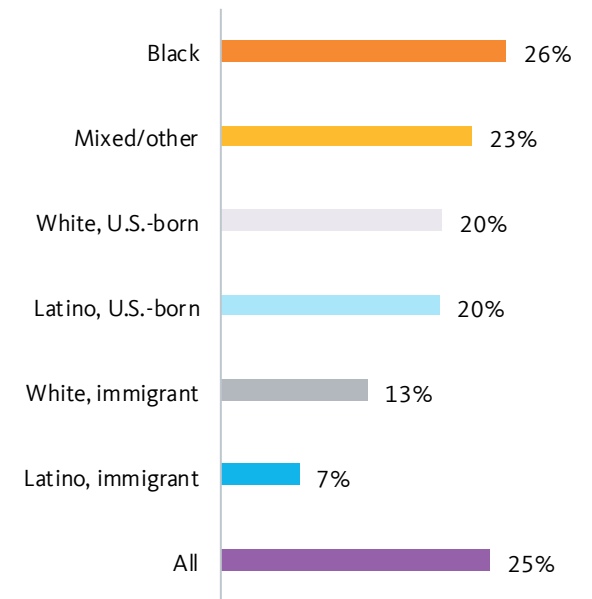
Black	26%
Mixed/other	23%
White, U.S.-born	20%
Latino, U.S.-born	20%
White, immigrant	13%
Latino, immigrant	7%
All	25%

Source: Integrated Public Use Microdata Series. Universe includes workers ages 16 and older with earnings. Note: Data represent a 2010 through 2014 average. Data for some racial/ethnic groups are excluded due to small sample size.

Source: Integrated Public Use Microdata Series. Universe includes all households (no group quarters). Note: Data represent a 2010 through 2014 average. Data for some racial/ethnic groups are excluded due to small sample size.

Connectedness
Lower-income workers are more likely to utilize public transportation
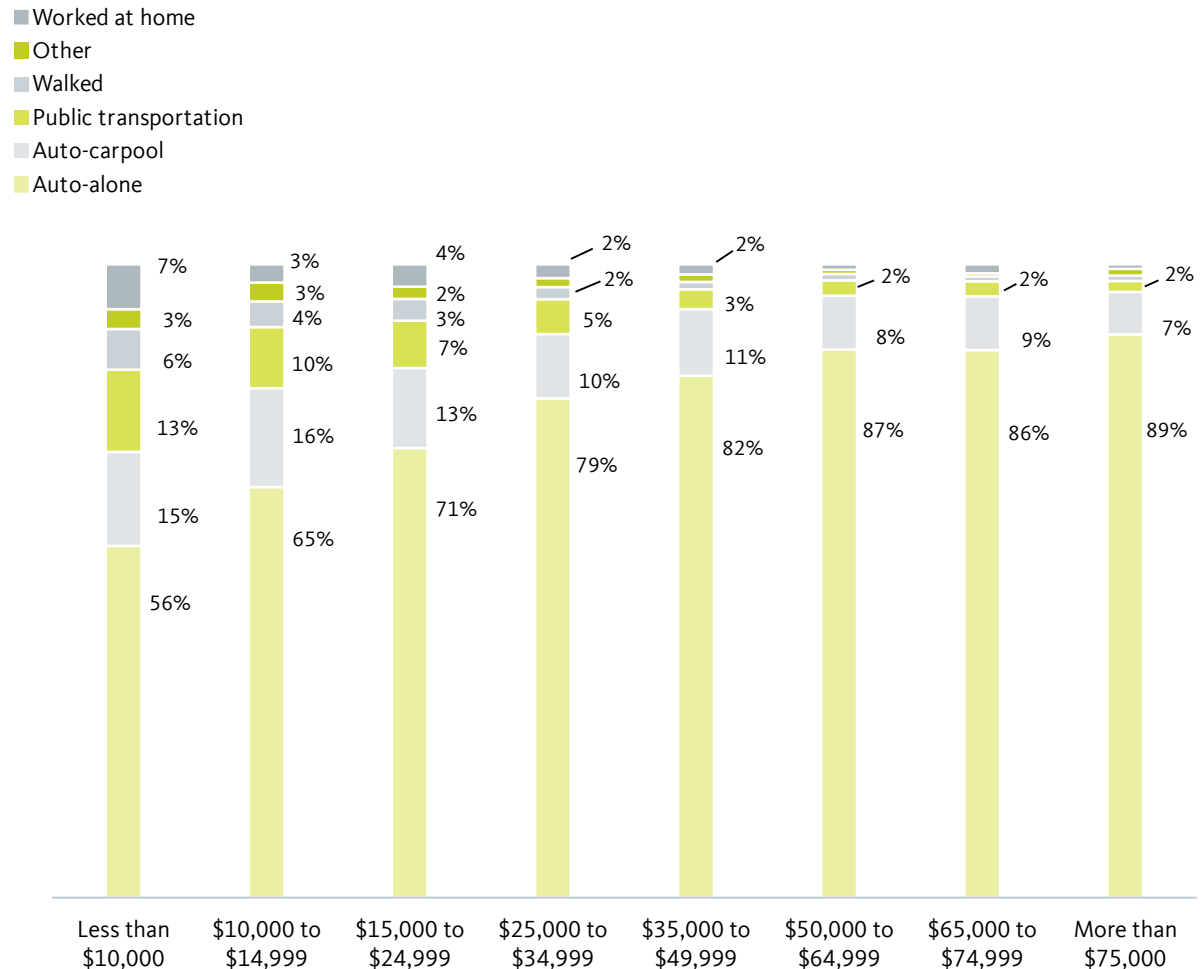
The vast majority of residents drive alone to work. However single-driver commuting varies by income. Only 56 percent of very low-income workers (earning under $10,000 per year) drive alone to work, compared to 89 percent of workers who make over $75,000 a year.

The tendency of residents to utilize public transportation to commute also decreases steadily as income increases.

Lower-income residents are more likely to utilize public transportation and carpool
Means of Transportation to Work by Annual Earnings, 2014

- Worked at home
- Other
- Walked
- Public transportation
- Auto-carpool
- Auto-alone

	Less than $10,000	$10,000 to $14,999	$15,000 to $24,999	$25,000 to $34,999	$35,000 to $49,999	$50,000 to $64,999	$65,000 to $74,999	More than $75,000
Worked at home	7%	3%	4%	2%	2%			
Other	3%	3%	2%	2%		2%	2%	2%
Walked	6%	4%	3%	5%	3%			7%
Public transportation	13%	10%	7%	10%	11%	8%	9%	
Auto-carpool	15%	16%	13%	79%	82%			
Auto-alone	56%	65%	71%			87%	86%	89%

Source: U.S. Census Bureau. Universe includes workers ages 16 and older with earnings.
Note: Data represent a 2010 through 2014 average. Dollar values are in 2014 dollars. Figures may not add up to total due to rounding.

Connectedness
Communities of color are more likely to be carless

Vehicle access is generally high outside of the city, but low and variable within the Detroit city limits. In many neighborhoods, at least 27 percent of households do not have access to a vehicle. In neighborhoods where 99 percent or more of residents are people of color, households are much more likely to be carless. Neighborhoods closest to downtown and the center of the city tend to have the highest rate of carless households.

Carless households are concentrated in specific neighborhoods throughout the city
Percent of Households Without a Vehicle by Census Tract, 2014

Less than 15%
15% to 21%
21% to 27%
27% to 36%
36% or more

99% or more people of color
Detroit City Boundary
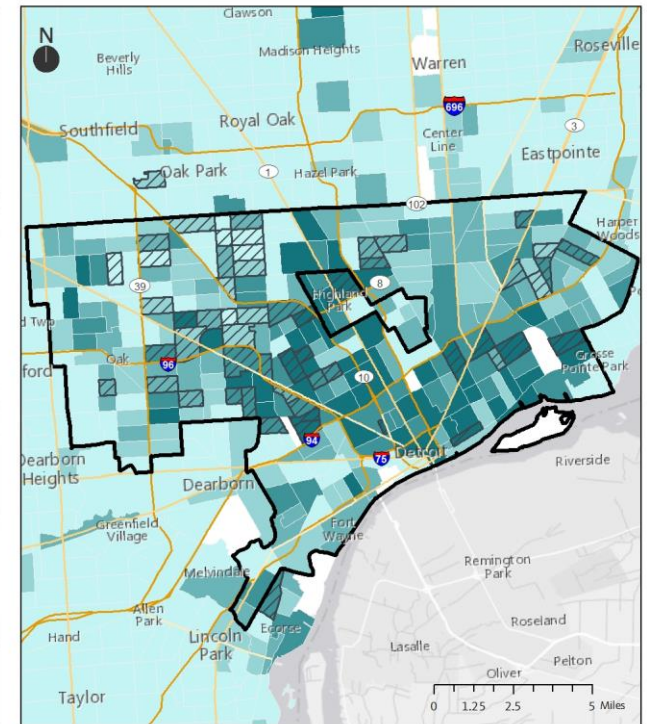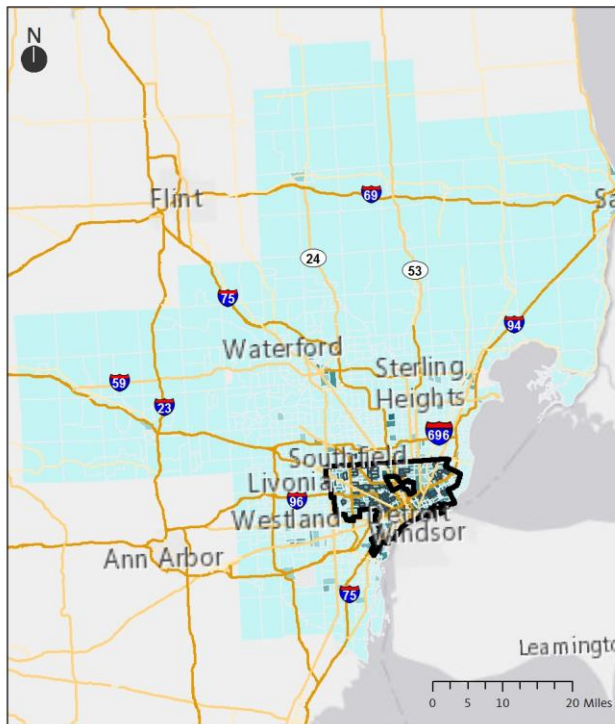
Sources: U.S. Census Bureau; TomTom, ESRI, HERE, DeLorme, MaymyIndia, © OpenStreetMap contributors, and the GIS user community. Universe includes all households (no group quarters). Note: Data represent a 2010 through 2014 average. Areas in white are missing data.
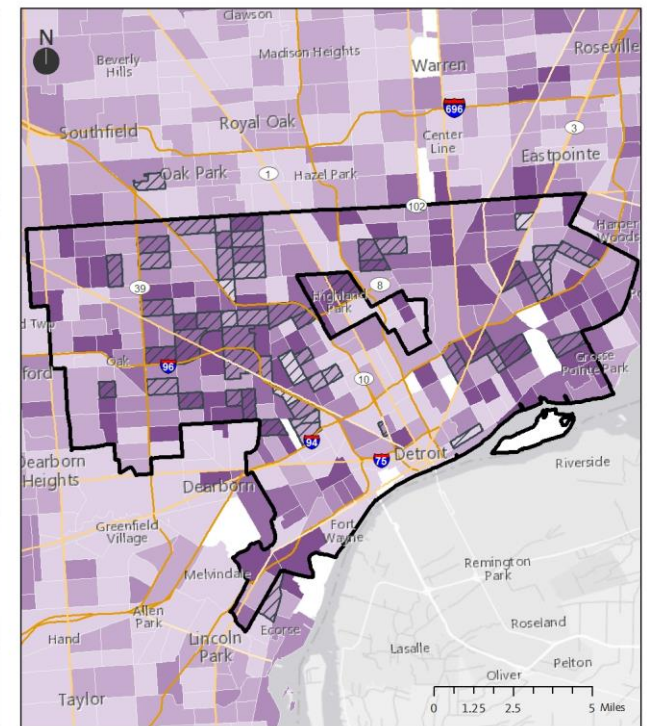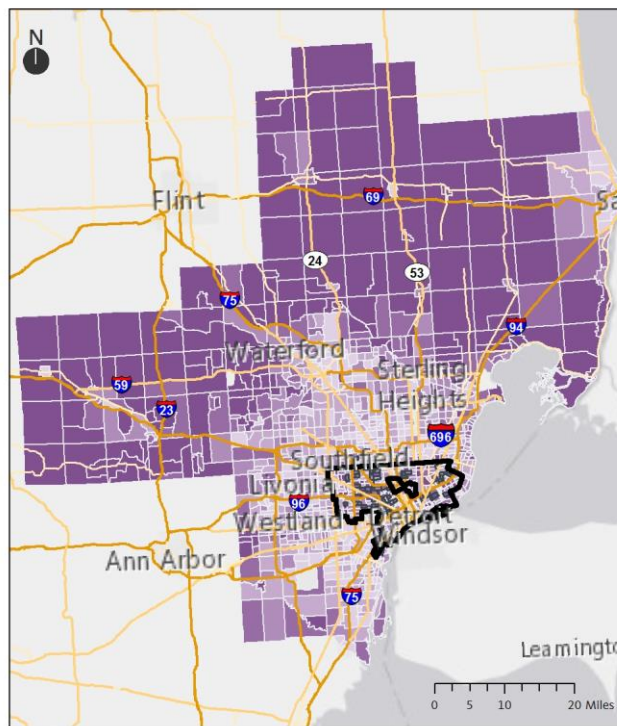
Connectedness
Long commutes for some inner-city communities of color

Workers living in the areas closest to the city's downtown neighborhoods have the fastest commute times. Many, though not all, of the neighborhoods with the highest shares of people of color have medium (26 minutes) to long (30 minutes or more) commutes. Workers living in the City of Detroit have a mix of short (23 minutes) to medium commutes, while workers living in Livingston, Lapeer, St. Clair and Macomb counties spend the most time getting to work.

Workers with longer commute times tend to live in or near to communities that are predominantly people of color
Average Travel Time to Work by Census Tract, 2014
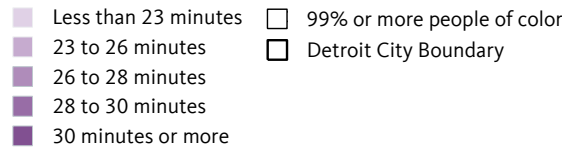
- Less than 23 minutes
- 23 to 26 minutes
- 26 to 28 minutes
- 28 to 30 minutes
- 30 minutes or more

- 99% or more people of color
- Detroit City Boundary

Sources: U.S. Census Bureau; TomTom, ESRI, HERE, DeLorme, MaymyIndia, © OpenStreetMap contributors, and the GIS user community. Universe includes all persons ages 16 or older who work outside of home. Note: Data represent a 2010 through 2014 average. Areas in white are missing data.

Connectedness
A unaffordable rental market

Although the price of homes is relatively low in Detroit compared to many other cities, lower income residents still face serious housing cost challenges.

The city ranks very high in the share of renters who are burdened by housing costs, defined as spending more than 30 percent of income on housing. Detroit ranks 2nd among the largest 100 cities in the nation, with 67 percent of its population experiencing rent burden.

Compared to other similarly sized metros in the Midwest, the city has higher renter burden than Minneapolis (50 percent) or St. Louis (54 percent).

The city of Detroit has one of the highest shares of rent-burdened households in the country
Share of Households that Are Rent Burdened, 2014: Largest 100 Cities, Ranked
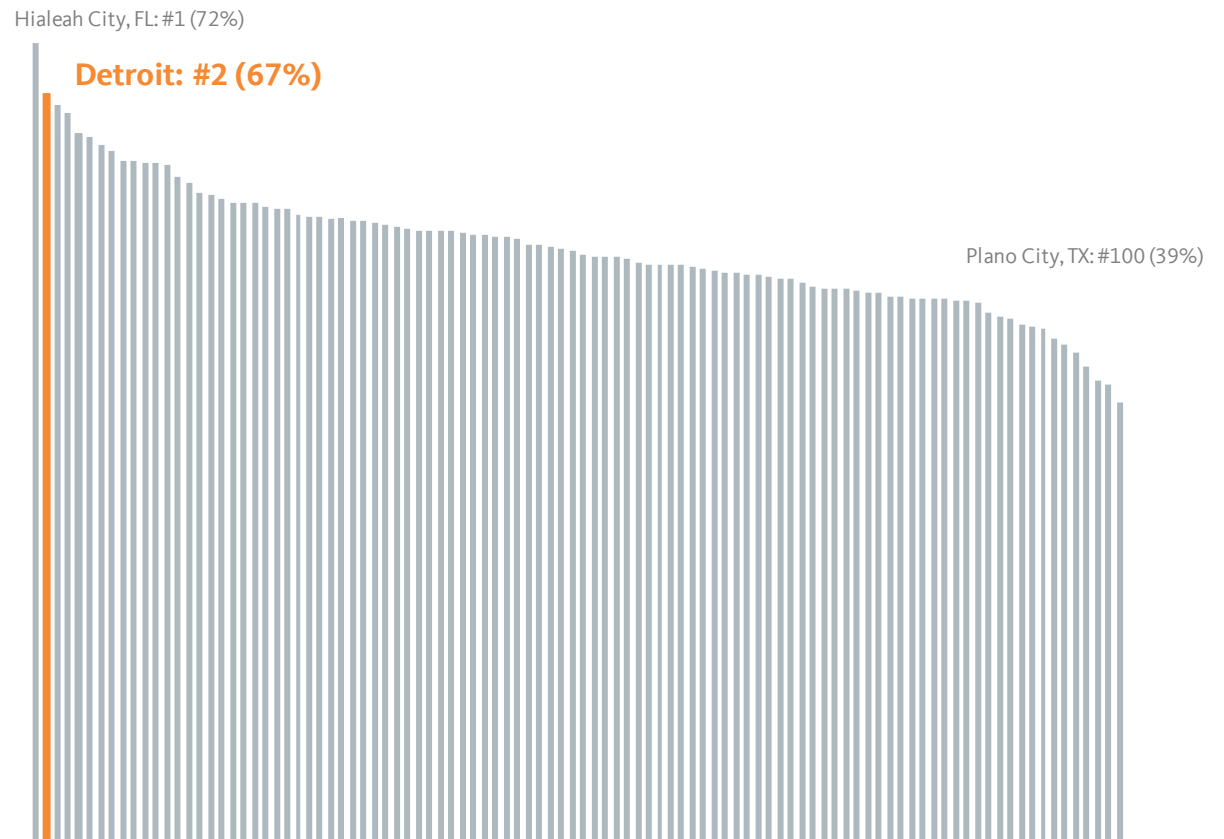
Hialeah City, FL: #1 (72%)

Detroit: #2 (67%)

Plano City, TX: #100 (39%)

Source: Integrated Public Use Microdata Series. Universe includes renter-occupied households with cash rent (excludes group quarters).
Note: Data represent a 2010 through 2014 average.

Connectedness
Black households face higher housing burdens

Generally, people of color are more likely than Whites to spend a large share of their income on housing, whether they rent or own. Black households have the highest housing burden among both renters (6967 percent) and homeowners (37 percent). While Latino homeowners have higher housing burdens than their White counterparts (31 versus 29 percent), their likelihood of experiencing rent burden is slightly lower (53 versus 59 percent).

Housing burden is defined as paying more than 30 percent of household income toward housing.

Nearly 70 percent of Black renters are cost burdened
Renter Housing Burden by Race/Ethnicity, 2014
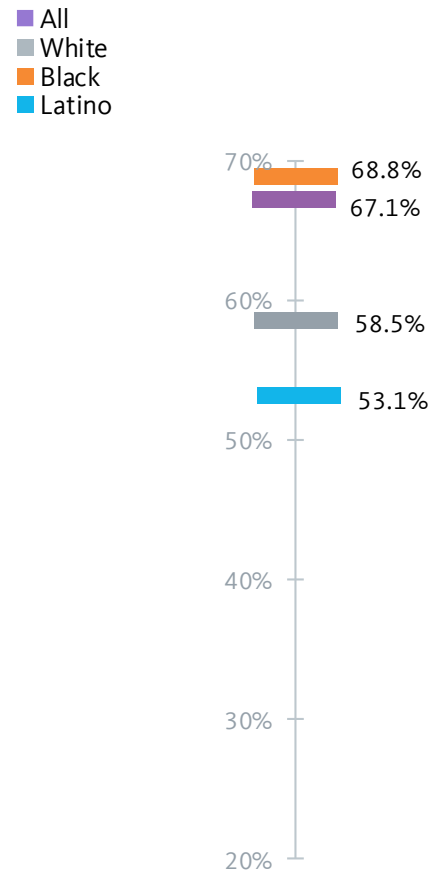
- All
- White
- Black
- Latino

- 68.8%
- 67.1%
- 58.5%
- 53.1%

African American homeowners are more likely to experience housing burden
Homeowner Housing Burden by Race/Ethnicity, 2014

- All
- White
- Black
- Latino

- 36.8%
- 35.7%
- 30.7%
- 28.6%

Source: Integrated Public Use Microdata Series. Universe includes renter-occupied households with cash rent (excludes group quarters).
Note: Data represent a 2010 through 2014 average.
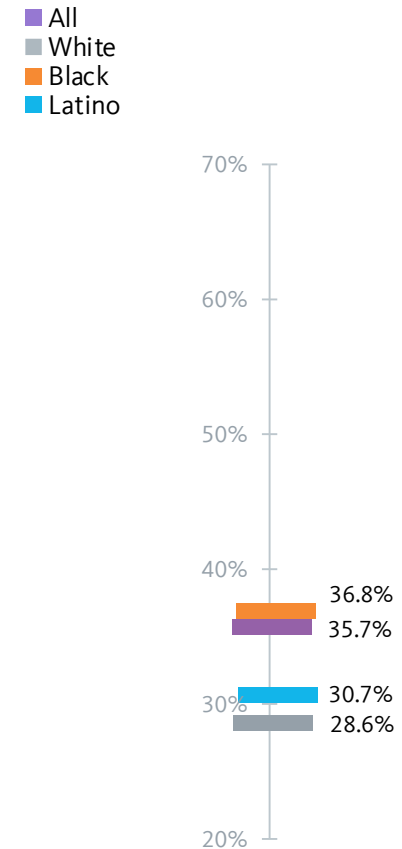
Source: Integrated Public Use Microdata Series. Universe includes owner-occupied households (excludes group quarters).
Note: Data represent a 2010 through 2014 average.

Economic benefits

Economic benefits
Highlights
What are the benefits of racial economic inclusion to the broader economy?

- The Detroit region's economy could have been $29 billion stronger in 2014 – nearly a 13 percent increase – if its racial gaps in income had been closed.

- With racial equity in income in the city of Detroit, people of color would see their average annual income grow by 25 percent. With racial equity region-wide, people of color would see gains of 61 percent.

- With the exception of Latinos, 100% of racial income gaps experienced by people of color in the city are due to differences in employment (employment rates and hours worked) as compared to their White peers.

Potential GDP gain with racial equity in the broader region:

$29 billion

Income gains with racial equity for people of color in the city of Detroit:

25%

Economic benefits of inclusion
A potential $29 billion per year GDP boost from racial equity

Detroit stands to gain a great deal from addressing racial inequities. The region's economy could have been nearly $30 billion stronger in 2014 if its racial gaps in income had been closed: a 13 percent increase.

Using data on income by race, we calculated how much higher total economic output would have been in 2014 if all racial groups who currently earn less than Whites had earned similar average incomes as their White counterparts, controlling for age.

The Detroit region's GDP would have been $29 billion higher if there were no racial gaps in income
Actual GDP and Estimated GDP without Racial Gaps in Income, 2014

Equity Dividend: $29.4 billion

$262.6

$233.2
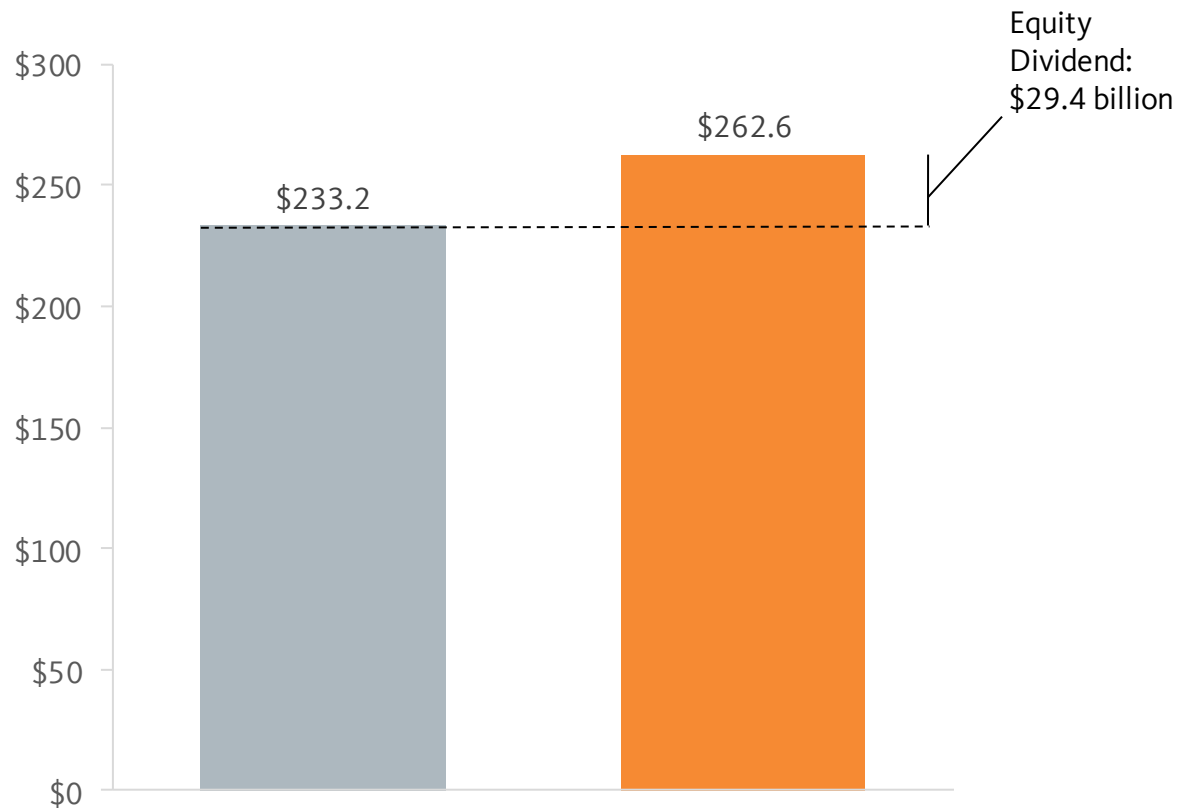
Sources: Integrated Public Use Microdata Series; Bureau of Economic Analysis.
Note: Data reflects the Detroit-Warren-Livonia, Michigan Metropolitan Statistical Area as defined by the U.S. Office of Management and Budget and represent a 2010 through 2014 average. Values are in 2014 dollars.

Economic benefits of inclusion
Average income for people of color in the city would increase by about 25 percent with racial equity

People of color in the Detroit region as a whole are projected to see their incomes grow by 61 percent with racial equity. In the city of Detroit, people of 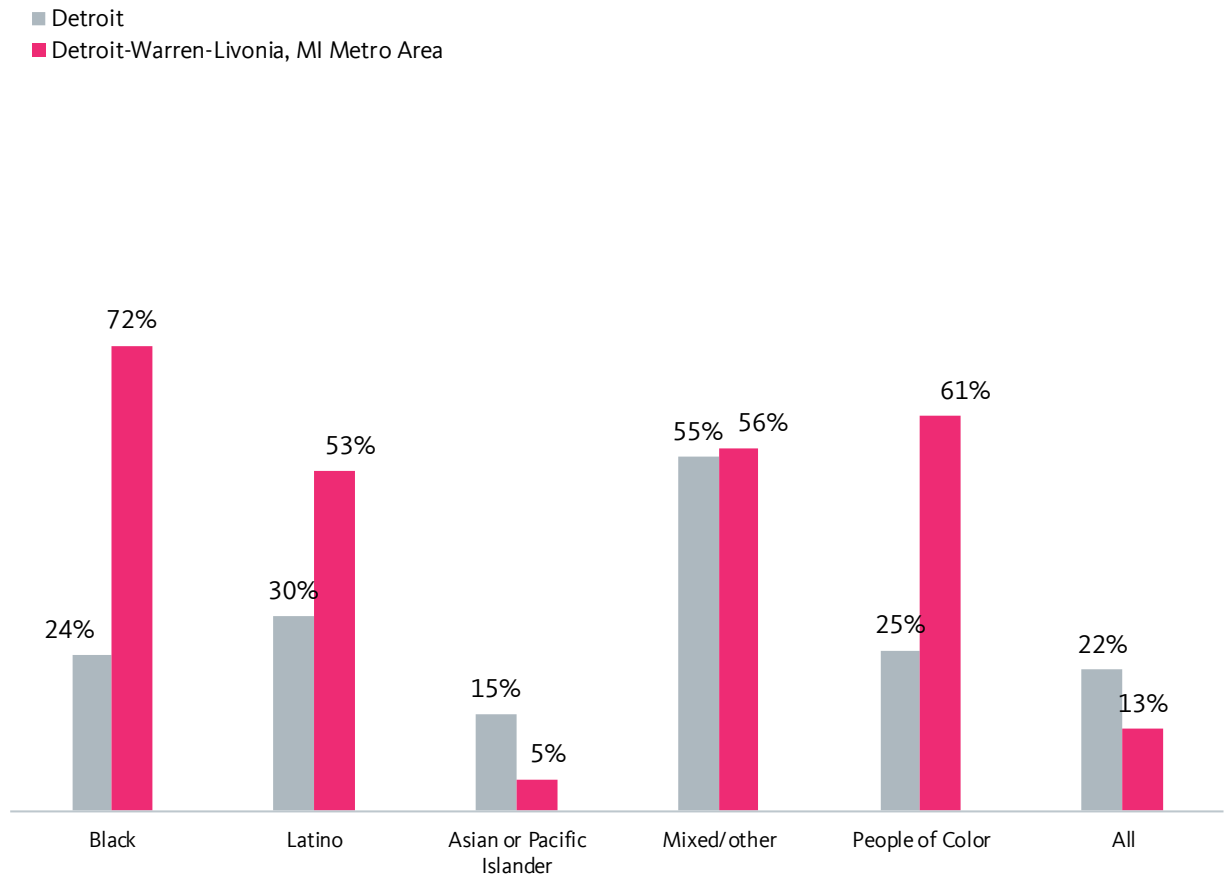color would see average gains of 25 percent. Overall, the average city resident would experience a 22 percent increase in income. African American residents in the city would experience a 24 percent increase in income, while the benefit to Black workers throughout the region would amount to a 72 percent increase.

Income gains were estimated by calculating the percentage increase in income for each racial/ethnic group if they had the same average annual income (and income distribution) and hours of work as non-Hispanic Whites, controlling for age. It is important to point out for this comparison that the city-level analysis assumes racial equity within the city of Detroit while the regional analysis assumes racial equity across the entire metropolitan area. Given that racial gaps in income are greater across the region than within the city, so are the gains with racial equity.

Residents of mixed/other racial backgrounds would experience the largest income increases with racial equity in the city
Percentage Gain in Income with Racial Equity by Race/Ethnicity, 2014

- Detroit
- Detroit-Warren-Livonia, MI Metro Area

	Black	Latino	Asian or Pacific Islander	Mixed/other	People of Color	All
Detroit	24%	30%	15%	55%	25%	22%
Detroit-Warren-Livonia, MI Metro Area	72%	53%	5%	56%	61%	13%

Source: Integrated Public Use Microdata Series.
Note: Data represent a 2010 through 2014 average.

Economic benefits of inclusion
Virtually all of the potential income gains would come from closing gaps in employment

We also examined how much of the city's racial income gap was due to differences in wages and how much was due to differences in employment (measured by employment rates and hours worked). In the city of Detroit, for all racial/ethnic groups with the exception of Latinos, differences in employment account for the entirety of the income gap.

Differences in employment explain the racial income gap in the City of Detroit
Source of Gains in Income with Racial Equity By Race/Ethnicity, 2014
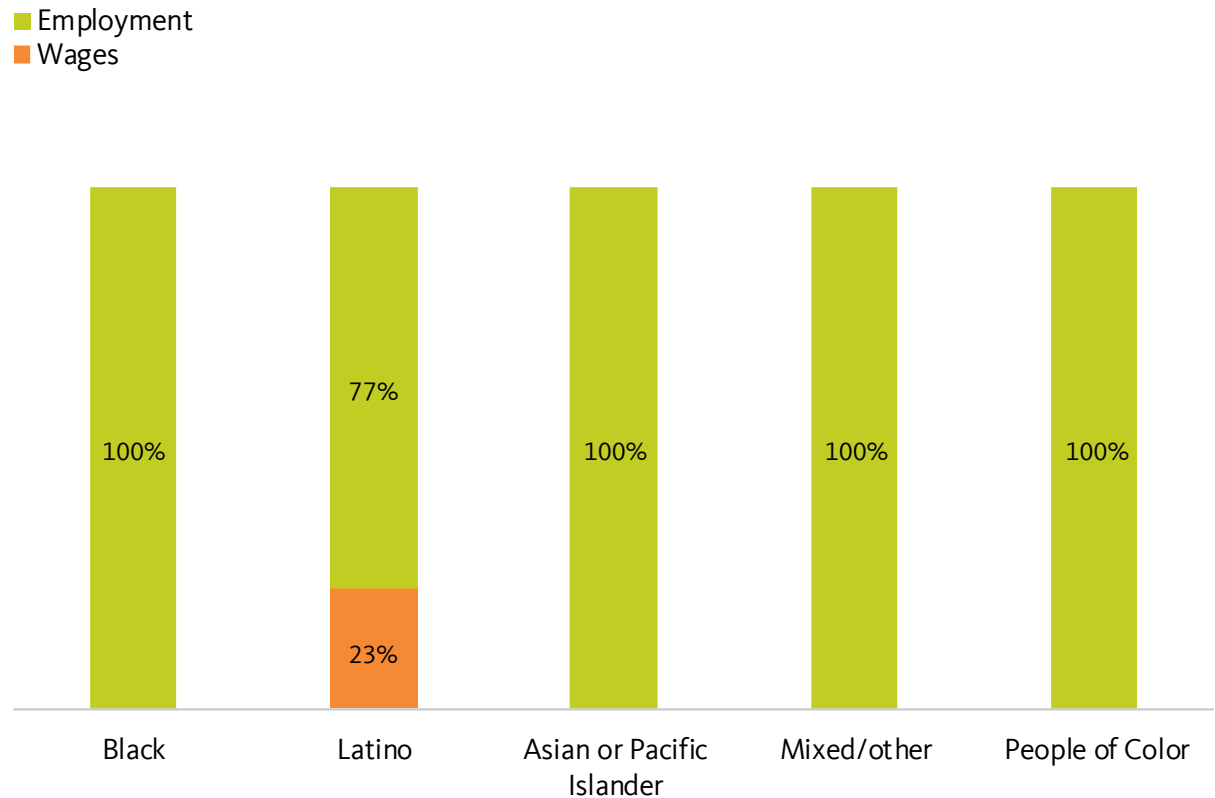
- Employment
- Wages

Black	Latino	Asian or Pacific Islander	Mixed/other	People of Color
100%	77% (Employment) / 23% (Wages)	100%	100%	100%

Source: Integrated Public Use Microdata Series.
Note: Data represent a 2010 through 2014 average.

Implications

Implications
Building a more equitable city and region

After decades of job and population loss, the Detroit region has shown recent signs of growth. The City of Detroit's climb out of bankruptcy, along with major new public and private investments in and around the Detroit downtown and Midtown area in infrastructure, new development, and business activity, signal a growing momentum toward what some have called a Detroit Renaissance. However, deep racial disparities, regional political fractures, declining wages, and loss of high-wage manufacturing jobs threaten the economic viability of the region and the city.

As the region and city undergo demographic transitions and continue on a path toward economic recovery, business, community, and political leaders must work together to connect communities of color to jobs, business opportunities, quality education and career training, and healthy homes and neighborhoods. Tremendous work is already underway, which can be strengthened and built upon. PolicyLink and PERE suggest the

following areas of focus to ensure all residents – particularly low-income residents and communities of color – contribute to and benefit from the region's vibrant, equitable economic future.

Grow good, accessible jobs that provide pathways to the middle class

Job growth will continue in the region – more than 170,000 jobs are projected to be created between 2012 and 2022. However, unemployment and poverty – particularly in communities of color – are still above the national averages. Similarly, wage and opportunity growth is unequal across jobs, especially when educational attainment is considered. A significant number of new, well-paying jobs need to be created in the city, not only in the central area but also in neighborhoods and industrial areas.

This entails a two-pronged approach. First, economic and workforce development efforts should focus on entrepreneurship and business development for the majority of residents of color in sectors that are locally

based, growing, and tend to pay good wages. Detroit has several major hospitals and universities that are growing, making business-to-business (B-to-B) services involving these anchor institutions a potentially lucrative area for enterprise development. The Detroit Economic Growth Corporation (DEGC), for example, runs a program called D2D to connect Detroit companies with local small businesses for contracts and services. To date, the program has generated over $16 million in increased spending to Detroit-based businesses. Broader entrepreneurship and business development initiatives, such as the New Economy Initiative (NEI), have launched hundreds of new firms and created thousands of new jobs by investing in business support organizations around the region. Both D2D and NEI have a focus on supporting minority-owned businesses and job creation in communities of color, in sectors ranging from neighborhood services to food production, business-to-business services and supplies, and various technology fields.

Implications
Building a more equitable city and region

(continued)

Second, the jobs that are being created need to be good jobs. Wages have declined more than 20 percent for Detroit's lowest-income workers since 1979, and the rate of working poverty has been increasing, particularly for workers of color. In 2014, the state passed legislation to increase the minimum wage to $9.25 by 2018. Additional efforts can build on this momentum to raise wages even further and to provide important worker benefits, such as guaranteed paid sick days. Increasingly, business support organizations such as FoodLab Detroit are working with small business owners and entrepreneurs of color on how to start and grow a successful company where the business, workers, and community thrive together. These types of initiatives embody equitable growth and should be supported.

Connect unemployed and low-wage workers to careers in high-growth industries
In tandem with job creation efforts, it is vital for Detroit to connect its workers who have

suffered from job losses with jobs that pay good wages and offer career opportunities. Communities of color face the highest unemployment in the city and earn significantly lower wages than their White counterparts with the same educational attainment.

Our analysis of strong industries and high-opportunity occupations reinforces the importance of current workforce training efforts in industries like health care and information technology. Partnerships between employers and workforce agencies – such as ExperienceIT and Michigan Earn and Learn – have proven track records connecting workers to good careers. ExperienceIT provides eight weeks of job training in informational technology; the first class of 43 students graduated in fall 2014, and over half the graduates obtained full-time positions with partner companies. Launched in 2011, Michigan Earn and Learn served nearly 1,300 unemployed residents during its first 18 months, 44 percent of whom had a high school diploma or less of education and over

a third of whom had criminal records. Working with 80 employers, training providers were able to place nearly 900 participants in transitional jobs primarily in manufacturing, retail, and health care.[2] Michigan Earn and Learn has proven to be a national model for providing residents who have significant barriers to employment with the skills training and job experience they need to develop longer-term careers.

Strengthen educational pathways
Educational attainment for Black and Latino residents is a critical issue for the long-term economic strength of the region; while 44 percent of all jobs in Michigan by 2020 will require an associate's degree or higher, only 5 percent of Latino immigrants, 12 percent of U.S.-born Latinos, and 19 percent of Black residents have attained that level of education or higher. The city's rate of disconnected youth – those not in school or working – is alarmingly high. The city has the highest rate of disconnected youth in the country, as compared to the 100 largest cities. More than 30,000 youth are not in school or

Implications
Building a more equitable city and region

(continued)

Working. The root of this problem lies in the long-term lack of adequate investment in the revitalization of public education in Detroit, but there is much that can and should be done for the city's current generation young people. Programs like the Detroit Scholarship Fund, administered by the Detroit Regional Chamber, grants free tuition for any Detroit-resident high school graduate for an associate's degree or technical certification at five local community colleges. Scholarships like these reduce financial barriers to higher education and can encourage high school students to stay connected to school, addressing the high rate of disconnected youth in the region. Programs like these should be strengthened and expanded to increase high school and associate degree graduation rates throughout the region. Educational supports should begin even earlier, with middle-school and high-school curricula that introduce important 21st century skills, like coding and app and website development.

Expand transportation choices and mobility
Transportation is one of the largest barriers faced by low-income residents accessing school, a job, day care, and other daily necessities. Nearly one in five Black households in Detroit do not own a car, but with limited transit service in the city, a resident's commute to the job-rich Downtown and Midtown areas is nearly four times longer by transit than by car.[3] New investments in the M-1 light rail line in Downtown and Midtown Detroit, and plans to launch bike-sharing in the city, will increase mobility for some residents. But with many job and housing opportunities located outside of Detroit, regional coordination and additional funding through bodies such as the Regional Transit Authority will be essential to developing a robust, safe, and affordable transit system, including expanded bus services between cities and suburbs and across the region.

Create healthier and safer communities
Investments in healthy communities could reduce health gaps for people of color, create more vibrant places, and strengthen economic productivity. Many low-income neighborhoods face significant infrastructure needs that impact their health, including blight removal, working streetlights, guaranteed affordable access to water, and safe streets. Grass-roots initiatives such as Healthy Neighborhoods for a Healthy Detroit, a partnership with the University of Michigan's School of Public Health, identified the potential health and equity effects of redistributing city service and infrastructure investments toward more populated parts of the city, as proposed in the Detroit Future City framework. The city is also home to scores of innovative urban agriculture projects, food justice activists and social entrepreneurs who are providing healthy alternatives for low-income residents. Although the region has faced considerable population loss, there is a lack of quality affordable housing for low-income residents. In all of these efforts, strong policies need to be in place to ensure resident participation in decisions impacting their neighborhoods, from blight mitigation to new development,

Implications
Building a more equitable city and region
(continued)

and to direct new investments toward building healthy communities.

Ensure diverse civic participation and leadership to advance equity

Although Black-White segregation has declined, overall segregation in the city has increased. Extreme differences in resident demographics, unemployment, and poverty rates across geography underlines the importance of broad civic participation and diverse leadership to ensure all communities are involved in city decision making. Public, private, and philanthropic partners should support leadership development and capacity-building efforts focused on historically underrepresented communities to build the city's multicultural and multiracial leadership. The Michigan Roundtable for Diversity and Inclusion, for example, has led a number of important initiatives to develop leadership to advance regional equity and inclusion. The regional Fair Housing Equity Assessment completed recently under a grant from the U.S. Department of Housing and Urban Development (HUD) to Southeast

Michigan Council of Governments (SEMCOG), provided a framework for seeing how places across the metropolitan region compared with respect to having the elements of "communities of opportunity." It documents the need for the kinds of investments discussed in this section, an assessment which should be reinforced by the next analysis of Detroit that will hopefully be done under the HUD rule to Affirmatively Further Fair Housing. These analyses, like the Equity Profile itself, can provide support for expanded local and regional organizing and civic engagement in support of more equitable development.

[1] National Equity Atlas, Job and GDP growth indicator from U.S. Bureau of Economic Analysis data, http://nationalequityatlas.org/indicators?ind=7206.
[2] Margaret Schultz, Michigan Earn and Learn: An Outcome & Implementation Evaluation of a Transitional Job and Training Program (Chicago, IL: Social Impact Research Center, 2014), http://socialimpactresearchcenter.issuelab.org/resource/michigan_earn_and_learn_an_outcome_and_implementation_evaluation_of_a_transitional_job_and_training_program.
[3] Mass Economics, Presentation to the Innovation Districts Advisory Group at Brookings Institution, Washington, D.C. October 9, 2014.

Data and methods

Data and methods
Data source summary and regional geography

Unless otherwise noted, all of the data and analyses presented in this profile are the product of PolicyLink and the USC Program for Environmental and Regional Equity (PERE), and reflect the City of Detroit, Michigan. The specific data sources are listed in the table shown here.

While much of the data and analysis presented in this profile are fairly intuitive, in the following pages we describe some of the estimation techniques and adjustments made in creating the underlying database, and provide more detail on terms and methodology used. Finally, the reader should bear in mind that while only a single city is profiled here, many of the analytical choices in generating the underlying data and analyses were made with an eye toward replicating the analyses in other cities and regions and the ability to update them over time. Thus, while more regionally specific data may be available for some indicators, the data in this profile draws from our regional equity indicators database that provides data that are comparable and replicable over time.

Source	Dataset
Integrated Public Use Microdata Series (IPUMS)	1980 5% State Sample
	1990 5% Sample
	2000 5% Sample
	2010 American Community Survey, 5-year microdata sample
	2010 American Community Survey, 1-year microdata sample
	2014 American Community Survey, 5-year microdata sample
U.S. Census Bureau	1980 Summary Tape File 1 (STF1)
	1980 Summary Tape File 2 (STF2)
	1990 Summary Tape File 2A (STF2A)
	1990 Modified Age/Race, Sex and Hispanic Origin File (MARS)
	1990 Summary Tape File 4 (STF4)
	2000 Summary File 1 (SF1)
	2010 Summary File 1 (SF1)
	2014 American Community Survey, 5-year summary file
	2010 TIGER/Line Shapefiles, 2010 Census Block Groups
	2014 TIGER/Line Shapefiles, 2014 Census Tracts
	2010 TIGER/Line Shapefiles, 2010 Counties
Geolytics	1980 Long Form in 2010 Boundaries
	1990 Long Form in 2010 Boundaries
	2000 Long Form in 2010 Boundaries
Woods & Poole Economics, Inc.	2016 Complete Economic and Demographic Data Source
U.S. Bureau of Economic Analysis	Gross Domestic Product by State
	Gross Domestic Product by Metropolitan Area
	Local Area Personal Income Accounts, CA30: Regional Economic Profile
U.S. Bureau of Labor Statistics	Quarterly Census of Employment and Wages
	Local Area Unemployment Statistics
	Occupational Employment Statistics
Centers for Disease Control and Prevention	Behavioral Risk Factor Surveillance System (BRFSS)
U.S. Environmental Protection Agency	2011 National-Scale Air Toxics Assessment (NATA)
The Reinvestment Fund	2014 Analysis of Limited Supermarket Access (LSA)
The diversitydatakids.org Project	W.K. Kellogg Foundation Priority Communities Dashboard Database
Michigan Department of Technology, Management and Budget, Bureau of Labor Market Information and Strategic Initiatives	Long-Term Industry Employment Projections, 2012 to 2022
	Long-Term Occupational Employment Projections, 2012 to 2022
Georgetown University Center on Education and the Workforce	Updated projections of education requirements of jobs in 2020, originally appearing in: Recovery: Job Growth And Education Requirements Through 2020; State Report

Data and methods
Selected terms and general notes

Broad racial/ethnic origin

In all of the analyses presented, all categorization of people by race/ethnicity and nativity is based on individual responses to various census surveys. All people included in our analysis were first assigned to one of six mutually exclusive racial/ethnic categories, depending on their response to two separate questions on race and Hispanic origin as follows:

• "White" and "non-Hispanic White" are used to refer to all people who identify as White alone and do not identify as being of Hispanic origin.

• "Black" and "African American" are used to refer to all people who identify as Black or African American alone and do not identify as being of Hispanic origin.

• "Latino" refers to all people who identify as being of Hispanic origin, regardless of racial identification.

• "Asian American and Pacific Islander," "Asian or Pacific Islander," "Asian," and "API" are used to refer to all people who identify as Asian American or Pacific Islander alone and do not identify as being of Hispanic origin.

• "Native American" and "Native American and Alaska Native" are used to refer to all people who identify as Native American or Alaskan Native alone and do not identify as being of Hispanic origin.

• "Mixed/other," "other or mixed race," etc. are used to refer to all people who identify with a single racial category not included above, or identify with multiple racial categories, and do not identify as being of Hispanic origin.

• "People of color" or "POC" is used to refer to all people who do not identify as non-Hispanic White.

Nativity

The term "U.S.-born" refers to all people who identify as being born in the United States (including U.S. territories and outlying areas), or born abroad to American parents. The term "immigrant" refers to all people who identify as being born abroad, outside of the United States, to non-American parents.

Detailed racial/ethnic ancestry

Given the diversity of ethnic origin and large presence of immigrants among the Latino and Asian populations, we sometimes present data for more detailed racial/ethnic categories within these groups. In order to maintain consistency with the broad racial/ethnic categories, and to enable the examination of second-and-higher generation immigrants, these more detailed categories (referred to as "ancestry") are drawn from the first response to the census question on ancestry, recorded in the Integrated Public Use Microdata Series (IPUMS) variable "ANCESTR1." For example, while country-of-origin information could have been used to identify Filipinos among the Asian population or Salvadorans among the Latino population, it could do so only for immigrants, leaving only the broad "Asian" and "Latino" racial/ethnic categories for the U.S.-born population. While this methodological choice makes little difference in the numbers of immigrants by origin we report – i.e., the vast majority of immigrants from El Salvador mark "Salvadoran" for their ancestry – it is an important point of clarification.

Data and methods
Selected terms and general notes
(continued)

Other selected terms

Below we provide some definitions and clarification around some of the terms used in the profile:

- The term "region" may refer to a city but typically refers to metropolitan areas or other large urban areas (e.g. large cities and counties). The terms "metropolitan area," "metro area," and "metro" are used interchangeably to refer to the geographic areas defined as Metropolitan Statistical Areas under the December 2003 definitions of the Office of Management and Budget (OMB).

- The term "neighborhood" is used at various points throughout the profile. While in the introductory portion of the profile this term is meant to be interpreted in the colloquial sense, in relation to any data analysis it refers to census tracts.

- The term "communities of color" generally refers to distinct groups defined by race/ethnicity among people of color.

- The term "high school diploma" refers to both an actual high school diploma as well as high school equivalency or a General

Educational Development (GED) certificate.

- The term "full-time" workers refers to all persons in the IPUMS microdata who reported working at least 45 or 50 weeks (depending on the year of the data) and usually worked at least 35 hours per week during the year prior to the survey. A change in the "weeks worked" question in the 2008 American Community Survey (ACS), as compared with prior years of the ACS and the long form of the decennial census, caused a dramatic rise in the share of respondents indicating that they worked at least 50 weeks during the year prior to the survey. To make our data on full-time workers more comparable over time, we applied a slightly different definition in 2008 and later than in earlier years: in 2008 and later, the "weeks worked" cutoff is at least 50 weeks while in 2007 and earlier it is 45 weeks. The 45-week cutoff was found to produce a national trend in the incidence of full-time work over the 2005-2010 period that was most consistent with that found using data from

the March Supplement of the Current Population Survey, which did not experience a change to the relevant survey questions. For more information, see: https://www.census.gov/content/dam/Census/library/working-papers/2012/demo/Gottschalck_2012FCSM_VII-B.pdf.

General notes on analyses

Below, we provide some general notes about the analysis conducted:

- In regard to monetary measures (income, earnings, wages, etc.) the term "real" indicates the data has been adjusted for inflation. All inflation adjustments are based on the Consumer Price Index for all Urban Consumers (CPI-U) from the U.S. Bureau of Labor Statistics.

Data and methods
Summary measures from IPUMS microdata

Although a variety of data sources were used, much of our analysis is based on a unique dataset created using microdata samples (i.e., "individual-level" data) from the Integrated Public Use Microdata Series (IPUMS), for four points in time: 1980, 1990, 2000, and 2010-2014 pooled together. While the 1980 through 2000 files are based on the decennial census and each cover about 5 percent of the U.S. population, the 2010-2014 files are from the ACS and cover only about 1 percent of the U.S. population each. Five years of ACS data were pooled together to improve the statistical reliability and to achieve a sample size that is comparable to that available in previous years. Survey weights were adjusted as necessary to produce estimates that represent an average over the 2010-2014 period.

Compared with the more commonly used census "summary files," which include a limited set of summary tabulations of population and housing characteristics, use of the microdata samples allows for the flexibility to create more illuminating metrics

of equity and inclusion, and provides a more nuanced view of groups defined by age, race/ethnicity, and nativity for various geographies in the United States.

The IPUMS microdata allows for the tabulation of detailed population characteristics, but because such tabulations are based on samples, they are subject to a margin of error and should be regarded as estimates – particularly in smaller regions and for smaller demographic subgroups. In an effort to avoid reporting highly unreliable estimates, we do not report any estimates that are based on a universe of fewer than 100 individual survey respondents.

A key limitation of the IPUMS microdata is geographic detail. Each year of the data has a particular lowest level of geography associated with the individuals included, known as the Public Use Microdata Area (PUMA) for years 1990 and later, or the County Group in 1980. PUMAs are generally drawn to contain a population of about 100,000, and vary greatly in geographic size

from being fairly small in densely populated urban areas, to very large in rural areas, often with one or more counties contained in a single PUMA.

The major challenge for our purposes is that PUMAs do not neatly align with the boundaries of cities and metro areas, where often there are several PUMAs entirely contained within the core of the city or metro areas and several other, more peripheral PUMAs straddling the boundary.

Because PUMAs do not neatly align with the boundaries of cities and metro areas, we created a geographic crosswalk between PUMAs and each geography for the 1980, 1990, 2000, and 2010-2014 microdata. For simplicity, the description below refers only to the PUMA-to-city crosswalk but the same procedure was used to generate the PUMA-to-metro area crosswalk.

We first estimated the share of each PUMA's population that fell inside each city using population information specific to each year

Data and methods
Summary measures from IPUMS microdata
(continued)

from Geolytics, Inc. at the 2000 census block group level of geography (2010 population information was used for the 2010-2014 geographic crosswalk). If the share was at least 50 percent, then the PUMAs were assigned to the city and included in generating our city summary measures. For most PUMAs assigned to a city, the share was 100 percent.

For the remaining PUMAs, however, the share was somewhere between 50 and 100 percent, and this share was used as the "PUMA adjustment factor" to adjust downward the survey weights for individuals included in such PUMAs when estimating regional summary measures. Finally, we made one final adjustment to the individual survey weights in all PUMAs assigned to a city: we applied a "regional adjustment factor" to ensure that the weighted sum of the population from the PUMAs assigned to city matched the total population reported in the official census summary files for each year/period. The final adjusted survey weight used to make all city estimates was, thus, equal to the product of

the original survey weight in the IPUMS microdata, the PUMA adjustment factor, and the regional adjustment factor.

To measure geographic fit, we calculated three measures: the share of the city population in each year that was derived from PUMAs that were 80 percent, 90 percent, and 100 percent contained in the city (based on population counts in each year). For example, a city with perfect geographic fit would be one in which 100 percent of the population was derived from PUMAs for which 100 percent of the PUMA population was contained in that city. A city of dubious geographic fit thus might be one in which zero percent of its population was from 80-percent-contained PUMAs (indicating that all of the PUMAs assigned to it were somewhere between 50 and 80 percent contained, since a PUMA must be at least 50 percent to be assigned to the city in the first place).

The table shown below provides the above measures of fit for the city of Detroit, along with the regional adjustment factor that

was applied (which again, gives a sense of how much the population from PUMAs allocated to the city had to be adjusted to match the actual city population in each year).

Percentage of city population from:	1980	1990	2000	2010-2014
completely contained PUMAs	1.00	0.79	1.00	0.99
90% contained PUMAs	1.00	1.00	1.00	0.99
80% contained PUMAs	1.00	1.00	1.00	0.99
Regional adjustment factor:	1.00	1.02	1.01	1.01

As can be seen, the geographic fit for the city of Detroit is near perfect, with some slight mismatch in 1990, when only 79 percent of the city population from which estimates are drawn is based on PUMAs that are completely contained in the city (and 100 percent of the population is from PUMAs that are at least 90 percent contained in the city). Moreover, a comparison of the percentage people of color, the poverty rate, and the percentage immigrant calculated from the IPUMS microdata and the ACS summary file shows that they are very similar, differing by no more than 1.8 percentage points in any year (and less than 1 percentage points in most years).

Data and methods
Adjustments made to census summary data on race/ethnicity by age

For the racial generation gap indicator, we generated consistent estimates of populations by race/ethnicity and age group (under 18, 18-64, and over 64 years of age) for the years 1980, 1990, 2000, and 2014 (which reflects a 2010-2014 average), at the city and county levels, which were then aggregated to the regional level and higher. The racial/ethnic groups include non-Hispanic White, non-Hispanic Black, Hispanic/Latino, non-Hispanic Asian or Pacific Islander, non-Hispanic Native American/Alaska Native, and non-Hispanic Other (including other single race alone and those identifying as multiracial, with the latter group only appearing in 2000 and later due to a change in the survey question). While for 2000 and later years, this information is readily available in SF1 and in the ACS, for 1980 and 1990, estimates had to be made to ensure consistency over time, drawing on two different summary files for each year.

For 1980, while information on total population by race/ethnicity for all ages combined was available at the city and county

levels for all the requisite groups in STF2, for race/ethnicity by age group we had to look to STF1, where it was only available for non-Hispanic White, non-Hispanic Black, Hispanic, and the remainder of the population. To estimate the number of non-Hispanic Asian or Pacific Islanders, non-Hispanic Native Americans, and non-Hispanic Others among the remainder for each age group, we applied the distribution of these three groups from the overall city and county populations (across all ages) to that remainder.

For 1990, the level of detail available in the underlying data differed at the city and county levels, calling for different estimation strategies. At the county level, data by race/ethnicity was taken from STF2A, while data by race/ethnicity and age was taken from the 1990 MARS file—a special tabulation of people by age, race, sex, and Hispanic origin. However, to be consistent with the way race is categorized by the OMB's Directive 15, the MARS file allocates all persons identifying as "other race alone" or multiracial to a specific race. After confirming that population totals

by county (across all ages) were consistent between the MARS file and STF2A, we calculated the number of "other race alone" or multiracial people who had been added to each racial/ethnic group in each county by subtracting the number who were reported in STF2A for the corresponding group. We then derived the share of each racial/ethnic group in the MARS file (across all ages) that was made up of "other race alone" or multiracial people and applied it to estimate the number of people by race/ethnicity and age group exclusive of "other race alone" or multiracial people and the total number of "other race alone" or multiracial people in each age group.

For the 1990 city-level estimates, all data were from STF1, which provided counts of the total population for the six broad racial/ethnic groups required but not counts by age. Rather, age counts were only available for people by single race alone (including those of Hispanic origin) as well as for all people of Hispanic origin combined. To estimate the number of people by race/ethnicity and age for the six

Data and methods
Adjustments made to census summary data on race/ethnicity by age

(continued)

broad racial/ethnic groups that are detailed in the profile, we first calculated the share of each single-race alone group that was Hispanic based on the overall population (across all ages). We then applied it to the population counts by age and race alone to generate an initial estimate of the number of Hispanic and non-Hispanic people in each age/race alone category. This initial estimate was multiplied by an adjustment factor (specific to each age group) to ensure that the sum of the estimated number of Hispanic people across the race alone categories within each age group equated to the "actual" number of Hispanic origin by age as reported in STF1. Finally, an Iterative Proportional Fitting (IPF) procedure was applied to ensure that our final estimate of the number of people by race/ ethnicity and age was consistent with the total population by race/ethnicity (across all ages) and total population by age group (across all racial/ethnic categories) as reported in STF1.

Data and methods
Adjustments made to demographic projections

National projections

National projections of the non-Hispanic White share of the population are based on the U.S. Census Bureau's 2014 National Population Projections. However, because these projections follow the OMB 1997 guidelines on racial classification and essentially distribute the other single-race alone group across the other defined racial/ethnic categories, adjustments were made to be consistent with the six broad racial/ethnic groups used in our analysis.

Specifically, we compared the percentage of the total population composed of each racial/ethnic group from the Census Bureau's Population Estimates program for 2015 (which follows the OMB 1997 guidelines) to the percentage reported in the 2015 ACS 1-year Summary File (which follows the 2000 Census classification). We subtracted the percentage derived using the 2015 Population Estimates program from the percentage derived using the 2015 ACS to obtain an adjustment factor for each group

(all of which were negative, except that for the mixed/other group) and carried this adjustment factor forward by adding it to the projected percentage for each group in each projection year. Finally, we applied the resulting adjusted projected population distribution by race/ethnicity to the total projected population from the 2014 National Population Projections to get the projected number of people by race/ethnicity in each projection year.

County and regional projections

Similar adjustments were made in generating county and regional projections of the population by race/ethnicity. Initial county-level projections were taken from Woods & Poole Economics, Inc. Like the 1990 MARS file described above, the Woods & Poole projections follow the OMB Directive 15-race categorization, assigning all persons identifying as other or multiracial to one of five mutually exclusive race categories: White, Black, Latino, Asian/Pacific Islander, or Native American. Thus, we first generated an adjusted version of the county-level Woods &

Poole projections that removed the other or multiracial group from each of these five categories. This was done by comparing the Woods & Poole projections for 2010 to the actual results from SF1 of the 2010 Census, figuring out the share of each racial/ethnic group in the Woods & Poole data that was composed of other or mixed-race persons in 2010, and applying it forward to later projection years. From these projections, we calculated the county-level distribution by race/ethnicity in each projection year for five groups (White, Black, Latino, Asian/Pacific Islander, and Native American), exclusive of other and mixed-race people.

To estimate the county-level share of population for those classified as Other or mixed race in each projection year, we then generated a simple straight-line projection of this share using information from SF1 of the 2000 and 2010 Census. Keeping the projected other or mixed race share fixed, we allocated the remaining population share to each of the other five racial/ethnic groups by applying the racial/ethnic distribution implied

Data and methods
Adjustments made to demographic projections
(continued)

by our adjusted Woods & Poole projections for each county and projection year. The result was a set of adjusted projections at the county level for the six broad racial/ethnic groups included in the profile, which were then applied to projections of the total population by county from the Woods & Poole data to get projections of the number of people for each of the six racial/ethnic groups.

Finally, an Iterative Proportional Fitting (IPF) procedure was applied to bring the county-level results into alignment with our adjusted national projections by race/ethnicity described above. The final adjusted county results were then aggregated to produce a final set of projections at the regional, metro area, and state levels.

Data and methods
Estimates and adjustments made to BEA data on GDP

The data on national gross domestic product (GDP) and its analogous regional measure, gross regional product (GRP) – both referred to as GDP in the text – are based on data from the U.S. Bureau of Economic Analysis (BEA). However, due to changes in the estimation procedure used for the national (and state-level) data in 1997, and a lack of metropolitan area estimates prior to 2001, a variety of adjustments and estimates were made to produce a consistent series at the national, state, metropolitan-area, and county levels from 1969 to 2014.

Adjustments at the state and national levels
While data on gross state product (GSP) are not reported directly in the profile, they were used in making estimates of gross product at the county level for all years and at the regional level prior to 2001, so we applied the same adjustments to the data that were applied to the national GDP data. Given a change in BEA's estimation of gross product at the state and national levels from a standard industrial classification (SIC) basis to a North American Industry Classification

System (NAICS) basis in 1997, data prior to 1997 were adjusted to prevent any erratic shifts in gross product in that year. While the change to a NAICS basis occurred in 1997, BEA also provides estimates under an SIC basis in that year. Our adjustment involved figuring the 1997 ratio of NAICS-based gross product to SIC-based gross product for each state and the nation, and multiplying it by the SIC-based gross product in all years prior to 1997 to get our final estimate of gross product at the state and national levels.

County and metropolitan area estimates
To generate county-level estimates for all years, and metropolitan-area estimates prior to 2001, a more complicated estimation procedure was followed. First, an initial set of county estimates for each year was generated by taking our final state-level estimates and allocating gross product to the counties in each state in proportion to total earnings of employees working in each county – a BEA variable that is available for all counties and years. Next, the initial county estimates were aggregated to metropolitan-area level, and

were compared with BEA's official metropolitan-area estimates for 2001 and later. They were found to be very close, with a correlation coefficient very close to one (0.9997). Despite the near-perfect correlation, we still used the official BEA estimates in our final data series for 2001 and later. However, to avoid any erratic shifts in gross product during the years until 2001, we made the same sort of adjustment to our estimates of gross product at the metropolitan-area level that was made to the state and national data – we figured the 2001 ratio of the official BEA estimate to our initial estimate, and multiplied it by our initial estimates for 2000 and earlier to get our final estimate of gross product at the metropolitan-area level.

We then generated a second iteration of county-level estimates – just for counties included in metropolitan areas – by taking the final metropolitan-area-level estimates and allocating gross product to the counties in each metropolitan area in proportion to total earnings of employees working in each

Data and methods
Estimates and adjustments made to BEA data on GDP
(continued)

county. Next, we calculated the difference between our final estimate of gross product for each state and the sum of our second-iteration county-level gross product estimates for metropolitan counties contained in the state (that is, counties contained in metropolitan areas). This difference, total nonmetropolitan gross product by state, was then allocated to the nonmetropolitan counties in each state, once again using total earnings of employees working in each county as the basis for allocation. Finally, one last set of adjustments was made to the county-level estimates to ensure that the sum of gross product across the counties contained in each metropolitan area agreed with our final estimate of gross product by metropolitan area, and that the sum of gross product across the counties contained in state agreed with our final estimate of gross product by state. This was done using a simple IPF procedure. The resulting county-level estimates were then aggregated to the regional and metro area levels.

We should note that BEA does not provide

data for all counties in the United States, but rather groups some counties that have had boundary changes since 1969 into county groups to maintain consistency with historical data. Any such county groups were treated the same as other counties in the estimate techniques described above.

Data and methods
Middle-class analysis

To analyze middle-class decline over the past four decades, we began with the regional household income distribution in 1979 – the year for which income is reported in the 1980 Census (and the 1980 IPUMS microdata). The middle 40 percent of households were defined as "middle class," and the upper and lower bounds in terms of household income (adjusted for inflation to be in 2010 dollars) that contained the middle 40 percent of households were identified. We then adjusted these bounds over time to increase (or decrease) at the same rate as real average household income growth, identifying the share of households falling above, below, and in between the adjusted bounds as the upper, lower, and middle class, respectively, for each year shown. Thus, the analysis of the size of the middle class examined the share of households enjoying the same relative standard of living in each year as the middle 40 percent of households did in 1979.

Data and methods
Assembling a complete dataset on employment and wages by industry

Analysis of jobs and wages by industry, reported on pages 50-51, and 54-55, is based on an industry-level dataset constructed using two-digit NAICS industries from the Bureau of Labor Statistics' Quarterly Census of Employment and Wages (QCEW). Due to some missing (or nondisclosed) data at the county and regional levels, we supplemented our dataset using information from Woods & Poole Economics, Inc., which contains complete jobs and wages data for broad, two-digit NAICS industries at multiple geographic levels. (Proprietary issues barred us from using Woods & Poole data directly, so we instead used it to complete the QCEW dataset.)

Given differences in the methodology underlying the two data sources (in addition to the proprietary issue), it would not be appropriate to simply "plug in" corresponding Woods & Poole data directly to fill in the QCEW data for nondisclosed industries. Therefore, our approach was to first calculate the number of jobs and total wages from nondisclosed industries in each county, and

then distribute those amounts across the nondisclosed industries in proportion to their reported numbers in the Woods & Poole data.

To make for a more accurate application of the Woods & Poole data, we made some adjustments to it to better align it with the QCEW. One of the challenges of using Woods & Poole data as a "filler dataset" is that it includes all workers, while QCEW includes only wage and salary workers. To normalize the Woods & Poole data universe, we applied both a national and regional wage and salary adjustment factor; given the strong regional variation in the share of workers who are wage and salary, both adjustments were necessary. Another adjustment made was to aggregate data for some Woods & Poole industry codes to match the NAICS codes used in the QCEW.

It is important to note that not all counties and regions were missing data at the two-digit NAICS level in the QCEW, and the majority of larger counties and regions with missing data were only missing data for a

small number of industries and only in certain years. Moreover, when data are missing it is often for smaller industries. Thus, the estimation procedure described is not likely to greatly affect our analysis of industries, particularly for larger counties and regions.

The same above procedure was applied at the county and state levels. To assemble data at for regions and metro areas, we aggregated the county-level results.

Data and methods
Growth in jobs and earnings by industry wage level, 1990 to 2015

The analysis on pages 50-51 uses our filled-in QCEW dataset (see the previous page) and seeks to track shifts in regional job composition and wage growth by industry wage level.

Using 1990 as the base year, we classified all broad private sector industries (at the two-digit NAICS level) into three wage categories: low, middle, and high wage. An industry's wage category was based on its average annual wage, and each of the three categories contained approximately one-third of all private industries in the region.

We applied the 1990 industry wage category classification across all the years in the dataset, so that the industries within each category remained the same over time. This way, we could track the broad trajectory of jobs and wages in low-, middle-, and high-wage industries.

This approach was adapted from a method used in a Brookings Institution report by Jennifer S. Vey, *Building From Strength: Creating Opportunity in Greater Baltimore's Next Economy* (Washington D.C.: Brookings Institution, 2012).

While we initially sought to conduct the analysis at a more detailed NAICS level, the large amount of missing data at the three- to six-digit NAICS levels (which could not be resolved with the method that was applied to generate our filled-in two-digit QCEW dataset) prevented us from doing so.

Data and methods
Analysis of occupations by opportunity level

The analysis of occupations on pages 56-66 seeks to classify occupations in the region by opportunity level. To identify "high-opportunity" occupations, we developed an "occupation opportunity index" based on measures of job quality and growth, including median annual wage, wage growth, job growth (in number and share), and median age of workers (which represents potential job openings due to retirements). Once the "occupation opportunity index" score was calculated for each occupation, they were sorted into three categories (high-, middle-, and low- opportunity). Occupations were evenly distributed into the categories based on employment.

There are some aspects of this analysis that warrant further clarification. First, the "occupation opportunity index" that is constructed is based on a measure of job quality and set of growth measures, with the job-quality measure weighted twice as much as all of the growth measures combined. This weighting scheme was applied both because we believe pay is a more direct measure of

"opportunity" than the other available measures, and because it is more stable than most of the other growth measures, which are calculated over a relatively short period (2005-2011). For example, an increase from $6 per hour to $12 per hour is fantastic wage growth (100 percent), but most would not consider a $12-per-hour job as a "high-opportunity" occupation.

Second, all measures used to calculate the "occupation opportunity index" are based on data for metropolitan statistical areas from the Occupational Employment Statistics (OES) program of the U.S. Bureau of Labor Statistics (BLS), with one exception: median age by occupation. This measure, included among the growth metrics because it indicates the potential for job openings due to replacements as older workers retire, is estimated for each occupation from the 2010 5-year IPUMS ACS microdata file (for the employed civilian noninstitutional population ages 16 and older). It is calculated at the metropolitan statistical area level (to be consistent with the geography of the OES

data), except in cases for which there were fewer than 30 individual survey respondents in an occupation; in these cases, the median age estimate is based on national data.

Third, the level of occupational detail at which the analysis was conducted, and at which the lists of occupations are reported, is the three-digit standard occupational classification (SOC) level. While considerably more detailed data is available in the OES, it was necessary to aggregate to the three-digit SOC level in order to align closely with the occupation codes reported for workers in the ACS microdata, making the analysis reported on pages 62-65 possible.

Fourth, while most of the data used in the analysis are regionally specific, information on the education level of "typical workers" in each occupation, which is used to divide occupations in the region into the three groups by education level (as presented on pages 63-65), was estimated using national 2010 IPUMS ACS microdata (for the employed civilian noninstitutional population

Data and methods
Analysis of occupations by opportunity level
(continued)

ages 16 and older). Although regionally specific data would seem to be the better choice, given the level of occupational detail at which the analysis is conducted, the sample sizes for many occupations would be too small for statistical reliability. And, while using pooled 2006-2010 data would increase the sample size, it would still not be sufficient for many regions, so national 2010 data were chosen given the balance of currency and sample size for each occupation. The implicit assumption in using national data is that the occupations examined are of sufficient detail that there is not great variation in the typical educational level of workers in any given occupation from region to region. While this may not hold true in reality, it is not a terrible assumption, and a similar approach was used in a Brookings Institution report by Jonathan Rothwell and Alan Berube, *Education, Demand, and Unemployment in Metropolitan America* (Washington D.C.: Brookings Institution, September 2011).

We should also note that the BLS does publish national information on typical education

needed for entry by occupation. However, in comparing these data with the typical education levels of actual workers by occupation that were estimated using ACS data, there were important differences, with the BLS levels notably lower (as expected). The levels estimated from the ACS were determined to be the appropriate choice for our analysis as they provide a more realistic measure of the level of educational attainment necessary to be a viable job candidate – even if the typical requirement for entry is lower.

Fifth, it is worthwhile to clarify an important distinction between the lists of occupations by typical education of workers and opportunity level, presented on pages 59-61, and the charts depicting the opportunity level associated with jobs held by workers with different education levels and backgrounds by race/ethnicity, presented on pages 63-65. While the former are based on the national estimates of typical education levels by occupation, with each occupation assigned to one of the three broad education levels

described, the latter are based on actual education levels of workers in the region (as estimated using 2010 5-year IPUMS ACS microdata), who may be employed in any occupation, regardless of its associated "typical" education level.

Lastly, it should be noted that for all of the occupational analysis, it was an intentional decision to keep the categorizations by education and opportunity broad, with three categories applied to each. For the categorization of occupations, this was done so that each occupation could be more justifiably assigned to a single typical education level; even with the three broad categories some occupations had a fairly even distribution of workers across them nationally, but, for the most part, a large majority fell in one of the three categories. In regard to the three broad categories of opportunity level and education levels of workers, this was done to ensure reasonably large sample sizes in the 2010 5-year IPUMS ACS microdata that was used for the analysis.

Data and methods
Health data and analysis

Health data presented are from the Behavioral Risk Factor Surveillance System (BRFSS) database, housed in the Centers for Disease Control and Prevention. The BRFSS database is created from randomized telephone surveys conducted by states, which then incorporate their results into the database on a monthly basis.

The results of this survey are self-reported and the population includes all related adults, unrelated adults, roomers, and domestic workers who live at the residence. The survey does not include adult family members who are currently living elsewhere, such as at college, a military base, a nursing home, or a correctional facility.

The most detailed level of geography associated with individuals in the BRFSS data is the county. Using the county-level data as building blocks, we created additional estimates for the region, state, and United States.

While the data allow for the tabulation of personal health characteristics, it is important to keep in mind that because such tabulations are based on samples, they are subject to a margin of error and should be regarded as estimates – particularly in smaller regions and for smaller demographic subgroups.

To increase statistical reliability, we combined five years of survey data, for 2008-2012. As an additional effort to avoid reporting potentially misleading estimates, we do not report any estimates that are based on a universe of fewer than 100 individual survey respondents. This is similar to, but more stringent than, a rule indicated in the documentation for the 2012 BRFSS data of not reporting (or interpreting) percentages based on a denominator of fewer than 50 respondents (see: https://www.cdc.gov/brfss/annual_data/2012/pdf/Compare_2012.pdf). Even with this sample size restriction, county and regional estimates for smaller demographic subgroups should be regarded with particular care.

For more information and access to the BRFSS database, see: http://www.cdc.gov/brfss/index.html.

Data and methods
Air pollution data and analysis

The air pollution exposure index is derived from the 2011 National-Scale Air Toxics Assessment (NATA) developed by the U.S. Environmental Protection Agency. The NATA uses general information about emissions sources to develop risk estimates and *does not* incorporate more refined information about emissions sources, which suggests that the impacts of risks may be overestimated. Note, however, that because the analysis presented using this data is relative to the U.S. overall in the case of exposure index, the fact that the underlying risk estimates themselves may be overstated is far less problematic.

The NATA data include estimates of cancer risk and respiratory hazards (noncancer risk) at the census tract level based on exposure to outdoor sources. It is important to note that while diesel particulate matter (PM) exposure is included in the NATA noncancer risk estimates, it is not included in the cancer risk estimates (even though PM is a known carcinogen).

The index of exposure to air pollution presented is based on a combination of separate indices for cancer risk and respiratory hazard at the census tract level, using the 2011 NATA. We followed the approach used by the U.S. Department of Housing and Urban Development (HUD) in developing its Environmental Health Index. The cancer risk and respiratory hazard estimates were combined by calculating tract-level z-scores for each and adding them together as indicated in the formula below:

$$COMBINED_i = \left(\frac{c_i - \mu_c}{\sigma_c}\right) + \left(\frac{r_i - \mu_r}{c_r}\right)$$

Where *c* indicates cancer risk, *r* indicates respiratory risk, *i* indexes census tracts, and μ and σ represent the means and standard deviations, respectively, of the risk estimates across all census tracts in the United States.

The combined tract level index, $COMBINED_i$, was then ranked in ascending order across all tracts in the United States, from 1 to 100.

Finally, the tract-level rankings were summarized to the city, county, and higher levels of geography for various demographic groups (i.e., by race/ethnicity and poverty status) by taking a population-weighted average using the group population as weight, with group population data drawn from the 2014 5-year ACS summary file.

For more information on the NATA data, see http://www.epa.gov/national-air-toxics-assessment.

Data and methods
Measures of diversity and segregation

In the profile, we refer to measures of residential segregation by race/ethnicity (the "diversity score" on page 23, the "multi-group entropy index" on page 83 and the "dissimilarity index" on page 84). While the common interpretation of these measures is included in the text of the profile, the data used to calculate them, and the sources of the specific formulas that were applied, are described below.

All measures are based on census-tract-level data for 1980, 1990, and 2000 from Geolytics, and for 2014 (which reflects a 2010-2014 average) from the 2014 5-year ACS. While the data for 1980, 1990, and 2000 originate from the decennial censuses of each year, an advantage of the Geolytics data we use is that it has been "re-shaped" to be expressed in 2010 census tract boundaries, and so the underlying geography for our calculations is consistent over time; the census tract boundaries of the original decennial census data change with each release, which could potentially cause a change in the value of residential segregation

indices even if no actual change in residential segregation occurred. In addition, while most of the racial/ethnic categories for which indices are calculated are consistent with all other analyses presented in this profile, there is one exception. Given limitations of the tract-level data released in the 1980 Census, Native Americans are combined with Asians or Pacific Islanders in that year. For this reason, we set 1990 as the base year (rather than 1980) in the chart on page 84, but keep the 1980 data in the chart on page 83 as this minor inconsistency in the data is not likely to affect the analysis.

The formula for the multi-group entropy index was drawn from a 2004 report by John Iceland of the University of Maryland, *The Multigroup Entropy Index (Also Known as Theil's H or the Information Theory Index)* available at: https://www.census.gov/topics/housing/housing-patterns/about/multi-group-entropy-index.html. In that report, the formula used to calculate the multi-group entropy index (referred to as the "entropy index" in the report) appears on page 8.

The formula for the dissimilarity index is well established, and is made available by the U.S. Census Bureau at: https://www.census.gov/library/publications/2002/dec/censr-3.html.

Data and methods
Estimates of GDP without racial gaps in income

Estimates of the gains in average annual income and GDP under a hypothetical scenario in which there is no income inequality by race/ethnicity are based on the 2014 5-Year IPUMS ACS microdata. We applied a methodology similar to that used by Robert Lynch and Patrick Oakford in chapter two of *All-In Nation: An America that Works for All,* with some modification to include income gains from increased employment (rather than only those from increased wages). As in the Lynch and Oakford analysis, once the percentage increase in overall average annual income was estimated, 2014 GDP was assumed to rise by the same percentage.

We first organized individuals aged 16 or older in the IPUMS ACS into six mutually exclusive racial/ethnic groups: White, Black, Latino, Asian or Pacific Islander, Native American, and Mixed/other (with all defined non-Hispanic except for Latinos, of course). Following the approach of Lynch and Oakford in *All-In Nation*, we excluded from the non-Hispanic Asian or Pacific Islander category subgroups whose average incomes were

higher than the average for non-Hispanic Whites. Also, to avoid excluding subgroups based on unreliable average income estimates due to small sample sizes, we added the restriction that a subgroup had to have at least 100 individual survey respondents in order to be included.

We then assumed that all racial/ethnic groups had the same average annual income and hours of work, by income percentile and age group, as non-Hispanic Whites, and took those values as the new "projected" income and hours of work for each individual. For example, a 54-year-old non-Hispanic Black person falling between the 85th and 86th percentiles of the non-Hispanic Black income distribution was assigned the average annual income and hours of work values found for non-Hispanic White persons in the corresponding age bracket (51 to 55 years old) and "slice" of the non-Hispanic White income distribution (between the 85th and 86th percentiles), regardless of whether that individual was working or not. The projected individual annual incomes and work hours

were then averaged for each racial/ethnic group (other than non-Hispanic Whites) to get projected average incomes and work hours for each group as a whole, and for all groups combined.

One difference between our approach and that of Lynch and Oakford is that we include all individuals ages 16 years and older, rather than just those with positive income. Those with income values of zero are largely non-working, and were included so that income gains attributable to increased hours of work would reflect both more hours for the those currently working and an increased share of workers – an important factor to consider given differences in employment rates by race/ethnicity. One result of this choice is that the average annual income values we estimate are analogous to measures of per capita income for the age 16- and-older population and are thus notably lower than those reported in Lynch and Oakford. Another is that our estimated income gains are relatively larger as they presume increased employment rates.

Data and methods
Estimates of GDP without racial gaps in income
(continued)

Note that because no GDP data is available at the city level (partly because economies tend to operate at well beyond city boundaries), our estimates of gains in GDP with racial equity are only reported at the regional level. Estimates of income gains and the source of gains by race/ethnicity, however, are reported for the profiled geography.

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