Advancing Health Equity and Inclusive Growth in
Cincinnati

Summary

More than a third of Hamilton County residents live in the city of Cincinnati, which is home to more Fortune 500 companies than any other city in the country. But for too long, not all residents have shared in the prosperity. Communities of color in Hamilton County are growing and buffering overall population loss, but if new investments do not address persistent racial and economic inequities, the county's long-term economic future is at risk.

Hamilton County's economy could have been nearly $10 billion stronger in 2014 alone if racial gaps in income were eliminated. Inclusive growth is the path to sustainable economic prosperity and health equity. To build a Cincinnati economy that works for all, city and county leaders must commit to putting all residents on the path to economic security by targeting resources where there is the most need, investing in the regional transportation network, healthy and affordable housing, and engaging residents in municipal and county decision-making.

Indicators

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Percent People of Color by Census Block Group, 2014

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English-Speaking Ability Among Immigrants by Race/Ethnicity, 2000 and 2014

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Growth in Jobs and Earnings by Industry Wage Level, 1990 to 2012

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Is inequality low and decreasing?

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Indicators

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Poverty Rate by Race/Ethnicity, 2000 and 2014

Child Poverty Rate by Race/Ethnicity, 2014

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Which industries are projected to grow?

Industry Employment Projections, 2012-2022

Which occupations are projected to grow?

Occupational Employment Projections, 2012-2022

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Strong Industries Analysis, 2015

What are the county's strongest occupations?

Strong Occupations Analysis, 2011

What occupations are high opportunity?

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

Occupation Opportunity Index: Occupations by Opportunity Level 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 a Bachelor's Degree or Higher

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Opportunity Ranking of Occupations by Race/Ethnicity, All Workers

Opportunity Ranking of Occupations by Race/Ethnicity, Workers with Low Educational Attainment

Opportunity Ranking of Occupations by Race/Ethnicity, Workers with Middle Educational Attainment

Opportunity Ranking of Occupations by Race/Ethnicity, Workers with High Educational Attainment

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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

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Composite Child Opportunity Index by Census Tract, 2013

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Share of 16- to 24-Year-Olds Not Enrolled in School and without a High School Diploma by Race/Ethnicity, 1990 to 2014

Share of 16- to 24-Year-Olds Not Enrolled in School and without a High School Diploma by Race/Ethnicity and Gender, 2014

Indicators

Disconnected Youth: 16- to 24-Year-Olds Not in School or Work by Race/Ethnicity, 1990 to 2014

Disconnected Youth: 16- to 24-Year-Olds Not in School or Work by Race/Ethnicity and Gender, 1990 to 2014

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Percent Living in Limited Supermarket Access (LSAs) Areas by Race/Ethnicity, 2014

Percent Population in Limited Supermarket Access Areas (LSAs), 2014

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Adult Overweight and Obesity Rates by Geography, 2012

Adult Overweight and Obesity Rates by Race/Ethnicity, 2012

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Adult Asthma Rates by Geography, 2012

Adult Asthma Rates by Race/Ethnicity, 2012

Share of Adults Who Have Had a Heart Attack by Geography, 2012

Share of Adults Who Have Had a Heart Attack by Race/Ethnicity, 2012

Share of Adults with Angina or Coronary Heart Disease by Geography, 2012

Share of Adults with Angina or Coronary Heart Disease by Race/Ethnicity, 2012

Life Expectancy at Birth by Geography, 2015

Life Expectancy at Birth by Race/Ethnicity, 2014

Do residents have access to health insurance and health-care services?

Health Insurance Rates by Geography, 2014

Health Insurance Rates by Race/Ethnicity, 2014

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Can all residents access affordable, quality housing?

Share of Low-Wage Jobs and Affordable Rental Housing Units, 2014

Low-Wage Jobs, Affordable Rental Housing, and Jobs-Housing Ratio, 2014

Percent Rent-Burdened Households by Census Tract, 2014

Renter Housing Burden and Homeowner Housing Burden by Race/Ethnicity, 2014

Do residents have transportation choices?

Percent Households without a Vehicle by Census Tract, 2014

Means of Transportation to Work by Annual Earnings, 2014

Percent Using Public Transit by Annual Earnings and Race/Ethnicity, 2014

Indicators

Foreword

The story of Cincinnati is a tale of two cities. The first Cincinnati exemplifies its reputation as the Queen City, a bright light in the dark night run toward freedom. This Cincinnati is considered by many to be "the northernmost southern city." Home to the Bengals and the Reds, Oktoberfest, and the Music Festival—the largest annual weekend driver of tourism among surrounding states.

And then, there is the other Cincinnati. The city where many of its residents do not benefit from the richness that is here. The place where the voices of those who suffer compounded inequities are often not heard. One of the most segregated communities in the nation. A city where racism far too often prevails.

Produced in 1968, a year after waves of national civil unrest, the Kerner Commission Report warned that unaddressed racial turmoil would result in two nations: one Black and one White. *The State of Black Cincinnati: A Tale of Two Cities* written 47 years later in 2015 confirmed that, for Cincinnati, not much had changed.

For those of us on the All-In Cincinnati Core team, this latest report shook us to our core. So, at the end of 2015, a group of Cincinnatians attended the PolicyLink Equity Summit in Los Angeles, to learn from other advocates from across the country about how we attack the racial and economic inequities here in Cincinnati. We came home, armed with the focus and drive to use our power to make our city a better place for all. Three years later, we are excited to launch a policy agenda for a more equitable Cincinnati.

The foundation for this agenda was already laid by the work of courageous citizens and policymakers who birthed the Collaborative Agreement, the Citizens Complaint Authority, the Community Police Partnering Center, the Minority Business Accelerator, the Wage Theft Ordinance, and the Pre-School Promise. But we've barely scratched the surface of income inequality and the mass incarceration issues facing people of color in Cincinnati and Hamilton County. The status quo is simply not working for the majority of our community. We invite you to study this report with an open mind, an open heart and an eye toward what each of us can do to contribute to this movement. The time for change is now. The force for change is all of us.

The All-In Cincinnati Core Team, consisting of representatives from the following organizations:

AMOS Project
Child Poverty Collaborative
Cincinnati Black United Front
Cincinnati Union Cooperative Initiative
City of Cincinnati Human Relations Commission
City of Cincinnati Economic Inclusion Department
City of Cincinnati Health Department
Collective Empowerment Group Intersections
LISC of Greater Cincinnati and Northern Kentucky
Strive Partnership
Urban League of Southwestern Ohio
The Women's Fund of the Greater Cincinnati Foundation

Acknowledgments

Introduction
Overview

America's cities and metropolitan regions are the nation's engines of economic growth and innovation, and where a new economy that is equitable, resilient, and prosperous must be built.

Policy changes that advance *health equity* can guide leaders toward a new path of shared prosperity. Health equity means that everyone has a just and fair opportunity to be healthy. This requires removing obstacles to attaining and maintaining good health, such as poverty and discrimination, and addressing the social determinants of health: education, employment, income, family and social support, community safety, air and water quality, housing, and transit. Health equity promotes inclusive growth, since healthy people are better able to secure jobs, fully participate in society, and contribute to a vibrant local and regional economy.

This profile analyzes the state of health equity and inclusive growth in Hamilton County, and the accompanying policy brief, *Equity is the Path to Inclusive Prosperity*

summarizes the data and presents recommendations to advance health equity and inclusive growth. They were created by PolicyLink and the USC Program for Environmental and Regional Equity (PERE) in partnership with the Greater Cincinnati Foundation, which works to inspire current and future generations to invest in a more vibrant and prosperous Greater Cincinnati where everyone can thrive.

The data used in this profile were drawn from a regional equity indicators database that includes the largest 100 cities, the largest 150 metro areas, all 50 states, and the United States as a whole. The 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 (BRFSS), and the Integrated Public Use Microdata Series (IPUMS). Note that while we disaggregate most indicators by major racial/ethnic groups, there is too little data on certain populations to report confidently. See the "Data and methods"

section for a more detailed list of data sources.

We hope this information is used broadly by residents and community groups, elected officials, planners, business leaders, funders, and others working to build a stronger and more equitable Cincinnati.

Introduction
What is an equitable county?

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

Strong, equitable counties:

- Possess **economic vitality**, providing high-quality jobs to their residents and producing new ideas, products, businesses, and economic activity so the county 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, where neighborhoods have equitable distribution of resources and no pockets of concentrated poverty, and where residents can reach opportunities located throughout the county (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. Wages have stagnated for the majority of workers, inequality has skyrocketed, and many people of color face racial, gender, and geographic barriers to accessing economic opportunities.

Racial and economic equity is necessary for economic growth and prosperity.

Equity is an economic imperative as well as a moral one. Research shows that inclusion and diversity are win-win propositions for nations, regions, 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]
- The elimination of health disparities would lead to significant economic benefits from reductions in health-care spending and increased productivity.[3]
- Companies with a diverse workforce achieve a better bottom line.[4]
- A diverse population more easily connects to global markets.[5]
- Less 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. Leaders across all sectors must remove barriers to full participation, connect more people to opportunity, and invest in human potential.

Counties play a critical role in shifting to inclusive growth.

Local communities are where strategies are being incubated to foster equitable growth: growing good jobs and new businesses while ensuring that all – including low-income people and people of color – can fully participate as workers, consumers, entrepreneurs, innovators, and leaders.

[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
Equity indicators framework

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

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

Economic vitality:
How is the county doing on measures of economic growth and well-being?
- Is the region 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 county'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? Do they live in health-promoting environments?
- Are health disparities decreasing?
- Are racial gaps in education decreasing?

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

Economic benefits:
What are the benefits of racial economic inclusion to the broader economy?
- What are the projected economic gains of racial equity?
- Do these gains come from closing racial wage or employment gaps?

Introduction
Policy change is the path to health equity and inclusive economic growth

Equity is just and fair inclusion into a society in which all can participate, prosper, and reach their full potential. Health equity, as defined by the Robert Wood Johnson Foundation, means that everyone has a just and fair opportunity to be healthy. This requires removing obstacles to health, such as poverty, poor quality or unaffordable housing, discrimination, and their consequences, which include powerlessness and lack of access to good jobs with fair pay, quality education and housing, safe environments, and health care.

Many of the conditions and policies that advance health equity also promote inclusive growth. Healthy people are better able to secure jobs and participate in their full capacity, creating a vibrant local economy. In a highly complementary way, equitable economic growth – where all residents have access to good jobs and entrepreneurial opportunities – supports the health of residents throughout the region. This happens through tackling structural barriers and ensuring greater economic security, which reduces stress and increases people's

access to health care and preventive services.[1]

Ensuring that policies and systems serve to increase inclusion and remove barriers is particularly important given the history of urban and metropolitan development in the United States. Regions and cities are highly segregated by race and income. Today's cities are patchworks of concentrated advantage and disadvantage, with some neighborhoods home to good schools, bustling commercial districts, services, parks, and other crucial ingredients for economic success, while other neighborhoods provide few of those elements.

These patterns of exclusion were created and continue to be maintained by public policies at the federal, state, regional, and local levels. From redlining to voter ID laws to exclusionary zoning practices and more, government policies have fostered racial inequities in health, wealth, and opportunity. Reversing the trends and shifting to equitable growth requires dismantling barriers and enacting proactive policies that expand

opportunity. Health equity can be achieved through policy and systems changes that remove barriers, build opportunity, and address the social determinants of health, or the factors outside of the health-care system that play a fundamental role in health outcomes. Social determinants of health include both structural drivers, like the inequitable distribution of power and opportunity, and the environments of everyday life – where people are born, live, learn, work, play, worship, and age.[2] There are seven key social determinants of health: education, employment, income, family and social support, community safety, air and water quality, and housing and transit.[3]

[1] Steven H. Woolf, Laudan Aron, Lisa Dubay, Sarah M. Simon, Emily Zimmerman, and Kim X. Luk, *How Are Income and Wealth Linked to Economic Longevity* (Washington, DC: The Urban Institute and the Center on Society and Health, April 2015), http://www.urban.org/sites/default/files/publication/49116/2000178-How-are-Income-and-Wealth-Linked-to-Health-and-Longevity.pdf.

[2] Rachel Davis, Diana Rivera, and Lisa Fujie Parks, *Moving from Understanding to Action on Health Equity: Social Determinants of Health Frameworks and THRIVE* (Oakland, CA: The Prevention Institute, August 2015), https://www.preventioninstitute.org/sites/default/files/publications/Moving%20from%20Understanding%20to%20Action%20on%20Health%20Equity%20%E2%80%93%20Social%20Determinants%20of%20Health%20Frameworks%20and%20THRIVE.pdf.

[3] County Health Rankings and Roadmaps, "Our Approach" (University of Wisconsin Population Health Institute, 2016), http://www.countyhealthrankings.org/our-approach.

Introduction
Health equity and inclusive growth are intertwined

The interconnection between health equity and inclusive growth can be seen across the four dimensions of our framework.

Economic vitality

In a region that cultivates inclusive growth and health equity, good jobs are accessible to all, including less-educated workers, and residents have enough income to sustain their families and save for the future. The region has growing industries, and race/ethnicity and nativity are not barriers to economic success. Economic growth is widely shared, and incomes among lower-paid workers are increasing. The population becomes healthier and more productive, because income is a documented determinant of good health, and reduced economic inequality has been linked to better health outcomes for everyone.

Readiness

In a region that cultivates inclusive economicgrowth and health equity, all residents have the skills needed for jobs of the future, and youth are ready to enter the workforce. High levels of good health are found throughout the population, and racial gaps in health are decreasing. Residents have health insurance and can readily access health-care services.

Connectedness

In a region that cultivates inclusive economic growth and health equity, residents have good transportation choices linking them to a wide range of services that support good health and economic and educational opportunities. Many residents choose to walk, bike, and take public transit – increasing exercise for these residents and reducing air pollution, which positively influence health. Local neighborhood and school environments support health and economic opportunity for all residents, allowing everyone to participate fully in the local economy. Neighborhoods are less segregated by race and income, and all residents wield political power to make their voices heard.

Economic benefits

The elimination of racial health disparities and improving health for all generates significant economic benefits from reductions in health-care spending and increased productivity. Research shows that economic growth is stronger and more sustainable in regions that are more equitable.

Introduction
Key drivers of health equity and inclusive growth

Economic vitality

- Good jobs available to less-educated workers
- Family-supporting incomes
- Rising wages and living standards for lower-income households
- Strong regional industries
- Economic growth widely shared
- Reduced economic inequality
- Shrinking racial wealth gap

Readiness

- Skills for the jobs of the future
- Youth ready to enter the workforce and adapt to economic shifts
- Good population health and reduced health inequities
- Health insurance coverage and access to care

Healthy, economically secure people

Strong, inclusive regional economies

Connectedness

- Transportation and mobility choices, including walking, biking, and public transit
- Inclusive, health-supporting neighborhood and school environments
- Access to quality, affordable housing
- Shared political power and voice

Policies and practices that undo structural racism and foster full inclusion

Introduction
Geography

For the purposes of this profile and data analysis, Cincinnati is defined as Hamilton County, depicted in black on the map to the right. The city of Cincinnati is the county seat, but the county is also home to dozens of other cities, villages, townships, and unincorporated communities. Hamilton County is part of the 15-county Cincinnati-Middletown metro area which spans across Ohio, Kentucky, and Indiana.

Unless otherwise noted, all data presented in the profile use this county boundary. Some exceptions due to lack of data availability 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.

Demographics
Highlights

Who lives in the county and how is this changing?

- The overall population has declined, but the county's communities of color are growing. The U.S.-born White population declined by 72,000 people, but U.S.-born Latinos and Black immigrant populations added more than 14,100 residents combined since 2000.

- The fastest growing race/ethnic groups are also considerably younger than White residents.

- The county is projected to become majority people of color by 2040 – four years before the nation overall.

- The county's racial generation gap – the difference between the share of youth of color and seniors of color – doubled since 1980.

Net growth in the U.S.-born Latino population from 2000 to 2014:

8,658

Median age of Latinos:

## 25

Racial generation gap in 2014 (in percentage points):

22

Demographics

How racially/ethnically diverse is the county?

Hamilton County is still largely Black and White. Two in three residents are White, compared to 63 percent nationwide. Black residents make up the second largest racial/ethnic group in the county (26 percent) followed by Latinos (3 percent).

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 an
- Mixed/other
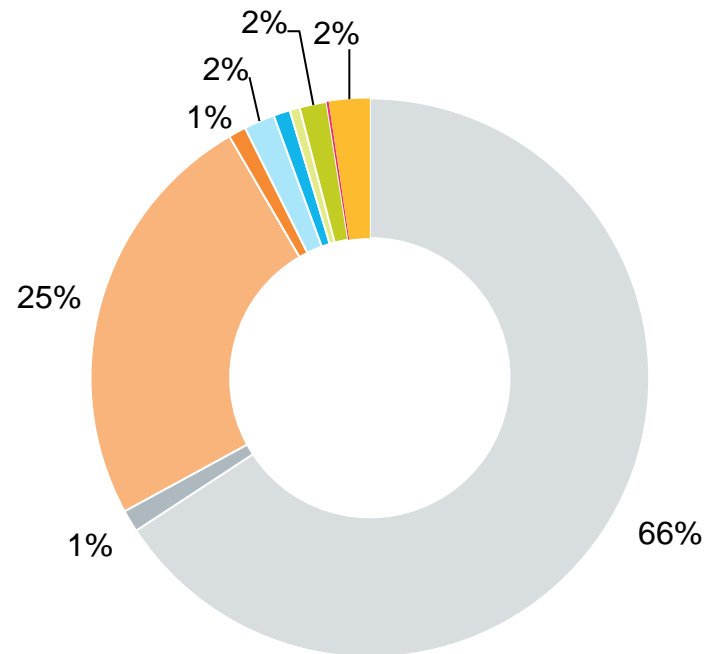
2% 2%
2%
1%
25%
1%
66%

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

Demographics

How racially/ethnically diverse is the county?

The county's communities of color are diverse. Latinos of Mexican ancestry make up 29 percent of all Latinos and over a third are immigrants. Nearly one in three Asian or Pacific Islanders are of Asian Indian ancestry and 84 percent are immigrants. Just 4 percent of Black residents are immigrants.

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

Latino	Population	% Immigrant
Mexican	6,485	38%
Guatemalan	3,488	N/A
Puerto Rican	1,430	N/A
All other Latinos	10,599	N/A
Total	**22,002**	**35%**

Asian or Pacific Islander	Population	% Immigrant
Indian	5,596	84%
Chinese	2,986	73%
Filipino	1,473	N/A
Korean	1,271	N/A
Vietnamese	1,208	N/A
All other API	4,766	N/A
Total	**17,300**	**73%**

Black	Population	% Immigrant
Nigerian	1,184	N/A
Ethiopian/Eritrean	1,067	N/A
Jamaican	637	N/A
Ghanaian	290	N/A
Irish	283	N/A
German	271	N/A
All other Black	201,607	N/A
Total	**205,338**	**4%**

Source: Integrated Public Use Microdata Series.
Note: Data represent a 2010 through 2014 average. "N/A" indicates that data on the percentage of immigrants is not available.
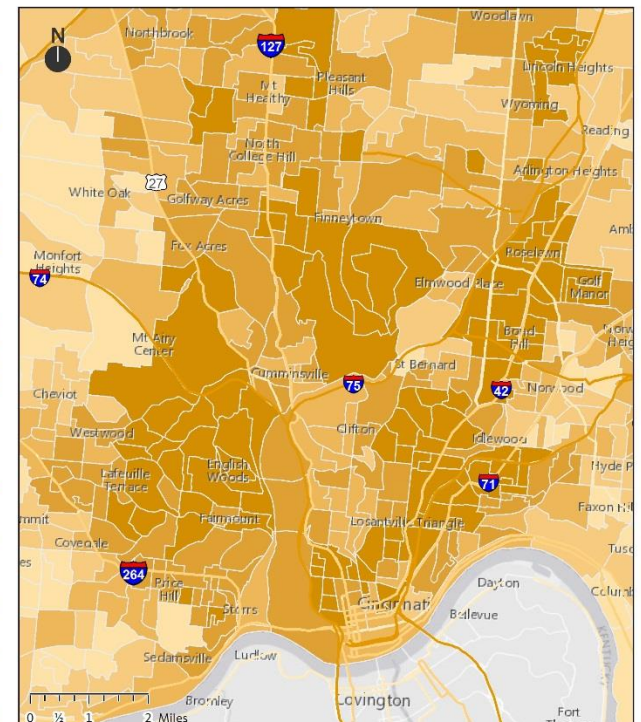
Demographics

How racially/ethnically diverse is the county?

Communities of color are largely clustered in the city of Cincinnati. Many of the cities and unincorporated communities located east and west of Cincinnati are predominately White – where people of color make up less than 8 percent of the population.

Percent People of Color by Census Block Group, 2014

- Less than 6%
- 6% to 16%
- 16% to 36%
- 36% to 65%
- 65% or more
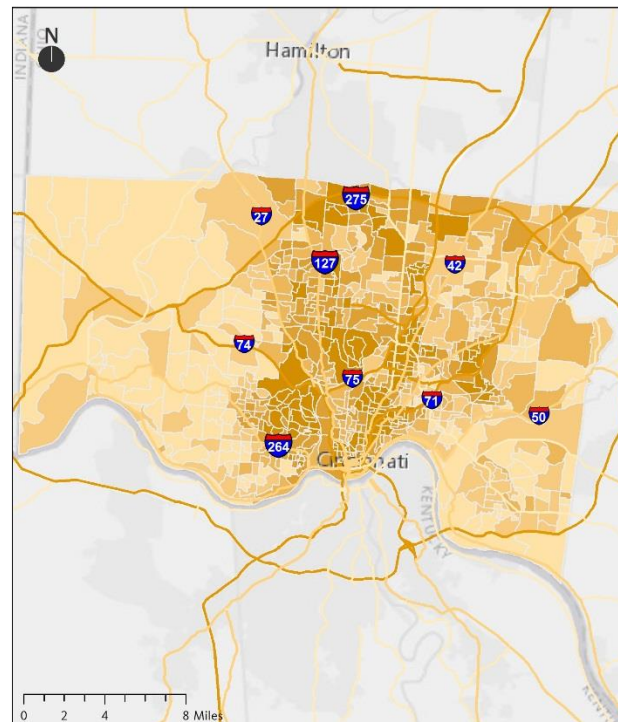
Source: U.S. Census Bureau; TomTom, ESRI, HERE, DeLorme, MaymyIndia, © OpenStreetMap contributors, and the GIS user community.
Note: Data represent a 2010 through 2014 average. Areas in white are missing data.

Demographics
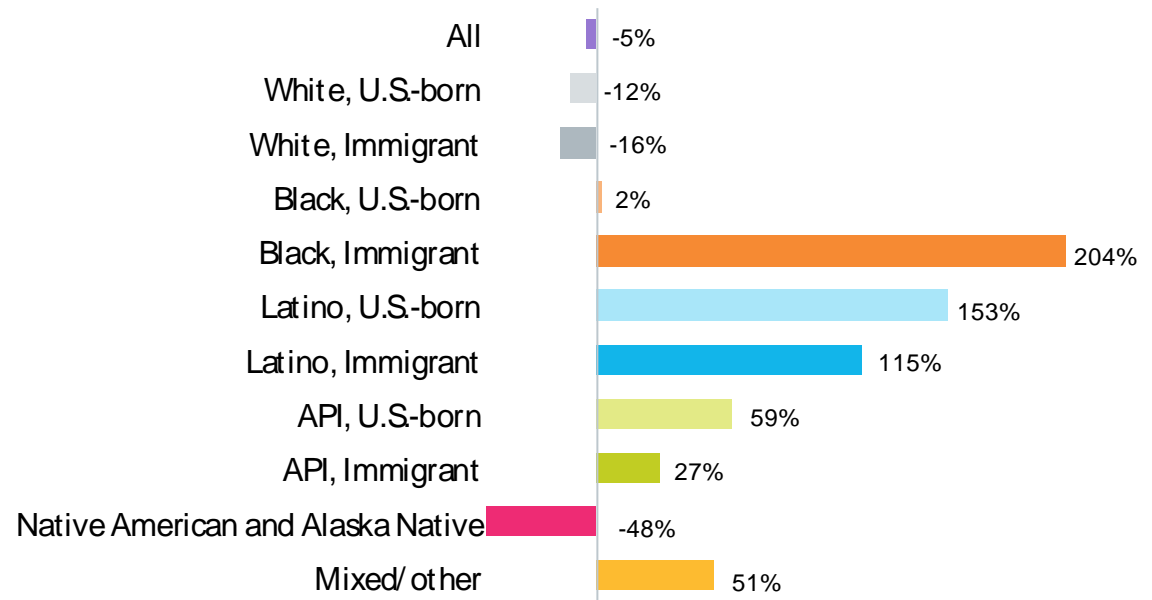
How is the area's population changing over time?

The county's population is shrinking overall, but the Latino, Asian, and Black immigrant populations are growing. The county lost 72,000 U.S.-born White residents since 2000 but the U.S.-born Latino population grew by 8,600 residents. Black immigrants make up just 1 percent of the county but grew by 5,500 people since 2000.

Growth Rates of Major Racial/Ethnic Groups by Nativity, 2000 to 2014

Group	Growth
All	-5%
White, U.S.-born	-12%
White, Immigrant	-16%
Black, U.S.-born	2%
Black, Immigrant	204%
Latino, U.S.-born	153%
Latino, Immigrant	115%
API, U.S.-born	59%
API, Immigrant	27%
Native American and Alaska Native	-48%
Mixed/other	51%

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

Demographics

How is the area's population changing over time?

Communities of color have played a critical role in buffering overall population decline in the county. While the broader metro area grew by 6.9 percent, Hamilton County's population declined by 5 percent. Importantly, communities of color are growing at a much faster rate: by 34 percent in the region and by 13 percent in the county.

Net Change in Population by
Geography, 2000 to 2014

■ People of Color Growth
■ Population Growth

Cincinnati-Middletown, OH-KY-IN Metro Area

34.2%

6.9%

Hamilton County, OH

13.3%

-5.0%

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

Demographics

How is the area's population changing over time?

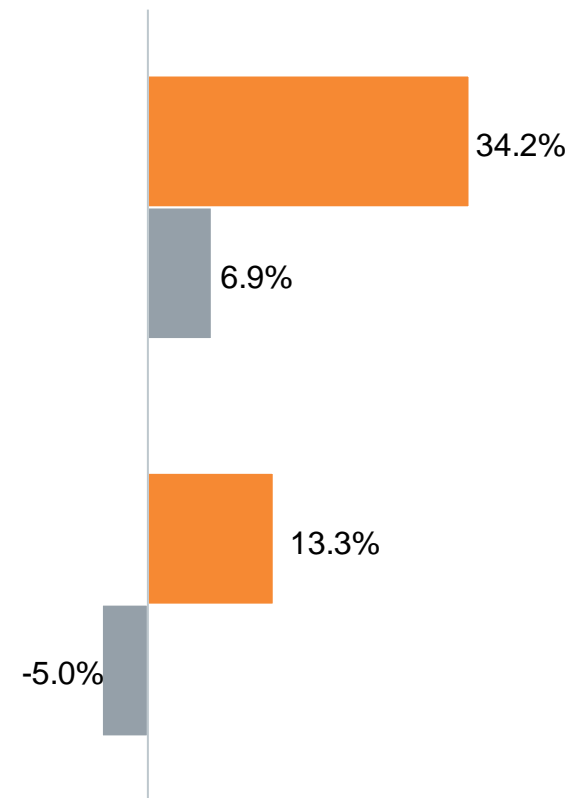**Though the county is two-thirds White, the share of the population that is people of color has increased steadily**. From 1980 to 2014, the Black population share increased from 19 percent to 26 percent. The Latino and Asian or Pacific Islander population shares have increased to 3 percent and 2 percent, respectively.

Racial/Ethnic Composition, 1980 to 2014

- Mixed/other
- Asian or Pacific Islander
- Latino
- Black
- White
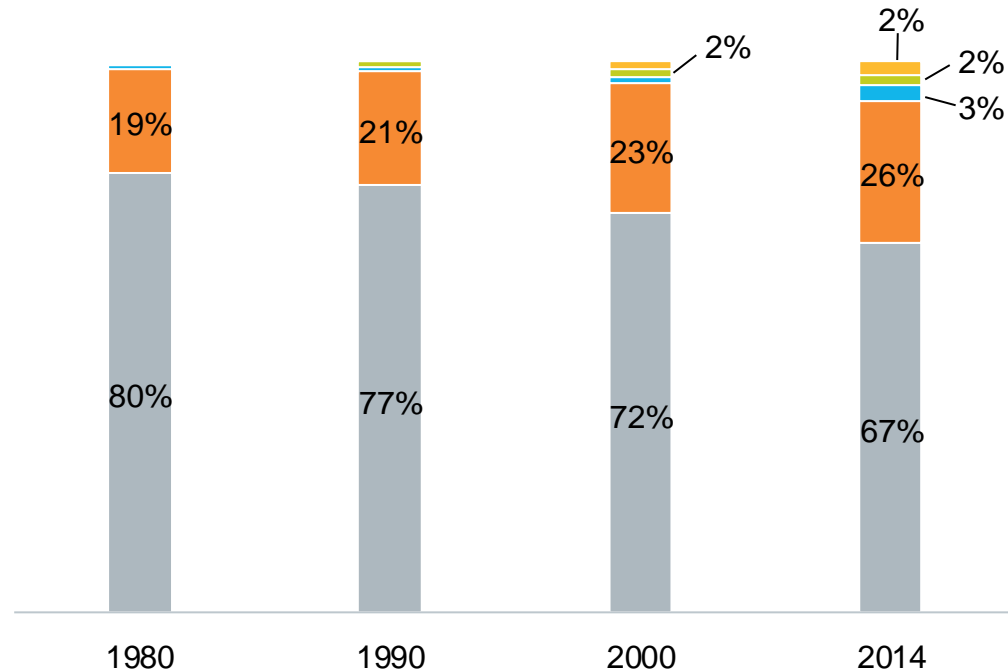
Source: U.S. Census Bureau; Woods & Poole Economics, Inc.
Note: Data for 2014 represent a 2010 through 2014 average.

Demographics

How is the area's population changing over time?

Though the total population actually declined by 7 percent from 1990 to 2014, the county has become more diverse. The Black population has visibly increased along Route 127 and the Asian or Pacific Islander population has grown in the northeastern part of the county.

Race/Ethnicity Dot Map, 1990 and 2014

Race/ethnicity
1 Dot = 150
- White
- Black
- Latino
- Asian or Pacific Islander
- Native American
- Mixed/other

Source: 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

How is the area's population changing over time?

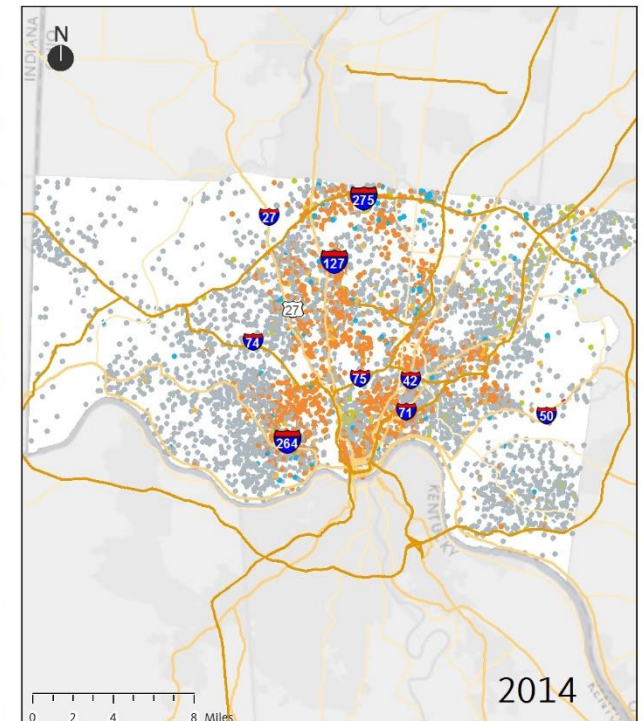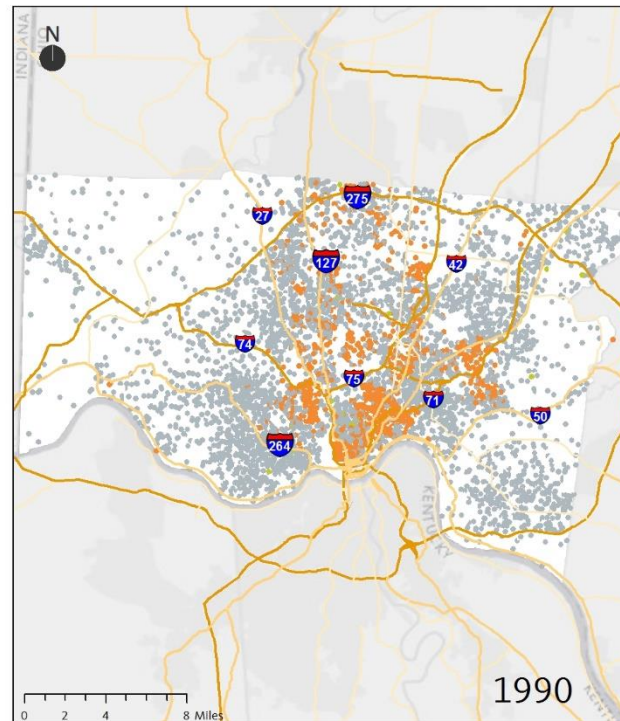**Hamilton County is projected to become majority people of color in 2040 – four years before the nation**. From 2010 to 2050, the Latino population share is projected to triple, but the Asian or Pacific Islander population is projected to surpass the Latino population to become the third largest race/ethnic group.

Racial/Ethnic Composition, 1980 to 2050

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

Stacked bar chart values:

	1980	1990	2000	2010	2020	2030	2040	2050
Mixed/other			2%	2%	3%	4%	5%	6%
Asian or Pacific Islander				3%	3%	5%	7%	10%
Latino				2%	4%	5%	7%	9%
Black	19%	21%	23%	26%	27%	29%	31%	33%
White	80%	77%	72%	68%	63%	57%	50%	42%

Demographics

How is the area's population changing over time?

The racial generation gap has more than doubled since 1980. By 2014, 43 percent of youth were of color compared with 21 percent of seniors. A large racial generation gap often corresponds with lower investments in educational systems and infrastructure to support youth.

Racial Generation Gap: Percent People of Color (POC) by Age Group, 1980 to 2014

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

43%

22 percentage-point gap

25%

10 percentage-point gap

21%

15%

1980   1990   2000   2014
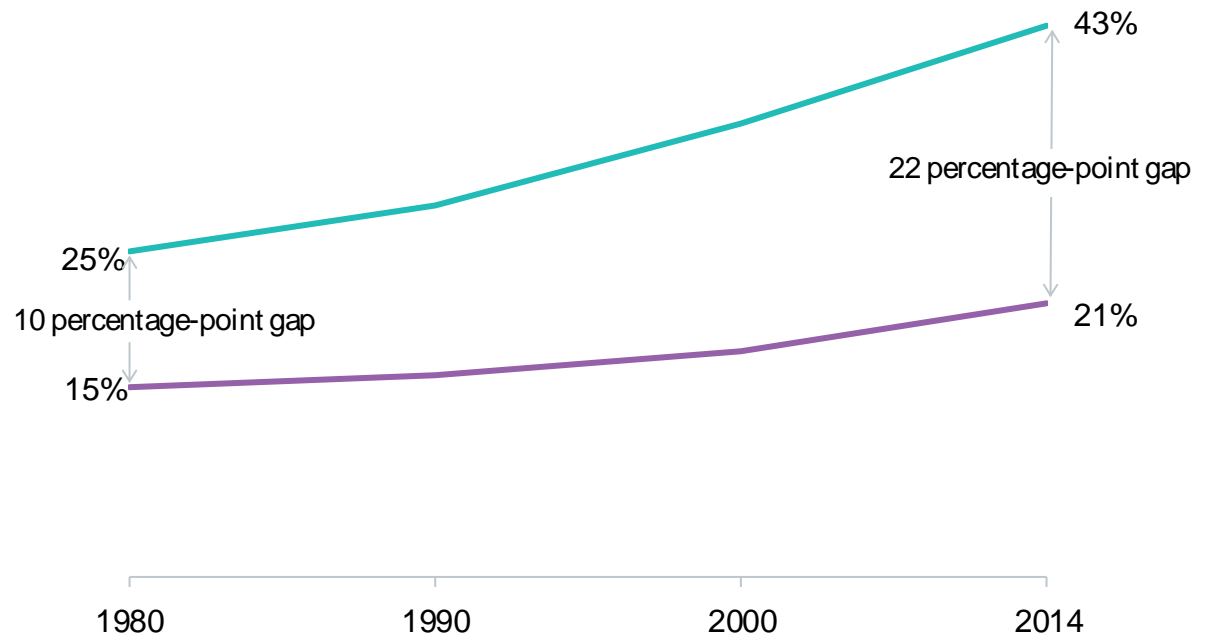
Source: U.S. Census Bureau.
Note: Youth include persons under age 18 and seniors include those ages 65 or older. Data for 2014 represent a 2010 through 2014 average.

Demographics

How is the area's population changing over time?

The city's fastest-growing demographic groups are also comparatively younger than Whites. People of mixed or other races have the youngest median age at 17 years old. The median ages of Latinos (25), African Americans (33), and Asians or Pacific Islanders (34) are lower than that of Whites (41).

Median Age by Race/Ethnicity, 2014
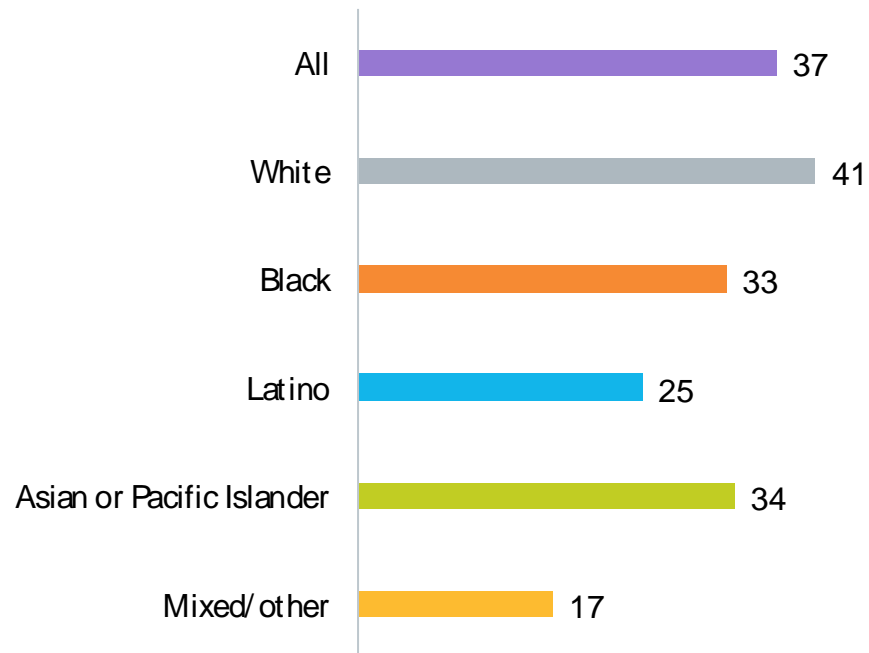
Race/Ethnicity	Median Age
All	37
White	41
Black	33
Latino	25
Asian or Pacific Islander	34
Mixed/other	17

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

Demographics

How is the area's population changing over time?

In 2014, 18 percent of immigrants did not speak English well or at all – including more than one in five Black immigrants, the fastest growing immigrant demographic group. Language barriers are known to impact access to health and other vital services.

English-Speaking Ability
Among Immigrants by
Race/Ethnicity, 2000 and 2014

Percent speaking English...
- Only
- Very Well
- Well
- Not Well
- None

	All immigrants		White immigrants		Black immigrants		Asian/Pacific Islander immigrants	
	2000	2014	2000	2014	2000	2014	2000	2014
Only	26%	19%	41%	36%		17%	9%	12%
Very Well	39%	40%	38%	43%		37%	46%	50%
Well	19%	23%	13%	15%		24%	28%	26%
Not Well	13%	14%	8%	4%		20%	13%	11%
None	3%	4%					4%	
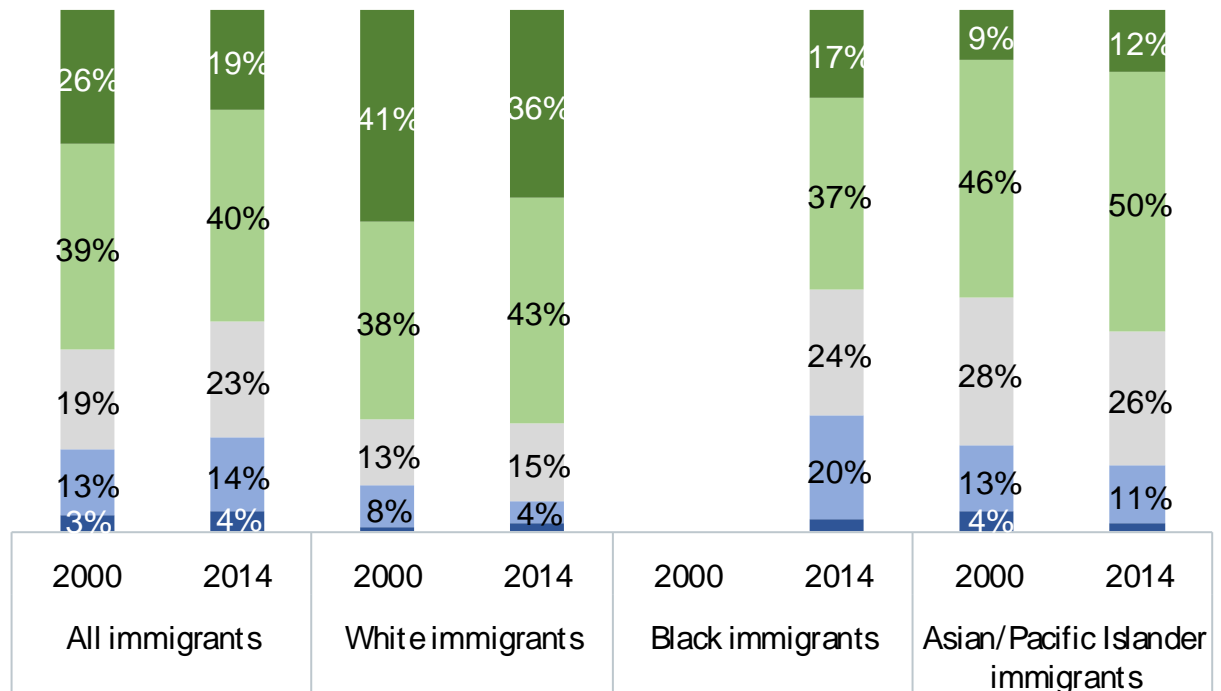
Source: Integrated Public Use Microdata Series. Universe includes all persons ages 5 or older.
Note: Data for some groups by race/ethnicity/nativity in some years are excluded due to small sample size. Data for 2014 represent a 2010 through 2014 average.

Demographics

How is the area's population changing over time?

There are pockets of linguistic isolation throughout the central and eastern parts of the county. Linguistically isolated households are defined as those in which no member age 14 years or older speaks English at least "very well."

Linguistic Isolation by Census Tract, 2014

- Less than 1%
- 1% to 2%
- 2% to 5%
- 5% to 10%
- 10% or more
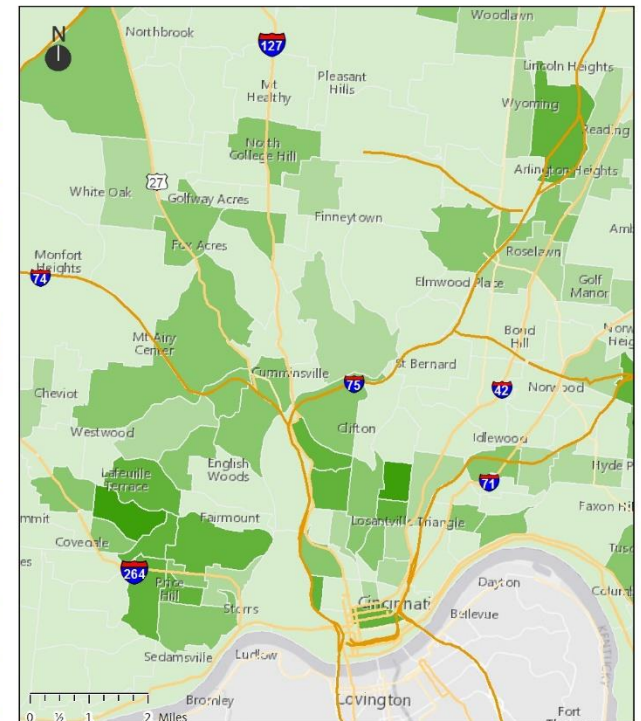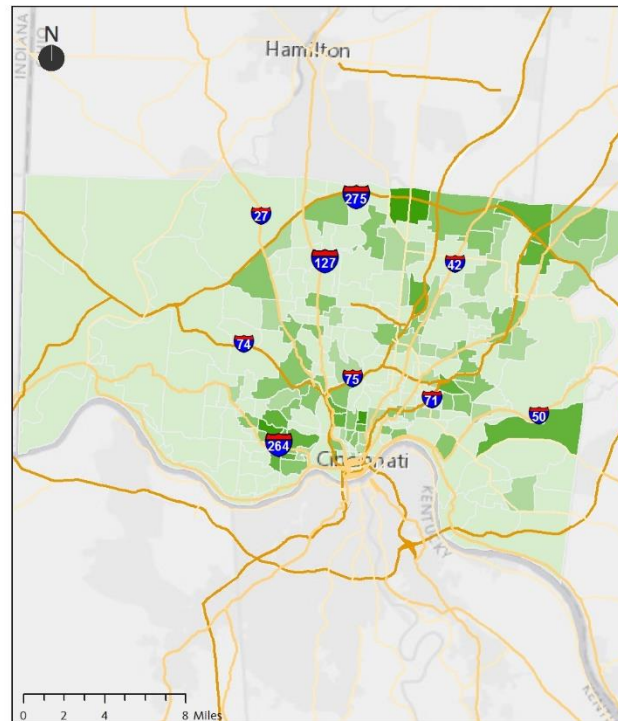
Source: U.S. Census Bureau; TomTom, ESRI, HERE, DeLorme, MaymyIndia, © OpenStreetMap contributors, and the GIS user community.
Note: Data represent a 2010 through 2014 average. Areas in white are missing data.

Economic Vitality
Highlights

How is the county doing on measures of growth and well-being?

- Job and Gross Domestic Product (GDP) growth have recovered since the recession though job growth lags behind the national average.

- Middle-wage jobs have declined while low- and high-wage jobs have grown in the county since 1990.

- Although education is a leveler, racial and gender gaps persist in the labor market. Black workers have the highest unemployment rate at all levels of education.

- Poverty and working poverty have grown since 2000. Black and Latino residents had the highest poverty rates and the highest working-poverty rates in 2014.

Real wage growth for the median worker since 1979:

-10%

Share of Black children living in poverty:

55%

Wage gap between college-educated White and Black workers:

$6/hour

Economic Vitality

Is the county producing good jobs?

Hamilton County is slowly recovering from the Great Recession.
Pre-downturn, the county's economy performed significantly worse than the nation in terms of job and GDP growth. Since 2009, it has experienced higher growth in both jobs and GDP – though job growth is still lower than the U.S. economy as a whole.

Average Annual Growth in
Jobs and GDP, 1990 to 2007
and 2009 to 2014

- Jobs
- GDP

Source: U.S. Bureau of Economic Analysis.
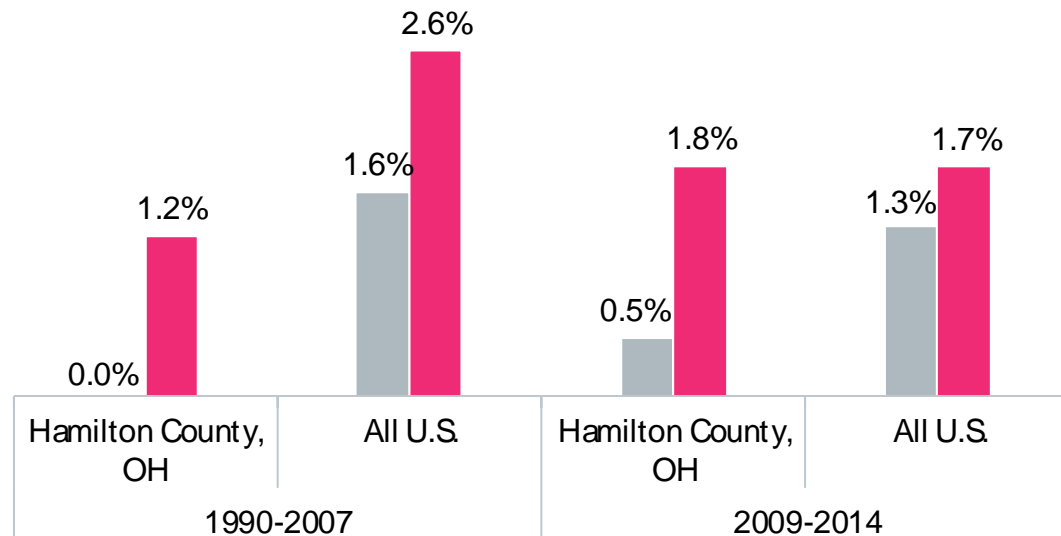
Economic Vitality

Is the county producing good jobs?

Middle-wage jobs declined in Hamilton County from 1990 to 2012, while low- and high-wage jobs grew. Jobs at all wage levels saw positive growth in earnings per worker, and high-wage jobs, the fastest growing since 1990, saw the largest increases.

Growth in Jobs and Earnings by Industry Wage Level, 1990 to 2012

- Low wage
- Middle wage
- High wage

	Hamilton, OH		Cincinnati, OH Metro Area	
	Jobs	Earnings per worker	Jobs	Earnings per worker
Low wage	14%	30%	42%	24%
Middle wage	-24%	27%	0%	19%
High wage	24%	58%	54%	48%
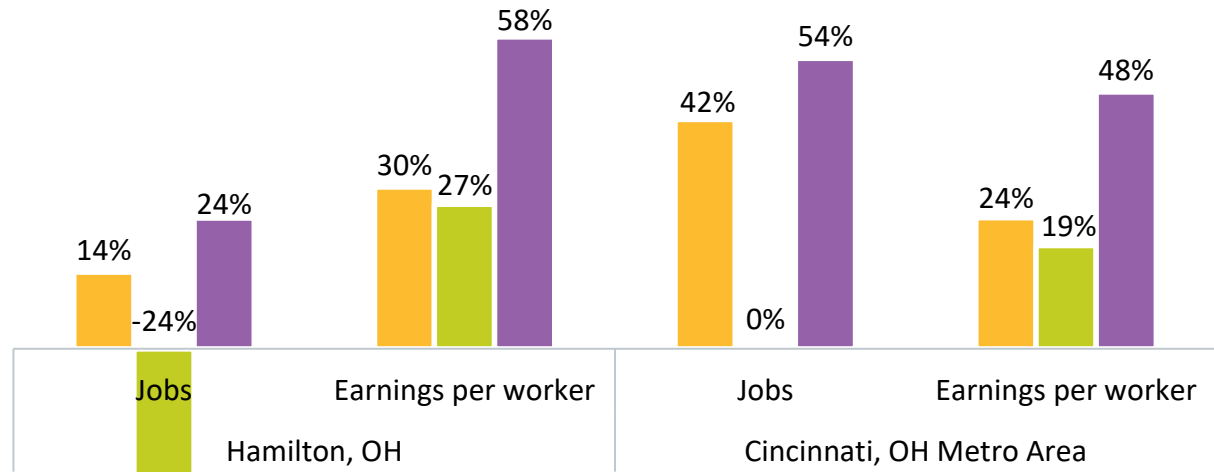
Source: U.S. Bureau of Labor Statistics; Woods & Poole Economics, Inc. Universe includes all jobs covered by the federal Unemployment Insurance (UI) program.

Access to Good Jobs

How close is the county to reaching full employment?

Unemployment has declined considerably in the county. The unemployment rate in the United States was 4.6 percent in July of 2017, but it was 5.5 percent in Ohio, 4.7 percent in the broader Cincinnati region, and 4.8 percent in Hamilton County.

Unemployment Rate, July 2017

United States	4.6%
Ohio	5.5%
Cincinnati, OH Metro Area	4.7%
Hamilton County, OH	4.8%
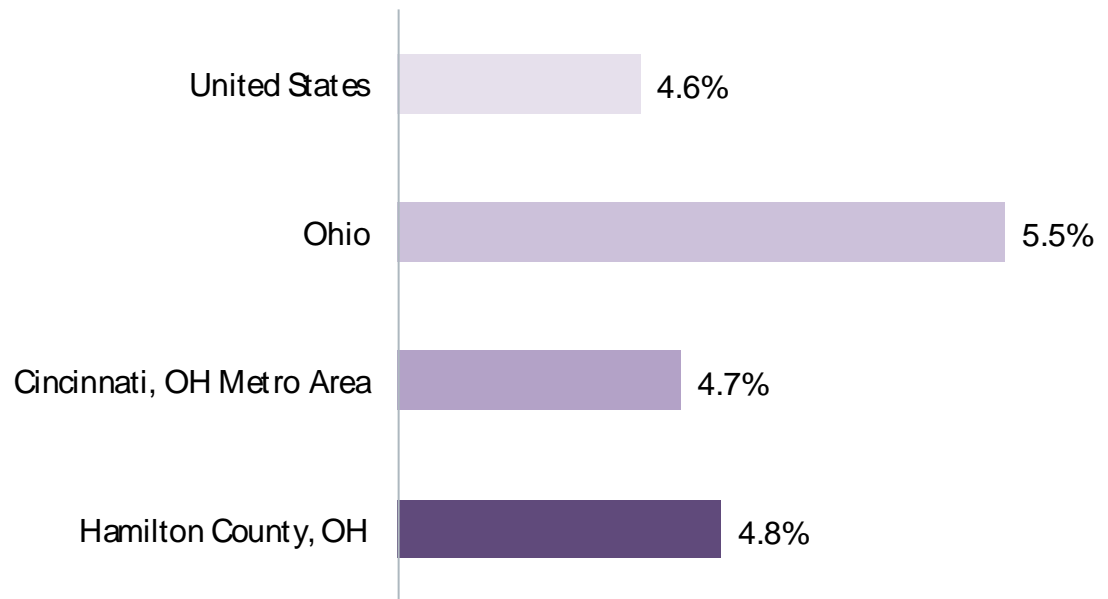
Source: U.S. Bureau of Labor Statistics. Universe includes the civilian noninstitutional labor force ages 16 and older.

Access to Good Jobs

How close is the county to reaching full employment?

Unemployment was 8 percent in the county in 2014, but this varied considerably by neighborhood. Several neighborhoods in the city of Cincinnati and the northern part of the county had unemployment rates of 17 percent or higher while it was less than 5 percent in areas east and west of the city.

Unemployment Rate by
Census Tract, 2014

- Less than 5%
- 5% to 8%
- 8% to 10%
- 10% to 17%
- 17% or more
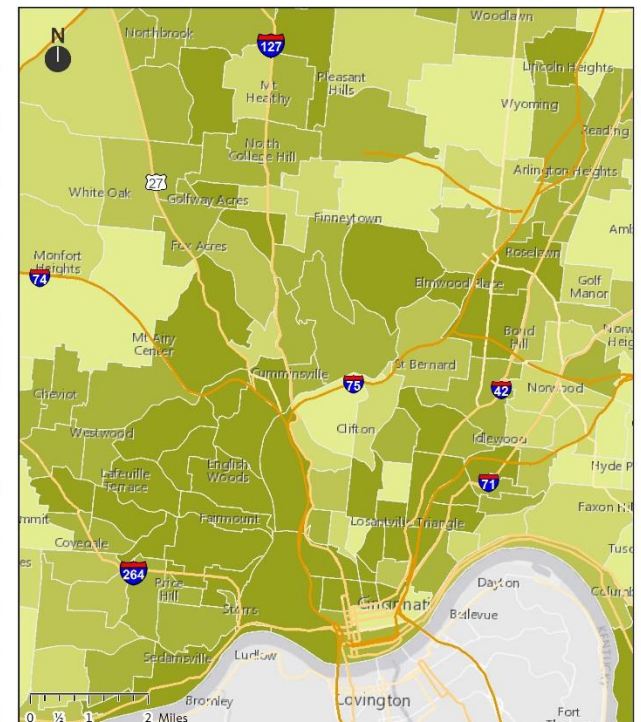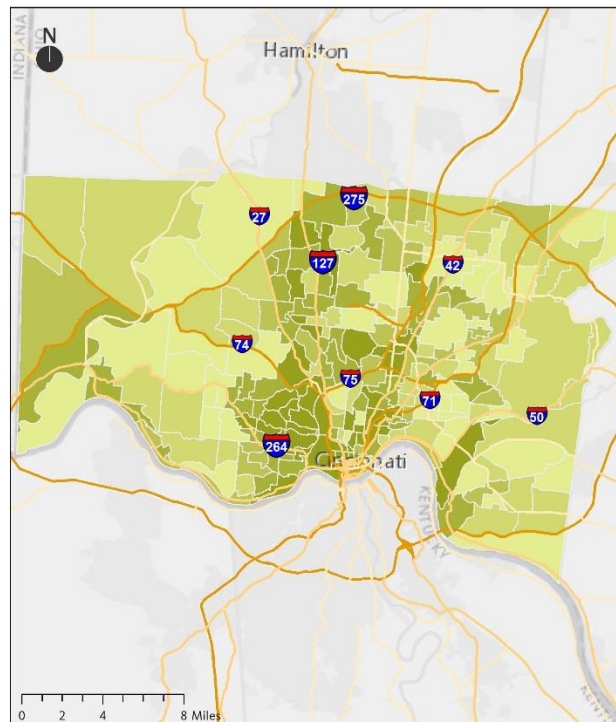
Source: U.S. Census Bureau; TomTom, ESRI, HERE, DeLorme, MaymyIndia, © OpenStreetMap contributors, and the GIS user community.
Note: Data represent a 2010 through 2014 average.

Access to Good Jobs

How close is the county to reaching full employment?

In 2014, overall unemployment was relatively high in the county with stark racial inequities. Unemployment rates in the county were highest for African Americans (17 percent) and those of mixed/other races (14.8 percent). Whites and Asians or Pacific Islanders had the lowest unemployment rates at 5.6 percent and 5.5 percent, respectively.

Unemployment Rate by
Race/Ethnicity, 2014
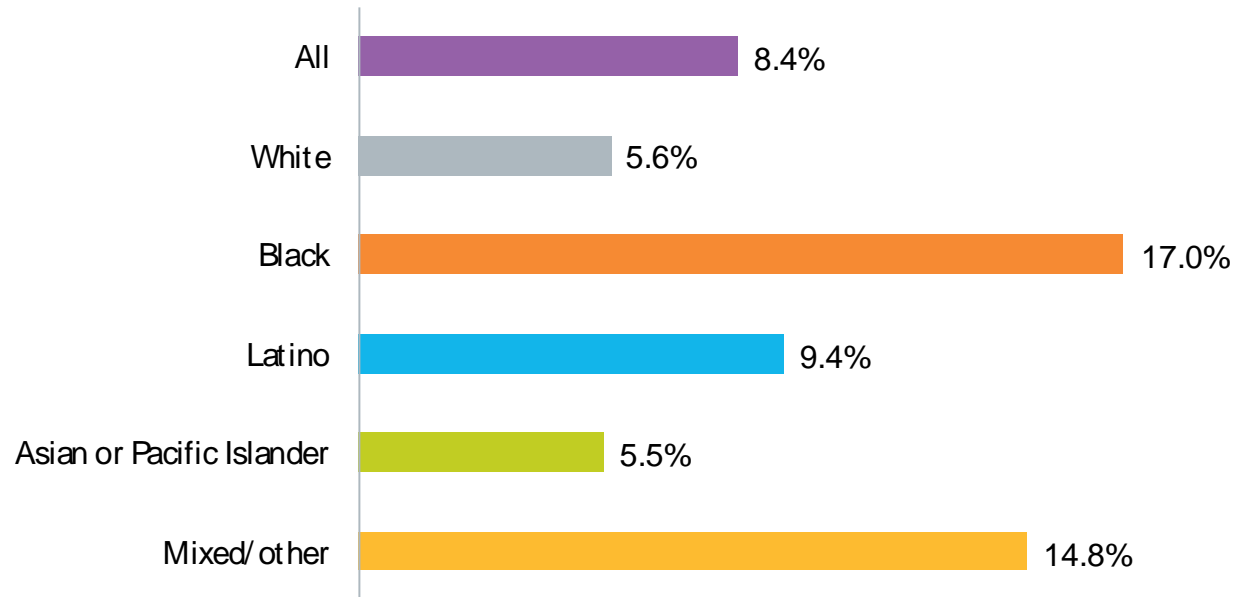
Race/Ethnicity	Unemployment Rate
All	8.4%
White	5.6%
Black	17.0%
Latino	9.4%
Asian or Pacific Islander	5.5%
Mixed/other	14.8%

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.

Access to Good Jobs

How close is the county to reaching full employment?

Unemployment declines as education levels increase, but stark racial gaps remain. African Americans experience the highest rates of unemployment at all education levels. Even among those with a bachelor's degree (BA) or higher, Black residents are still more than twice as likely as Whites to be unemployed.

Unemployment Rate by Educational Attainment and Race/Ethnicity, 2014

- ■ All
- ■ White
- ■ Black

	Less than a HS Diploma	HS Diploma, no College	Some College, no Degree	AA Degree, no BA	BA Degree or higher
All	24%	11%	10%	7%	4%
White	18%	9%	6%	5%	3%
Black	36%	18%	17%	12%	7%

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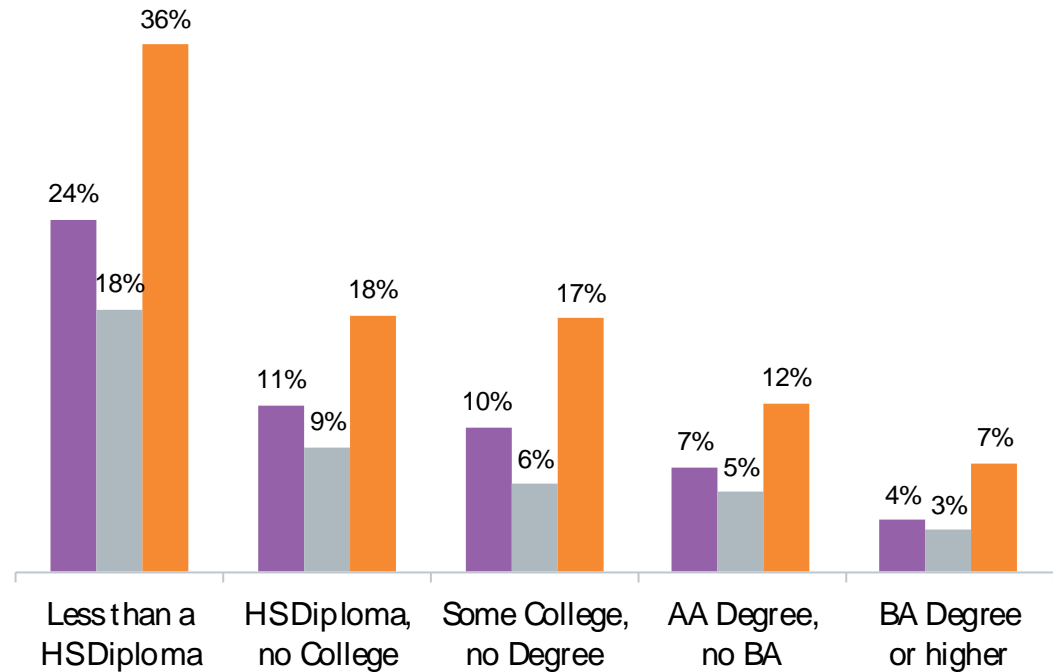Note: Data represent a 2010 through 2014 average.

Access to Good Jobs

Can all workers earn a living wage?

Racial wage gaps are highest among the most educated. White workers with a bachelor's degree or higher have a median wage that is $6/hour higher than their Black counterparts. In addition, Black workers with a high school diploma have a lower median wage than White workers without one.

Median Hourly Wage by Educational Attainment and Race/Ethnicity, 2014

- ■ All
- ■ White
- ■ Black
- ■ Asian or Pacific Islander
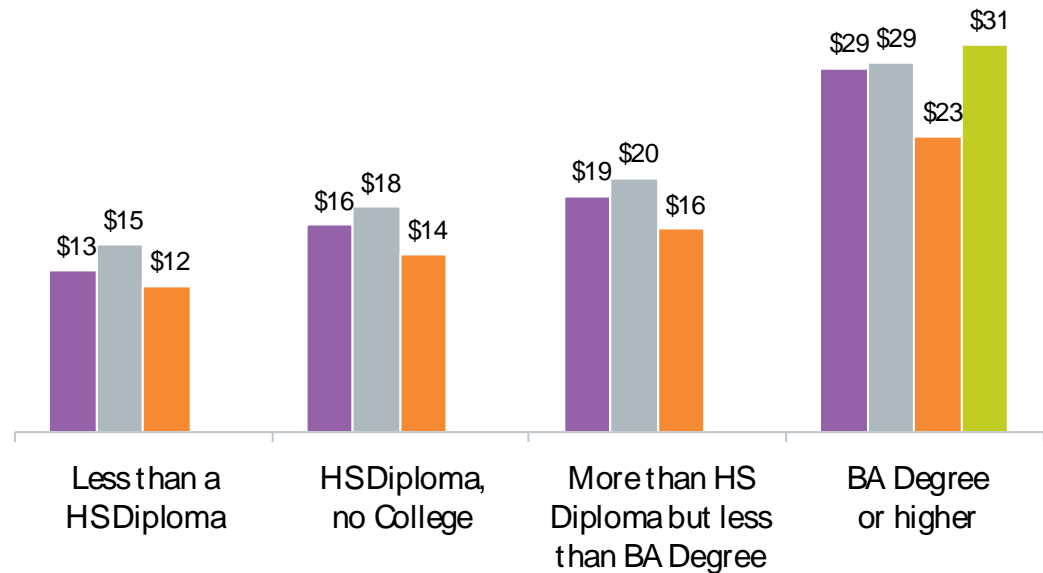
	Less than a HS Diploma	HS Diploma, no College	More than HS Diploma but less than BA Degree	BA Degree or higher
All	$13	$16	$19	$29
White	$15	$18	$20	$29
Black	$12	$14	$16	$23
Asian or Pacific Islander				$31

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. Data for some racial/ethnic groups are excluded due to small sample size.

Inclusive growth

Are incomes increasing for all workers?

Only workers at the 80th percentile and above have seen their wages grow over the past three decades. Workers in the 10th percentile have experienced the most significant wage declines. National income growth outpaces growth in Hamilton County across the board.

Real Earned Income Growth
for Full-Time Wage and Salary
Workers, 1979 to 2014

- Hamilton County, OH
- United States
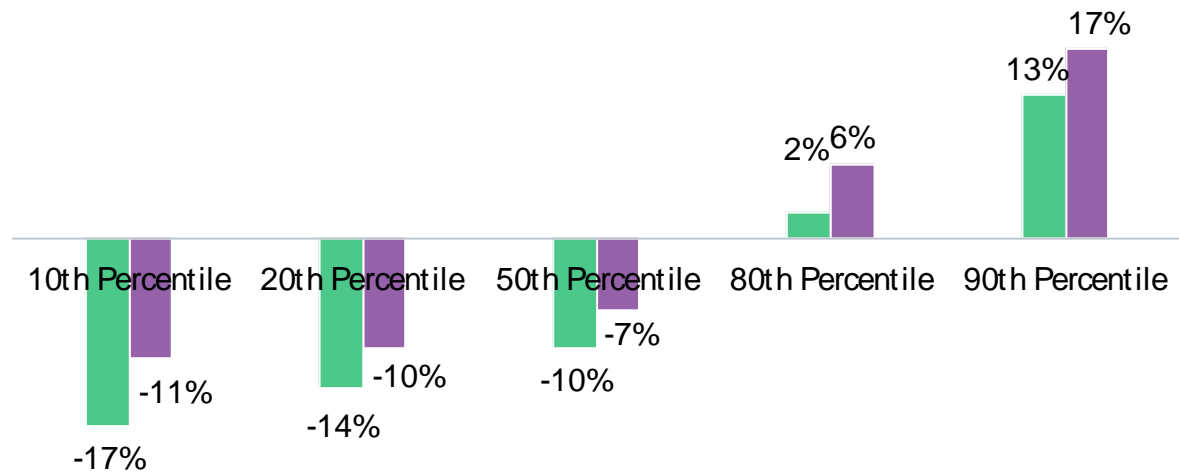
	10th Percentile	20th Percentile	50th Percentile	80th Percentile	90th Percentile
Hamilton County, OH	-17%	-14%	-10%	2%	13%
United States	-11%	-10%	-7%	6%	17%

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

Inclusive growth

Are incomes increasing for all workers?

Median wages declined for nearly all workers from 2000 to 2014, but Black workers have seen the steepest drop in wages.
White workers saw their median hourly wage drop by 50 cents, while Black workers saw a decline of nearly $2/hour.

Median Hourly Wage by
Race/Ethnicity, 2000 and 2014
- 2000
- 2014

	All	White	Black	Latino	People of Color
2000	$21.90	$23.30	$18.30		$18.40
2014	$21.10	$22.80	$16.30	$16.50	$16.90

Inclusive growth

Is the middle class expanding?

The county's middle class has declined. Since 1979, the share of middle-class households has declined five percentage points to 35 percent of households. Meanwhile, the share of lower-income households has increased by 9 percentage points and the share of upper-income households has declined.

Households by Income Level, 1979 and 2014
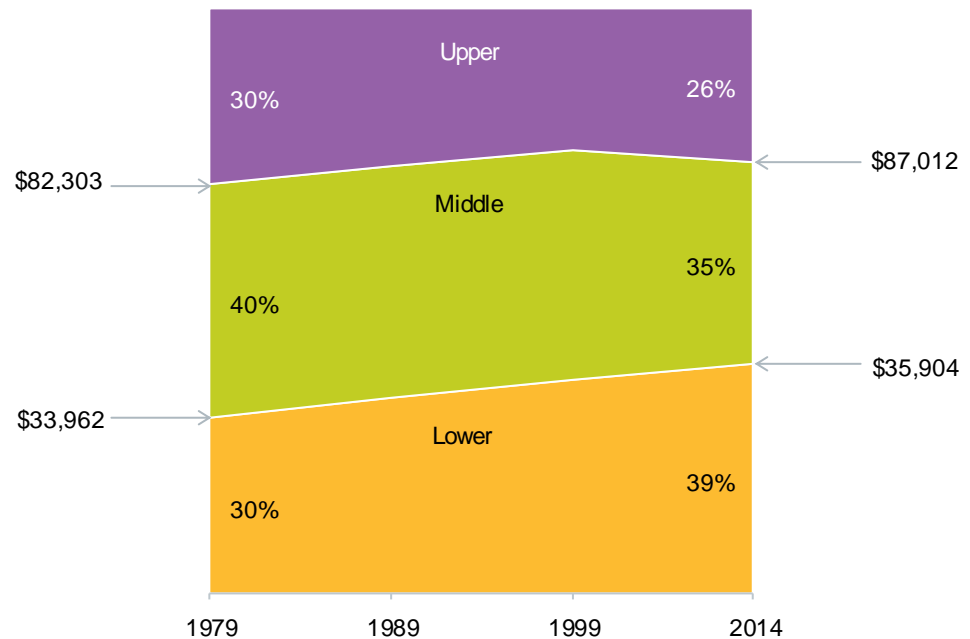
Source: Integrated Public Use Microdata Series. Universe includes all households (no group quarters).
Note: Data for 2014 represent a 2010 through 2014 average. Dollar values are in 2014 dollars.

Inclusive growth

Is the middle class becoming more inclusive?

The middle class has become more diverse but still does not fully reflect the county's racial/ethnic composition. Black households account for more than a quarter of all households, but make up just 21 percent of the county's middle class.

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

■ Latino, Asian, Native American, or Other
■ Black
■ White

	1979		2014	
	Middle-Class Households	All Households	Middle-Class Households	All Households
Latino, Asian, Native American, or Other			5%	5%
Black	16%	18%	21%	26%
White	83%	81%	74%	69%

Inclusive growth

Is inequality low and decreasing?

Income inequality, as measured by the Gini coefficient, is increasing and higher in Hamilton County than in the United States overall. A growing body of research suggests that living in a community with high levels of income inequality is associated with lower life expectancy.

Income Inequality, 1979 to 2014

— ■ — Hamilton County, OH
— ● — United States

Inequality is measured here by the Gini coefficient for household income, which ranges from 0 (perfect equality) to 1 (perfect inequality: one household has all of the income).

Economic security

Is poverty low and decreasing?

Poverty is on the rise in the county, and the rate is higher in communities of color. The overall poverty rate in Hamilton County was 19 percent in 2014, but Black residents are more than three times as likely as White residents to live in poverty. More than one in three Black residents live in poverty.

Poverty Rate by Race/Ethnicity, 2000 and 2014

- ■ All
- ■ White
- ■ Black
- ■ Latino
- ■ Asian or Pacific Islander
- ■ Mixed/other

2000

- 40%
- 30% — 27.6%
- 20% — 17.7%
- 11.7%
- 11.6%
- 10% — 6.3%
- 0%

2014

- 40%
- 37.3%
- 30% — 30.6%
- 26.8%
- 20% — 18.8%
- 13.8%
- 11.1%
- 10%
- 0%
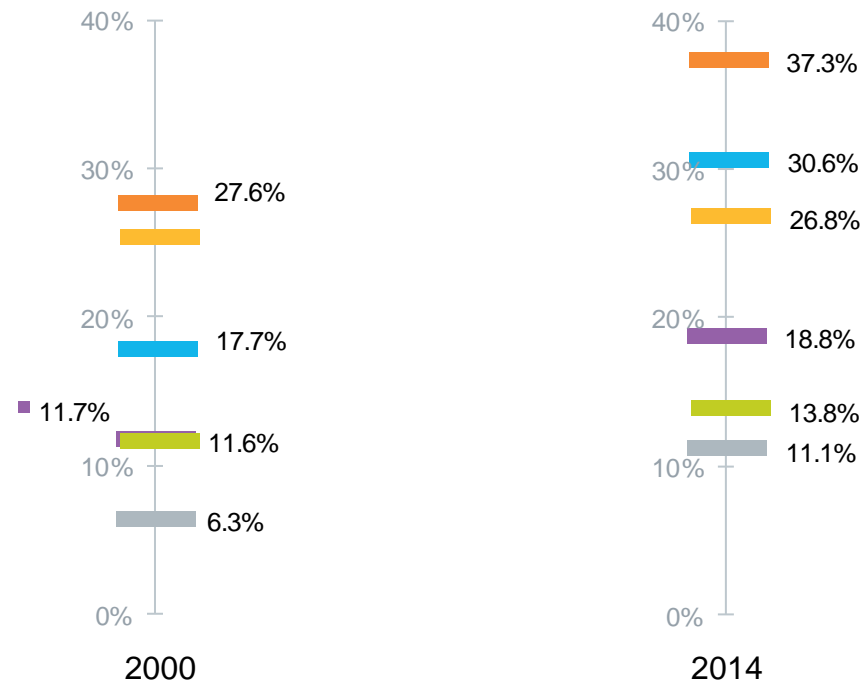
Source: Integrated Public Use Microdata Series. Universe includes all persons not in group quarters.

Note: Data for 2014 represent a 2010 through 2014 average. Data for some racial/ethnic groups in some years are excluded due to small sample size.
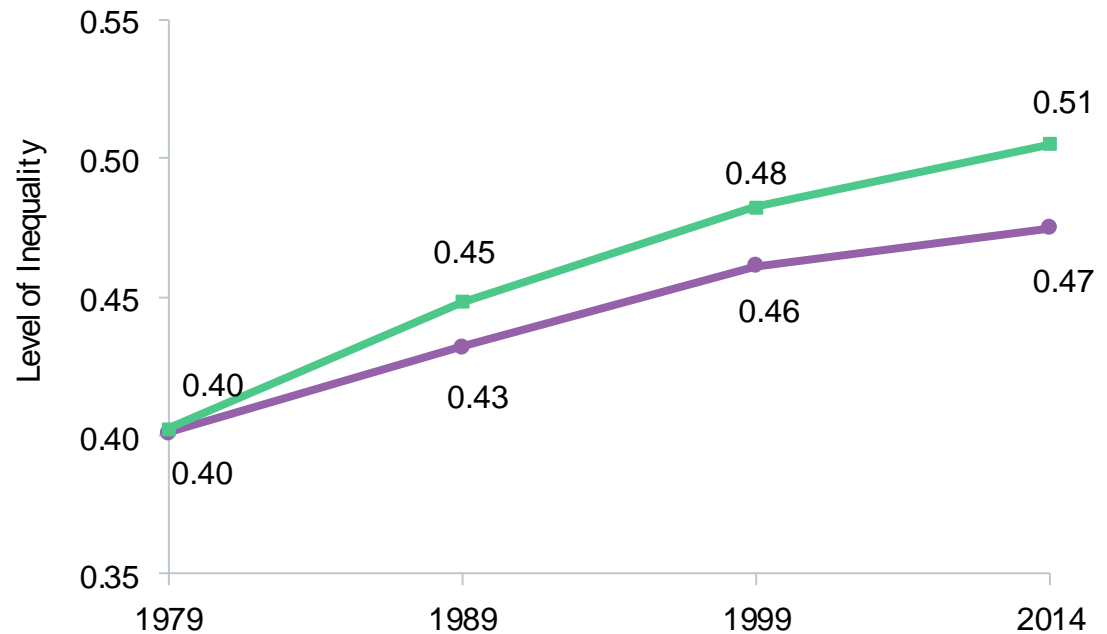
Economic security

Is poverty low and decreasing?

Black children are the most likely to grow up in poverty. In 2014, 28 percent of all children in Hamilton County were in poverty. But Black children are four times as likely as White children to live in poverty. Child poverty has lasting impacts on health and life outcomes.

Child Poverty Rate by
Race/Ethnicity, 2014

Category	Rate
All	28%
Black	55%
Latino	40%
Other	31%
White	13%
Asian or Pacific Islander	6%
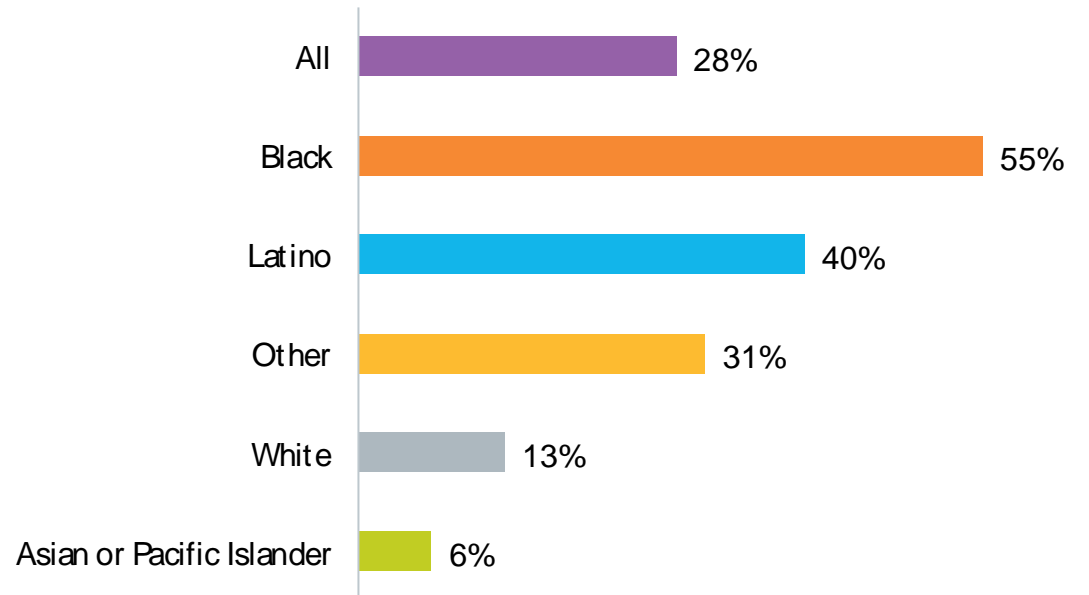
Source: Integrated Public Use Microdata Series. Universe includes the population under age 18 not in group quarters.
Note: Data represent a 2010 through 2014 average.

Economic security

Is poverty low and decreasing?

Poverty rates not only vary by race/ethnicity, but also by neighborhood. Many neighborhoods in Cincinnati are approaching or experiencing concentrated poverty. And because of racial residential segregation, these are mostly the same neighborhoods that have a larger share of people of color.

Percent Population Below the Poverty Level by Census Tract, 2014

Less than 7%
7% to 12%
12% to 22%
22% to 37%
37% or more
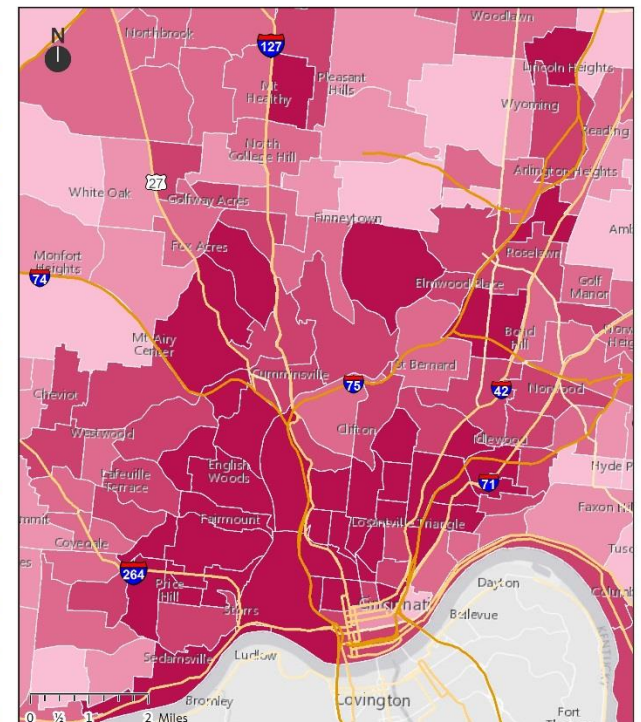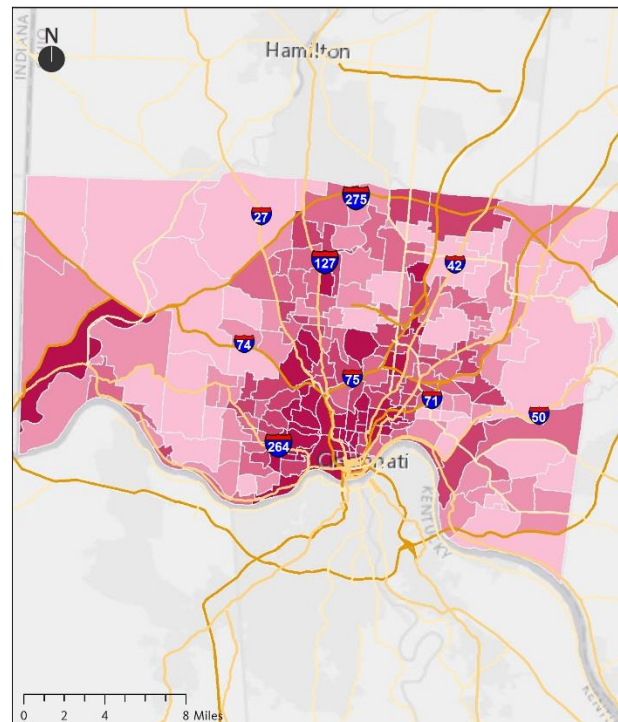
Source: U.S. Census Bureau; TomTom, ESRI, HERE, DeLorme, MaymyIndia, © OpenStreetMap contributors, and the GIS user community. Universe includes all persons not in group quarters.
Note: Data represent a 2010 through 2014 average.

Economic security

Is the share of working poor low and decreasing?

Rates of working poverty have increased most significantly among Black and Latino workers. The working-poor rate – defined as working full time with a family income below 200 percent of poverty – is highest among Latinos (21.5 percent) and African Americans (15.2 percent).

Working-Poor Rate by
Race/Ethnicity, 2000 and 2014

- ■ All
- ■ White
- ■ Black
- ■ Latino
- ■ Asian or Pacific Islander
- ■ Mixed/other

2000

- 13.4%
- 10.5%
- 8.9%
- 6.2%
- 4.7%
- 4.3%

2014

- 21.5%
- 15.2%
- 11.7%
- 8.0%
- 6.7%
- 5.4%
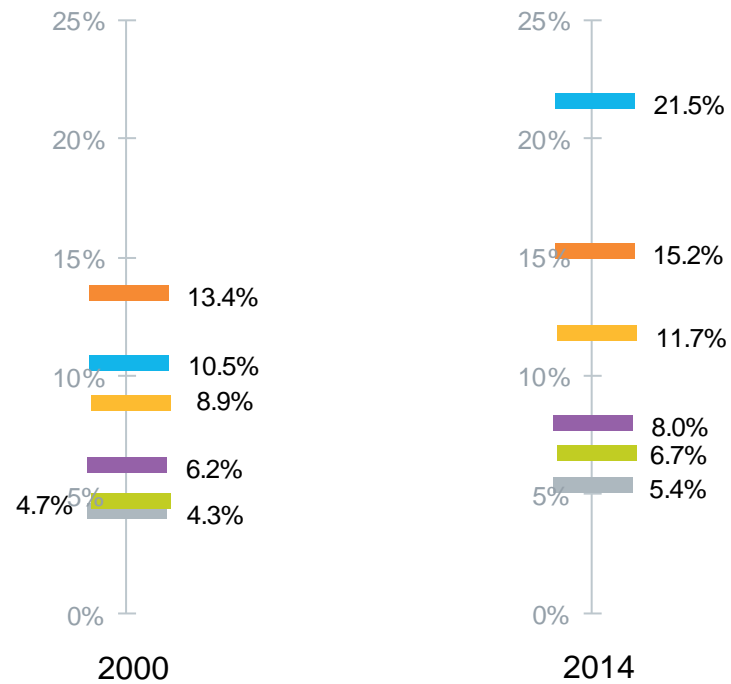
Source: Integrated Public Use Microdata Series. Universe includes the civilian noninstitutional population ages 25 through 64 who worked during the year prior to the survey (excludes group quarters).
Note: Data for 2014 represent a 2010 through 2014 average. Data for some racial/ethnic groups in some years are excluded due to small sample size.

Strong industries and occupations

Which industries are projected to grow?

The broader Cincinnati-Middletown region is projected to add 94,000 jobs by 2022. The three industries projected to add the most jobs are education and health services, professional and business services, and trade and transportation and utilities.

Industry Employment
Projections, 2012-2022

Industry	2012 Estimated Employment	2022 Projected Employment	Total 2012-2022 Employment Change	Annual Avg. Percent Change	Total Percent Change
Natural Resources, incl. Agriculture and Mining	11,300	11,000	-300	-0.3%	-3%
Construction	37,000	45,400	8,400	2%	23%
Manufacturing	105,600	106,500	900	0%	1%
Trade and Transportation and Utilities	196,300	210,100	13,800	1%	7%
Information	13,400	13,800	400	0%	3%
Financial Activities	60,100	65,900	5,800	1%	10%
Professional and Business Services	153,700	173,700	20,000	1%	13%
Education and Health Services	205,800	238,600	32,800	1%	16%
Leisure and Hospitality	106,300	116,300	10,000	1%	9%
Other Services	38,900	41,800	2,900	1%	7%
Government	58,700	56,100	-2,600	0%	-4%
Self Employed & Unpaid Family Workers	60,800	62,700	1,900	0%	3%
Total, All Industries	1,047,900	1,141,900	94,000	1%	9%

Source: Ohio Department of Job and Family Services, Bureau of Labor Market Information.
Note: Data are for combined projections for the Cincinnati-Middletown MSA (Brown, Butler, Clermont, Hamilton & Warren counties in Ohio; Boone, Bracken, Campbell, Gallatin, Grant, Kenton & Pendleton counties in Kentucky; and Dearborn, Franklin & Ohio counties in Indiana). Figures may not add up to total due to rounding.

Strong industries and occupations

Which occupations are projected to grow?

More than 12,000 of the jobs projected to be added by 2022 will be in health-care practitioners and technical occupations.
Another 9,000 will be food preparation and serving-related occupations.

Occupational Employment Projections, 2012-2022

Occupation	2012 Estimated Employment	2022 Projected Employment	Total 2012-2022 Employment Change	Average Annual Percent Change	Total Percent Change
Management Occupations	69,200	73,600	4,500	0.6%	6%
Business & Financial Operations Occupations	57,000	62,700	5,800	1.0%	10%
Computer & Mathematical Occupations	29,300	31,400	2,200	0.7%	7%
Architecture & Engineering Occupations	18,900	20,600	1,800	0.9%	9%
Life, Physical, & Social Science Occupations	8,000	8,800	800	1.0%	10%
Community & Social Service Occupations	16,400	18,700	2,200	1.3%	14%
Legal Occupations	7,700	8,400	800	0.9%	10%
Education, Training, & Library Occupations	53,100	55,000	1,900	0.4%	4%
Arts, Design, Entertainment, Sports, & Media Occupations	16,200	17,200	1,100	0.6%	7%
Healthcare Practitioners & Technical Occupations	63,200	75,700	12,400	1.8%	20%
Healthcare Support Occupations	35,200	43,900	8,700	2.2%	25%
Protective Service Occupations	21,800	22,800	1,000	0.4%	4%
Food Preparation & Serving Related Occupations	93,000	102,400	9,300	1.0%	10%
Building & Grounds Cleaning & Maintenance Occupations	33,700	36,800	3,100	0.9%	9%
Personal Care & Service Occupations	29,800	33,600	3,800	1.2%	13%
Sales & Related Occupations	112,000	120,500	8,600	0.7%	8%
Office & Administrative Support Occupations	162,800	170,500	7,800	0.5%	5%
Farming, Fishing, & Forestry Occupations	1,600	1,500	-100	-0.6%	-8%
Construction & Extraction Occupations	35,500	41,400	5,900	1.5%	17%
Installation, Maintenance, & Repair Occupations	38,200	42,000	3,800	1.0%	10%
Production Occupations	70,700	73,500	2,800	0.4%	4%
Transportation & Material Moving Occupations	74,800	80,900	6,100	0.8%	8%
Total, All Occupations	1,047,900	1,141,900	94,000	0.9%	9%

Source: Ohio Department of Job and Family Services, Bureau of Labor Market Information.
Note: Data are for combined projections for the Cincinnati-Middletown MSA (Brown, Butler, Clermont, Hamilton & Warren counties in Ohio; Boone, Bracken, Campbell, Gallatin, Grant, Kenton & Pendleton counties in Kentucky; and Dearborn, Franklin & Ohio counties in Indiana). Figures may not add up to total due to rounding.
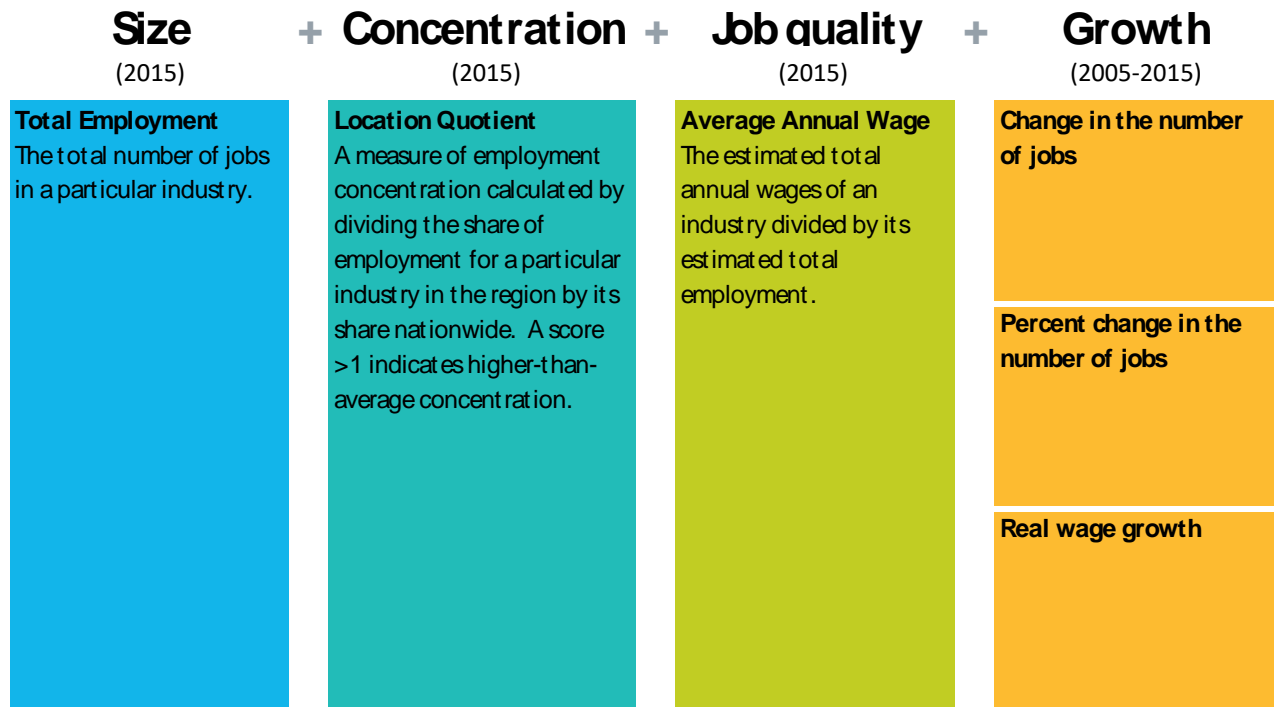
Strong industries and occupations

Identifying the county'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 uneven growth in employment across 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.

Strong industries and occupations

What are the county's strongest industries?

The strongest industries in the broader metro area include management of companies and enterprises and health care and social assistance. Despite losing nearly 11,900 jobs from 2005 to 2015, manufacturing still employs over 48,300 people in the region.

Strong Industries Analysis, 2015

Industry	Size Total employment	Concentration Location Quotient	Job Quality Average annual wage	Growth Change in employment	Growth % Change in employment	Growth Real wage growth	Industry Strength Index
	(2015)	(2015)	(2015)	(2005 to 2015)	(2005 to 2015)	(2005 to 2015)	
Management of Companies and Enterprises	30,255	3.8	$107,324	4,026	15%	-15%	155.3
Health Care and Social Assistance	84,810	1.3	$53,560	9,532	13%	8%	100.3
Professional, Scientific, and Technical Services	37,666	1.2	$78,729	1,694	5%	11%	52.7
Finance and Insurance	25,900	1.2	$83,702	2,067	9%	9%	46.1
Manufacturing	48,346	1.1	$75,530	-11,873	-20%	10%	24.8
Arts, Entertainment, and Recreation	10,747	1.4	$51,679	2,824	36%	9%	12.8
Wholesale Trade	22,620	1.1	$75,656	-5,444	-19%	0%	-2.2
Utilities	1,050	0.5	$97,436	-393	-27%	19%	-8.5
Information	8,288	0.8	$81,262	-2,298	-22%	14%	-9.3
Accommodation and Food Services	43,250	0.9	$17,432	2,362	6%	8%	-13.1
Mining	158	0.1	$73,164	32	25%	35%	-17.0
Construction	20,941	0.9	$57,444	-4,050	-16%	5%	-21.7
Education Services	12,080	1.2	$32,529	1,461	14%	-2%	-28.4
Administrative and Support and Waste Management and Remediation Services	31,722	1.0	$40,189	-11,226	-26%	22%	-29.3
Real Estate and Rental and Leasing	6,984	0.9	$53,480	-1,127	-14%	15%	-30.5
Retail Trade	43,594	0.8	$28,383	-10,147	-19%	1%	-42.3
Agriculture, Forestry, Fishing and Hunting	223	0.0	$35,082	43	24%	49%	-48.6
Transportation and Warehousing	11,564	0.7	$44,520	-1,759	-13%	-1%	-51.8
Other Services (except Public Administration)	14,907	1.0	$31,182	-3,095	-17%	-4%	-58.1

Source: 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: Dollar values are in 2015 dollars.

Strong industries and occupations
Identifying the county's strongest 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.

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
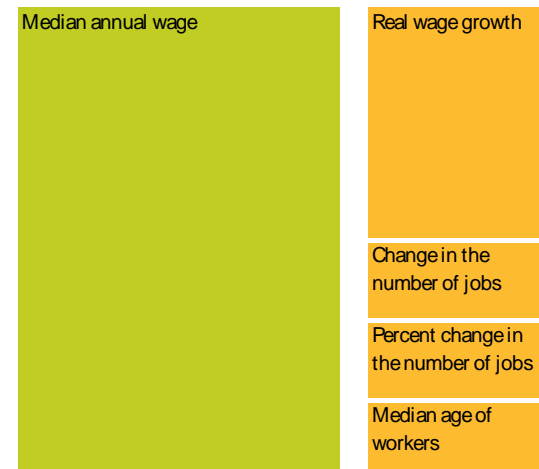
Strong industries and occupations

What are the county's strongest occupations?

Advertising, marketing, promotions, public relations, and sales managers rank highest on the occupation opportunity index with a median annual income of over $100,000, followed by operations specialties managers and top executives.

Strong Occupations Analysis, 2011

Occupation	Employment	Job Quality Median Annual Wage	Real Wage Growth	Growth Change in Employment	Growth % Change in Employment	Median Age	Occupation Opportunity Index
	(2011)	(2011)	(2011)	(2005-11)	(2005-11)	(2010)	
Advertising, Marketing, Promotions, Public Relations, and Sales Managers	4,860	$103,673	11%	990	26%	40	2.28
Operations Specialties Managers	13,650	$97,538	5%	4,110	43%	44	2.12
Top Executives	11,770	$106,762	-2%	-4,060	-26%	46	2.02
Health Diagnosing and Treating Practitioners	37,780	$84,920	6%	6,230	20%	44	1.70
Other Management Occupations	14,550	$81,504	2%	460	3%	45	1.39
Engineers	9,220	$78,838	-1%	80	1%	42	1.22
Physical Scientists	1,510	$77,824	4%	-200	-12%	39	1.21
Lawyers, Judges, and Related Workers	4,220	$83,898	-24%	1,210	40%	45	1.12
Mathematical Science Occupations	990	$68,081	-6%	450	83%	46	0.98
Computer Occupations	27,020	$69,511	-2%	4,330	19%	38	0.97
Social Scientists and Related Workers	1,020	$68,493	9%	-1,700	-63%	39	0.85
Life Scientists	1,130	$65,781	-6%	190	20%	39	0.72
Plant and System Operators	2,220	$54,427	9%	370	20%	48	0.70
Supervisors of Protective Service Workers	1,500	$60,925	3%	-80	-5%	43	0.69
Financial Specialists	21,160	$60,204	1%	1,920	10%	42	0.69
Business Operations Specialists	28,820	$58,371	-1%	3,470	14%	42	0.63
Supervisors of Installation, Maintenance, and Repair Workers	3,030	$58,820	2%	-620	-17%	48	0.62
Postsecondary Teachers	7,200	$59,402	2%	-2,070	-22%	46	0.59
Sales Representatives, Wholesale and Manufacturing	16,860	$60,894	-5%	-730	-4%	45	0.56
Supervisors of Production Workers	4,820	$55,860	0%	-1,420	-23%	45	0.43
Other Healthcare Practitioners and Technical Occupations	1,120	$53,796	-3%	440	65%	35	0.43
Law Enforcement Workers	6,240	$50,458	0%	200	3%	38	0.27

Source: U.S. Bureau of Labor Statistics; Integrated Public Use Microdata Series. Universe includes all nonfarm wage and salary jobs.
Note: Analysis reflects the Cincinnati-Middletown Core Based Statistical Area as defined by the U.S. Office of Management and Budget.

Strong industries and occupations

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 degree or less, workers with more than a high-school degree but less than a BA, and workers with a BA or higher.

All jobs
(2011)

High-opportunity
(33 occupations)

Middle-opportunity
(25 occupations)

Low-opportunity
(20 occupations)

Strong industries and occupations

Which occupations are high opportunity?

Supervisors of production, construction, extraction, and transportation and material moving workers are high-opportunity jobs for workers with a high school diploma or less.

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

	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)	
High-Opportunity	Supervisors of Production Workers	4,820	$55,860	0.0%	-1,420	-22.8%	45	0.43
	Supervisors of Construction and Extraction Workers	2,380	$55,980	-10.3%	-2,000	-45.7%	43	0.19
	Supervisors of Transportation and Material Moving Workers	3,150	$47,157	-11.4%	-460	-12.7%	45	-0.01
Middle-Opportunity	Other Installation, Maintenance, and Repair Occupations	20,040	$40,890	-4.2%	-1,360	-6.4%	44	-0.10
	Other Construction and Related Workers	2,250	$38,757	-0.4%	-520	-18.8%	40	-0.16
	Construction Trades Workers	23,130	$43,065	-0.1%	-11,400	-33.0%	40	-0.24
	Vehicle and Mobile Equipment Mechanics, Installers, and Repairers	8,720	$38,281	-7.5%	-1,550	-15.1%	40	-0.31
	Supervisors of Building and Grounds Cleaning and Maintenance Workers	2,250	$34,369	-5.7%	90	4.2%	42	-0.32
	Metal Workers and Plastic Workers	16,420	$35,887	-2.4%	-5,290	-24.4%	43	-0.36
	Printing Workers	3,560	$33,793	-6.5%	-460	-11.4%	44	-0.37
	Supervisors of Food Preparation and Serving Workers	7,000	$30,596	-2.8%	-130	-1.8%	34	-0.49
	Material Recording, Scheduling, Dispatching, and Distributing Workers	33,470	$30,039	-9.0%	810	2.5%	43	-0.49
	Food and Beverage Serving Workers	55,580	$18,022	10.0%	9,510	20.6%	24	-0.56
Low-Opportunity	Nursing, Psychiatric, and Home Health Aides	21,240	$24,024	-7.3%	6,080	40.1%	36	-0.56
	Motor Vehicle Operators	26,570	$29,760	-7.6%	-4,260	-13.8%	46	-0.58
	Other Production Occupations	20,730	$30,554	-5.8%	-8,230	-28.4%	43	-0.65
	Building Cleaning and Pest Control Workers	19,460	$22,465	-3.0%	-1,030	-5.0%	46	-0.66
	Assemblers and Fabricators	10,610	$28,399	-8.5%	-3,660	-25.6%	43	-0.68
	Animal Care and Service Workers	1,060	$18,616	6.1%	-20	-1.9%	38	-0.69
	Other Protective Service Workers	8,780	$22,982	-2.1%	-340	-3.7%	38	-0.69
	Food Processing Workers	3,620	$25,625	-11.9%	180	5.2%	35	-0.77
	Personal Appearance Workers	4,210	$20,958	-5.4%	270	6.9%	38	-0.78
	Textile, Apparel, and Furnishings Workers	2,720	$21,926	-6.9%	-1,350	-33.2%	48	-0.79
	Other Personal Care and Service Workers	12,180	$20,867	-1.4%	-480	-3.8%	33	-0.80
	Grounds Maintenance Workers	6,490	$23,242	-4.8%	-920	-12.4%	33	-0.81
	Material Moving Workers	34,880	$23,862	-4.4%	-9,810	-22.0%	37	-0.92
	Other Food Preparation and Serving Related Workers	9,760	$17,945	1.6%	-370	-3.7%	21	-0.96
	Retail Sales Workers	55,130	$19,412	-6.1%	-3,240	-5.6%	32	-0.99
	Other Transportation Workers	2,180	$23,007	-18.6%	-740	-25.3%	35	-1.05
	Cooks and Food Preparation Workers	19,840	$20,435	-2.6%	-9,290	-31.9%	26	-1.12

Source: 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 Cincinnati-Middletown Core Based Statistical Area as defined by the U.S. Office of Management and Budget. Dollar values are in 2011 dollars.

Strong industries and occupations

Which occupations are high opportunity?

Plant and system operators, supervisors of protective service workers, supervisors of installation, maintenance and repair workers are high-opportunity jobs for workers with more than a high school degree but less than a BA.

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				Occupation Opportunity Index
				Real Wage Growth	Change in Employment	% Change in Employment	Median Age	
		(2011)	(2011)	(2011)	(2005-11)	(2005-11)	(2010)	
High-Opportunity	Plant and System Operators	2,220	$54,427	9.4%	370	20.0%	48	0.70
	Supervisors of Protective Service Workers	1,500	$60,925	3.2%	-80	-5.1%	43	0.69
	Supervisors of Installation, Maintenance, and Repair Workers	3,030	$58,820	1.8%	-620	-17.0%	48	0.62
	Law Enforcement Workers	6,240	$50,458	0.0%	200	3.3%	38	0.27
	Occupational Therapy and Physical Therapist Assistants and Aides	1,380	$48,151	2.4%	-40	-2.8%	37	0.21
	Drafters, Engineering Technicians, and Mapping Technicians	3,520	$48,629	0.5%	-1,360	-27.9%	44	0.19
	Supervisors of Office and Administrative Support Workers	9,890	$47,000	-1.5%	110	1.1%	44	0.18
	Legal Support Workers	1,770	$44,331	0.9%	-550	-23.7%	41	0.05
	Health Technologists and Technicians	21,260	$41,152	-0.4%	1,760	9.0%	38	0.00
Middle-Opportunity	Electrical and Electronic Equipment Mechanics, Installers, and Repairers	3,350	$43,302	-3.2%	-390	-10.4%	39	-0.05
	Other Office and Administrative Support Workers	30,280	$30,476	8.9%	550	1.8%	43	-0.18
	Supervisors of Sales Workers	10,470	$41,919	-12.0%	-280	-2.6%	43	-0.19
	Secretaries and Administrative Assistants	26,200	$34,939	-3.5%	10	0.0%	47	-0.22
	Life, Physical, and Social Science Technicians	1,980	$39,239	-10.1%	60	3.1%	40	-0.25
	Fire Fighting and Prevention Workers	3,480	$36,235	-2.5%	-100	-2.8%	37	-0.27
	Financial Clerks	26,160	$31,883	-2.4%	-740	-2.8%	44	-0.35
	Other Healthcare Support Occupations	10,720	$29,129	-5.5%	3,740	53.6%	37	-0.37
	Communications Equipment Operators	990	$27,462	4.3%	-300	-23.3%	41	-0.44
	Other Education, Training, and Library Occupations	10,290	$26,939	-5.0%	1,680	19.5%	45	-0.46
Low-Opportunity	Information and Record Clerks	41,390	$29,643	-4.1%	-5,830	-12.3%	39	-0.62
	Entertainment Attendants and Related Workers	2,880	$17,962	6.6%	-420	-12.7%	25	-0.86

Source: 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 Cincinnati-Middletown Core Based Statistical Area as defined by the U.S. Office of Management and Budget. Dollar values are in 2011 dollars.

Strong industries and occupations

Which occupations are high opportunity?

Advertising, marketing, promotions, public relations, and sales managers as well as operations specialties managers are high-opportunity occupations for workers with a BA degree or higher.

Occupation Opportunity Index: Occupations by Opportunity Level for Workers with a Bachelor's Degree or Higher

	Occupation	Employment	Job Quality Median Annual Wage	Growth Real Wage Growth	Growth Change in Employment	Growth % Change in Employment	Growth Median Age	Occupation Opportunity Index
		(2011)	(2011)	(2011)	(2005-11)	(2005-11)	(2010)	
High-Opportunity	Advertising, Marketing, Promotions, Public Relations, and Sales Managers	4,860	$103,673	10.9%	990	25.6%	40	2.28
	Operations Specialties Managers	13,650	$97,538	5.4%	4110	43.1%	44	2.12
	Top Executives	11,770	$106,762	-2.0%	-4060	-25.6%	46	2.02
	Health Diagnosing and Treating Practitioners	37,780	$84,920	5.7%	6230	19.7%	44	1.70
	Other Management Occupations	14,550	$81,504	1.8%	460	3.3%	45	1.39
	Engineers	9,220	$78,838	-0.7%	80	0.9%	42	1.22
	Physical Scientists	1,510	$77,824	4.0%	-200	-11.7%	39	1.21
	Lawyers, Judges, and Related Workers	4,220	$83,898	-23.8%	1210	40.2%	45	1.12
	Mathematical Science Occupations	990	$68,081	-6.4%	450	83.3%	46	0.98
	Computer Occupations	27,020	$69,511	-1.6%	4330	19.1%	38	0.97
	Social Scientists and Related Workers	1,020	$68,493	8.9%	-1700	-62.5%	39	0.85
	Life Scientists	1,130	$65,781	-5.9%	190	20.2%	39	0.72
	Financial Specialists	21,160	$60,204	1.2%	1920	10.0%	42	0.69
	Business Operations Specialists	28,820	$58,371	-1.4%	3470	13.7%	42	0.63
	Postsecondary Teachers	7,200	$59,402	2.4%	-2070	-22.3%	46	0.59
	Sales Representatives, Wholesale and Manufacturing	16,860	$60,894	-5.1%	-730	-4.2%	45	0.56
	Other Healthcare Practitioners and Technical Occupations	1,120	$53,796	-2.7%	440	64.7%	35	0.43
	Preschool, Primary, Secondary, and Special Education School Teachers	26,830	$50,342	-2.5%	-2500	-8.5%	41	0.18
	Sales Representatives, Services	12,630	$47,339	-10.6%	3410	37.0%	43	0.16
	Art and Design Workers	3,830	$45,111	3.2%	-350	-8.4%	39	0.12
	Librarians, Curators, and Archivists	2,020	$44,515	-4.2%	-540	-21.1%	49	0.05
Middle-Opportunity	Counselors, Social Workers, and Other Community and Social Service Specialists	11,700	$39,760	-6.2%	3920	50.4%	39	-0.01
	Media and Communication Workers	3,010	$43,493	-6.3%	-260	-8.0%	41	-0.07
	Other Teachers and Instructors	5,420	$30,327	-3.9%	1620	42.6%	41	-0.32
	Other Sales and Related Workers	5,310	$32,230	-0.9%	-1650	-23.7%	45	-0.36
	Media and Communication Equipment Workers	1,020	$33,381	-7.7%	-100	-8.9%	41	-0.42
Low-Opportunity	Entertainers and Performers, Sports and Related Workers	2,150	$24,893	-26%	50	2%	35	-1.048

Source: 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 Cincinnati-Middletown Core Based Statistical Area as defined by the U.S. Office of Management and Budget. Dollar values are in 2011 dollars.
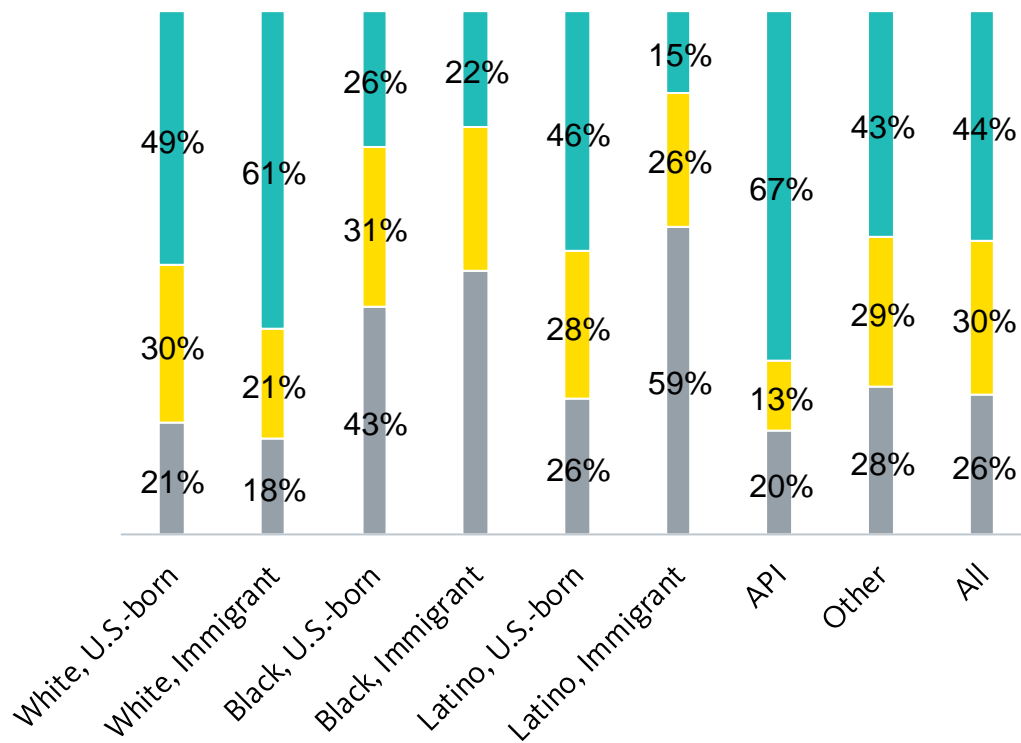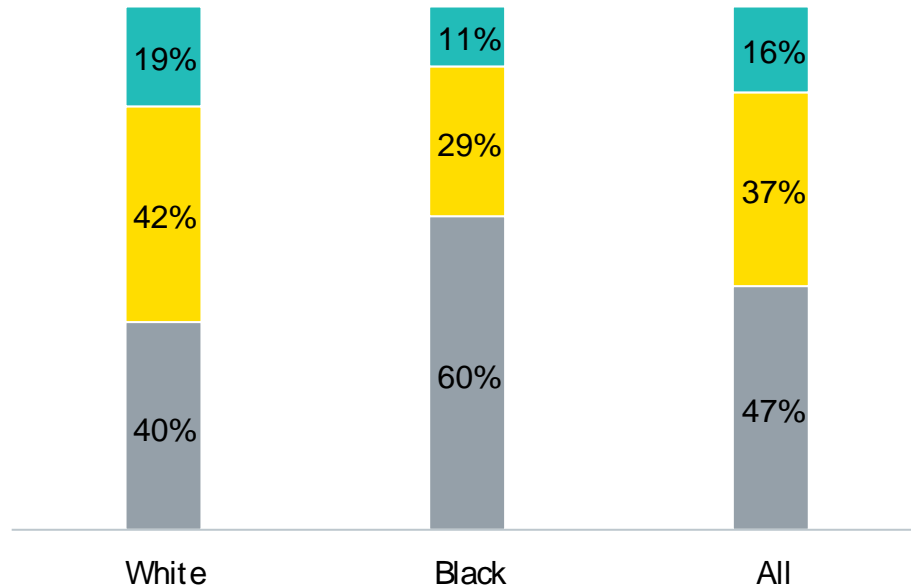
Strong industries and occupations

Is race/ethnicity a barrier to economic success?

Examining access to high-opportunity jobs by race/ethnicity, we find that Asian or Pacific Islanders (APIs) and Whites are most likely to be employed in high-opportunity occupations. Latino immigrants are the least likely to be in these occupations and most likely to be in low-opportunity occupations.

Opportunity Ranking of Occupations by Race/Ethnicity, All Workers

■ High Opportunity
■ Middle Opportunity
■ Low Opportunity

	White, U.S.-born	White, Immigrant	Black, U.S.-born	Black, Immigrant	Latino, U.S.-born	Latino, Immigrant	API	Other	All
High Opportunity	49%	61%	26%	22%	46%	15%	67%	43%	44%
Middle Opportunity	30%	21%	31%		28%	26%	13%	29%	30%
Low Opportunity	21%	18%	43%		26%	59%	20%	28%	26%

Strong industries and occupations

Is race/ethnicity a barrier to economic success?

Among workers with a high school diploma or less, White workers are more likely to be in high-opportunity and middle opportunity occupations than Black Workers. Three in five Black workers with a HS diploma or less are in low-opportunity jobs compared with two in five White workers.

Opportunity Ranking of Occupations by Race/Ethnicity, Workers with Low Educational Attainment

- High Opportunity
- Middle Opportunity
- Low Opportunity

White
- 19%
- 42%
- 40%

Black
- 11%
- 29%
- 60%

All
- 16%
- 37%
- 47%

Strong industries and occupations

Is race/ethnicity a barrier to economic success?

Differences in job opportunity are generally smaller for workers with middle education levels, but still, White workers are more likely than Black workers to be found in high-opportunity jobs. Forty percent of Black workers are in low-opportunity jobs.

Opportunity Ranking of Occupations by Race/Ethnicity, Workers with Middle Educational Attainment

■ High Opportunity
■ Middle Opportunity
■ Low Opportunity

	White	Black	All
High Opportunity	39%	24%	35%
Middle Opportunity	39%	35%	38%
Low Opportunity	23%	40%	28%
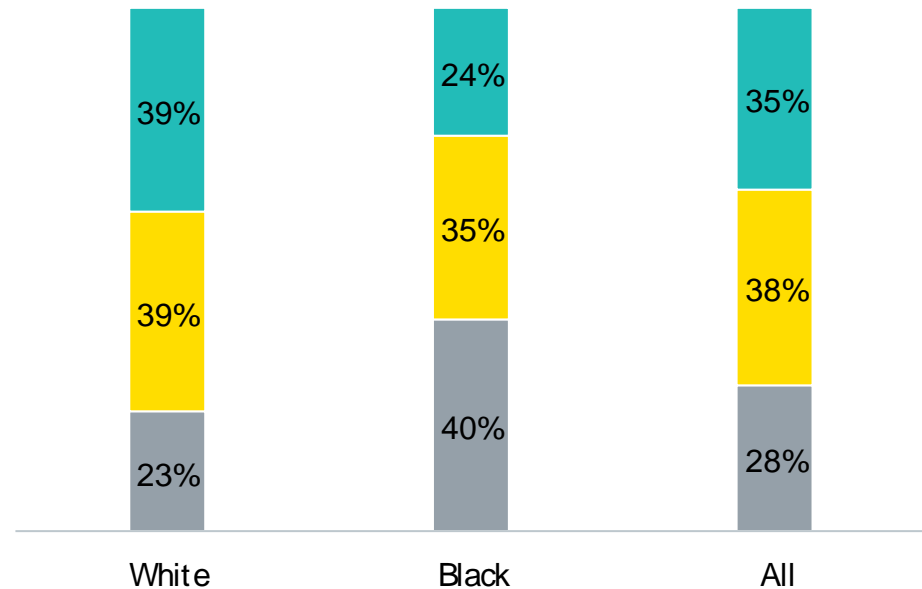
Source: U.S. Bureau of Labor Statistics; Integrated Public Use Microdata Series. Universe includes the employed civilian noninstitutional population ages 25 through 64 with more than a high school diploma but less than a BA degree.
Note: While data on workers are from Hamilton County, the opportunity ranking for each worker's occupation is based on analysis of the Cincinnati-Middletown Core Based 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.
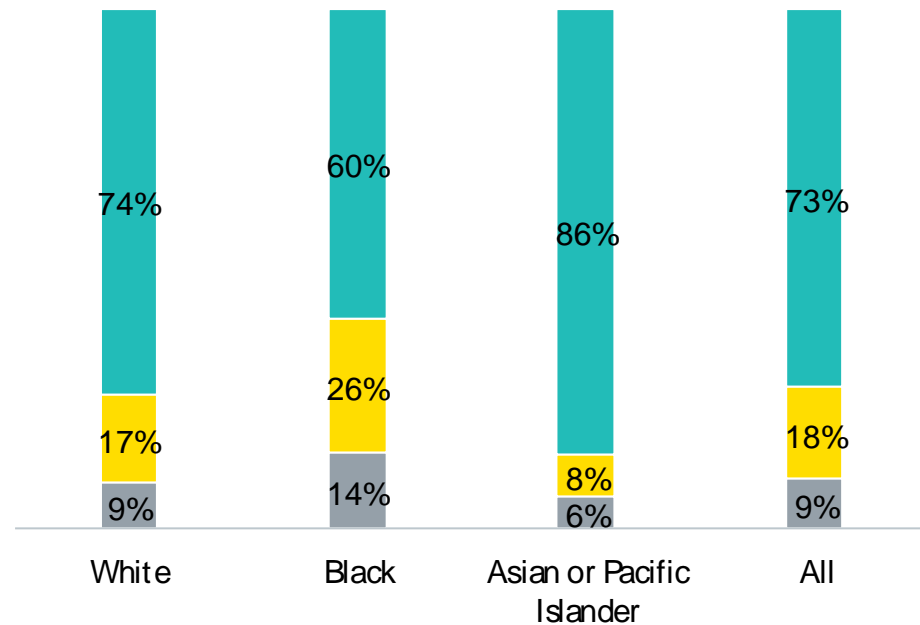
Strong industries and occupations

Is race/ethnicity a barrier to economic success?

Differences in access to high-opportunity occupations tend to decrease even more for workers with college degrees, though gaps across groups remain. Among the most educated workers, White and Asian workers are the most likely to be in high-opportunity occupations.

Opportunity Ranking of
Occupations by Race/Ethnicity,
Workers with High Educational
Attainment

- High Opportunity
- Middle Opportunity
- Low Opportunity

	White	Black	Asian or Pacific Islander	All
High Opportunity	74%	60%	86%	73%
Middle Opportunity	17%	26%	8%	18%
Low Opportunity	9%	14%	6%	9%

Source: 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: While data on workers are from Hamilton County, the opportunity ranking for each worker's occupation is based on analysis of the Cincinnati-Middletown Core Based 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
Highlights
How prepared are the county's residents for the 21st century economy?

- There is a looming skills and education gap for U.S.-born Black residents and Latino immigrants, whose rates of postsecondary education (having at least an associate's degree) are far lower than the share of future jobs in the state that will require that level of education.

- Despite some progress since 2000, Black youth are more than twice as likely and Latino youth are six times as likely as White youth to be without a high school diploma and not in pursuit of one.

- Black residents face steep health challenges when it comes to adult obesity, asthma, diabetes, obesity, high blood pressure, and heart attacks and are less likely than White residents to have health insurance.

Percent of U.S.-born Black workers with an associate's degree or higher:

25%

Number of youth who are disconnected:

12,394

Share of Black adults with diabetes:

14%

Skilled workforce

Does the workforce have the skills for the jobs of the future?

The education levels of the county's population aren't keeping up with employers' educational demands. By 2020, an estimated 41 percent of jobs in Ohio will require at least an associate's degree. Only 23 percent of Latino immigrants and 25 percent of African Americans have that level of education now.

Share of Working-Age Population with an Associate's Degree or Higher by Race/Ethnicity, 2014, and Projected Share of Jobs that Require an Associate's Degree or Higher, 2020

Latino, Immigrant	23%
Black, U.S.-born	25%
Mixed/other, U.S.-born	40%
Black, Immigrant	42%
Latino, U.S.-born	49%
White, U.S.-born	50%
White, Immigrant	65%
API, Immigrant	70%
Jobs in 2020	41%
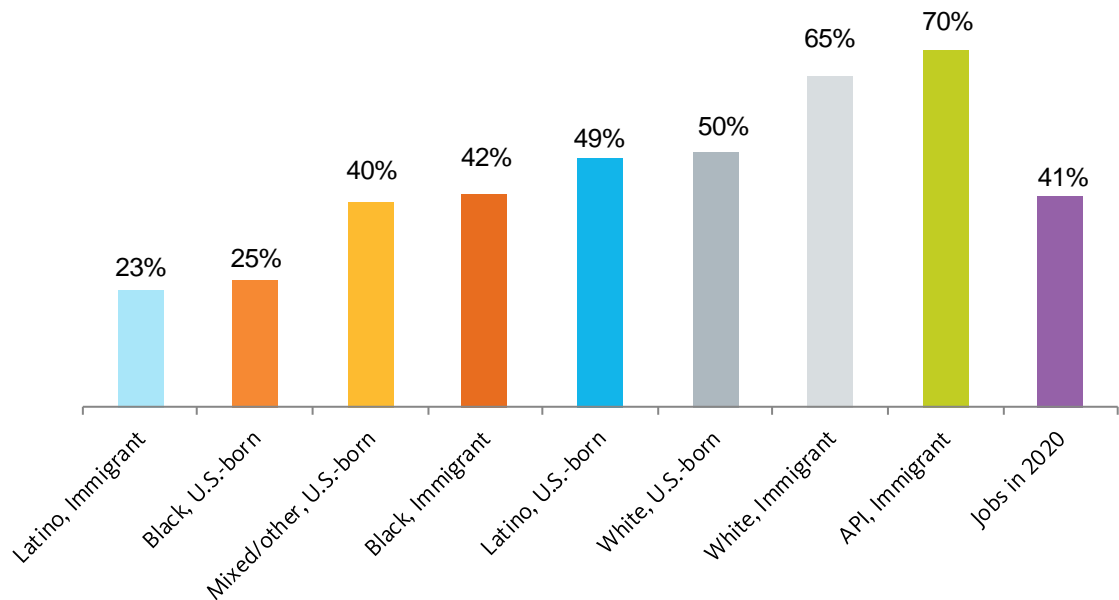
Source: Georgetown Center for Education and the Workforce; Integrated Public Use Microdata Series. Universe for education levels of workers includes all persons ages 25 through 64.
Note: Data for 2014 by race/ethnicity and nativity represent a 2010 through 2014 average for Hamilton County; data on jobs in 2020 represents a state-level projection for Ohio.

Youth preparedness

Do all children have access to opportunity?

Interstate 75 divides neighborhoods to the north and west, which rank the lowest on the child opportunity index, from those to the south near Clifton, which rank the highest. While some children in the county grow up with high levels of educational, health, and environmental opportunity, many do not.

Composite Child Opportunity Index by Census Tract, 2013

- Very High
- High
- Moderate
- Low
- Very Low
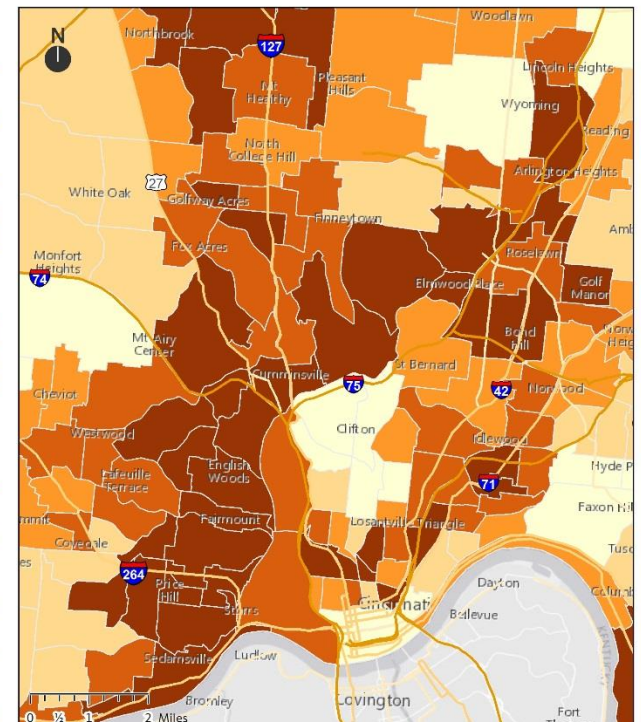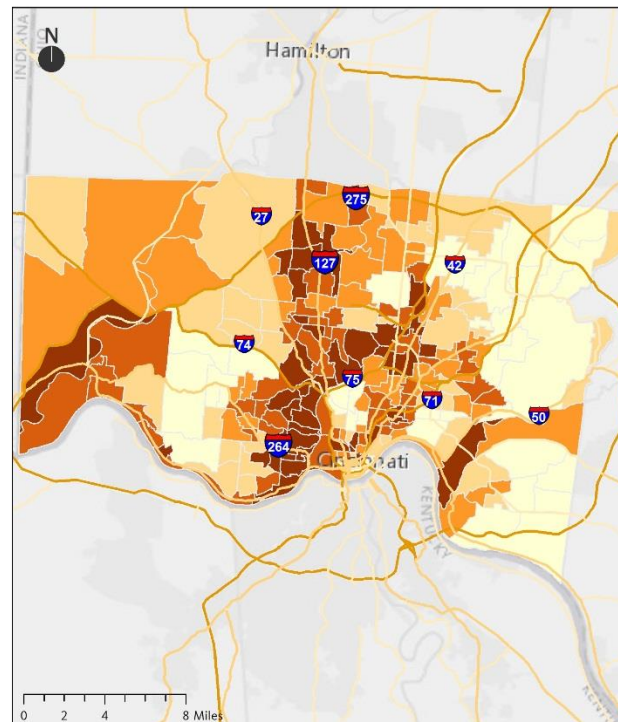
Source: The diversitydatakids.org and the Kirwan Institute for the Study of Race and Ethnicity; TomTom, ESRI, HERE, DeLorme, MaymyIndia, © OpenStreetMap contributors, and the GIS user community.
Note: The Child Opportunity Index is a composite of indicators across three domains: educational opportunity, health and environmental opportunity, and social and economic opportunity. The vintage of the underlying indicator data varies, ranging from years 2007 through 2013. The map was created by ranking the census tract level Overall Child Opportunity Index Score into quintiles for the region.
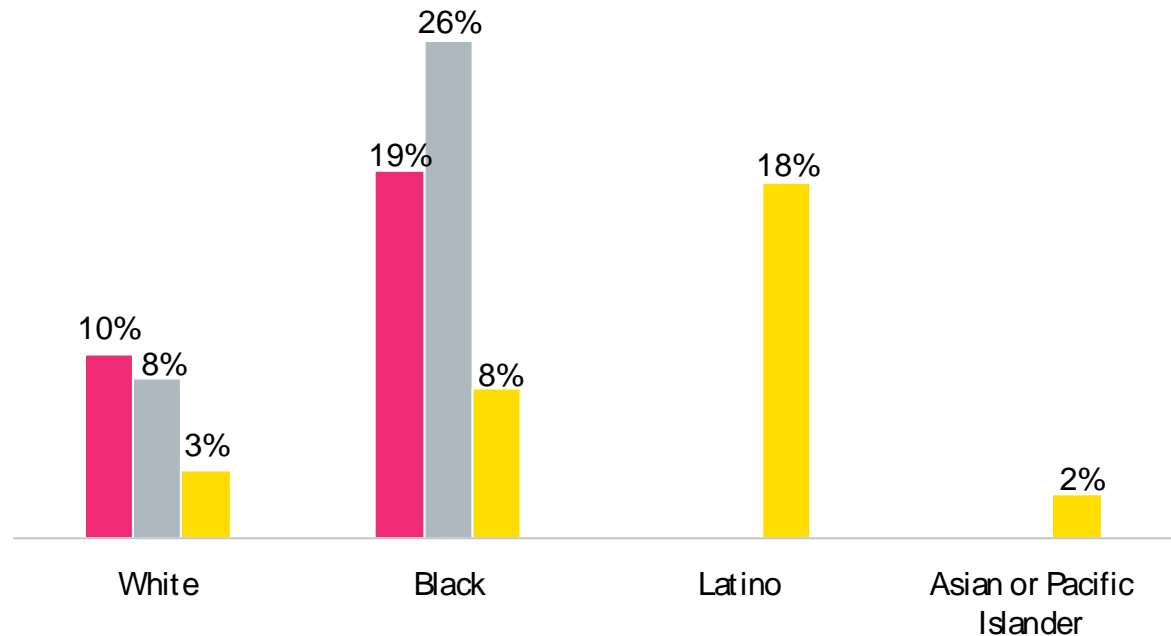
Youth preparedness

Are youth ready to enter the workforce?

More of Hamilton County's youth are getting high school diplomas, but racial gaps remain. Despite some progress since 2000, Black youth were more than twice as likely and Latino youth six times as likely as White youth to be without a high school diploma and not in pursuit of one in 2014.

Share of 16- to 24-Year-Olds Not Enrolled in School and without a High School Diploma by Race/Ethnicity, 1990 to 2014

■ 1990
■ 2000
■ 2014

Source: Integrated Public Use Microdata Series.
Note: Data for 2014 represent a 2010 through 2014 average. Data for some racial/ethnic groups in some years are excluded due to small sample size.

Youth preparedness

Are youth ready to enter the workforce?

Overall, a smaller share of young women than young men have dropped out of school. Importantly, the rates are higher for young Black women than for young White men. Just 2 percent of young White women lack a high school diploma and are not pursuing one compared with 4 percent of young White men and 7 percent of young Black women.

Share of 16- to 24-Year-Olds
Not Enrolled in School and
without a High School Diploma
by Race/Ethnicity and Gender,
2014

■ Male
■ Female

White: Male 4%, Female 2%
Black: Male 9%, Female 7%
All: Male 6%, Female 4%
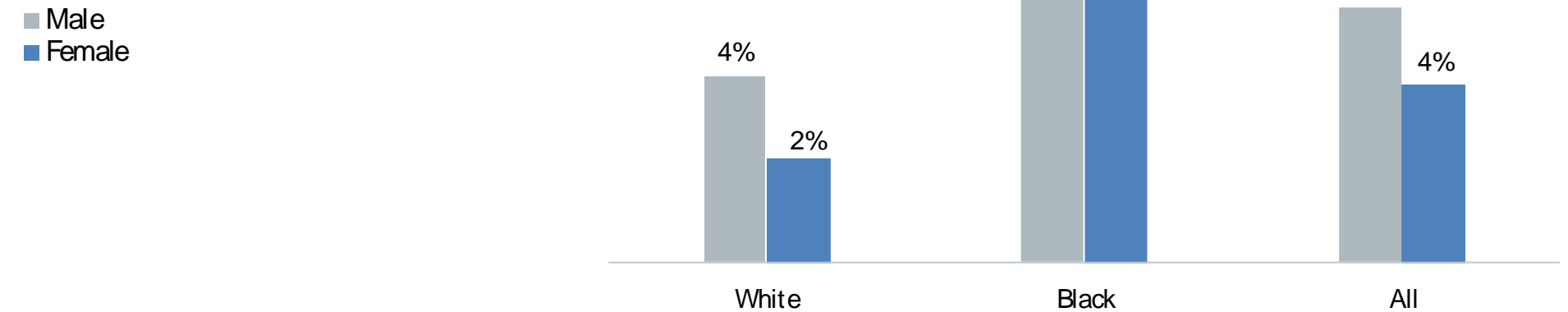
Source: Integrated Public Use Microdata Series.
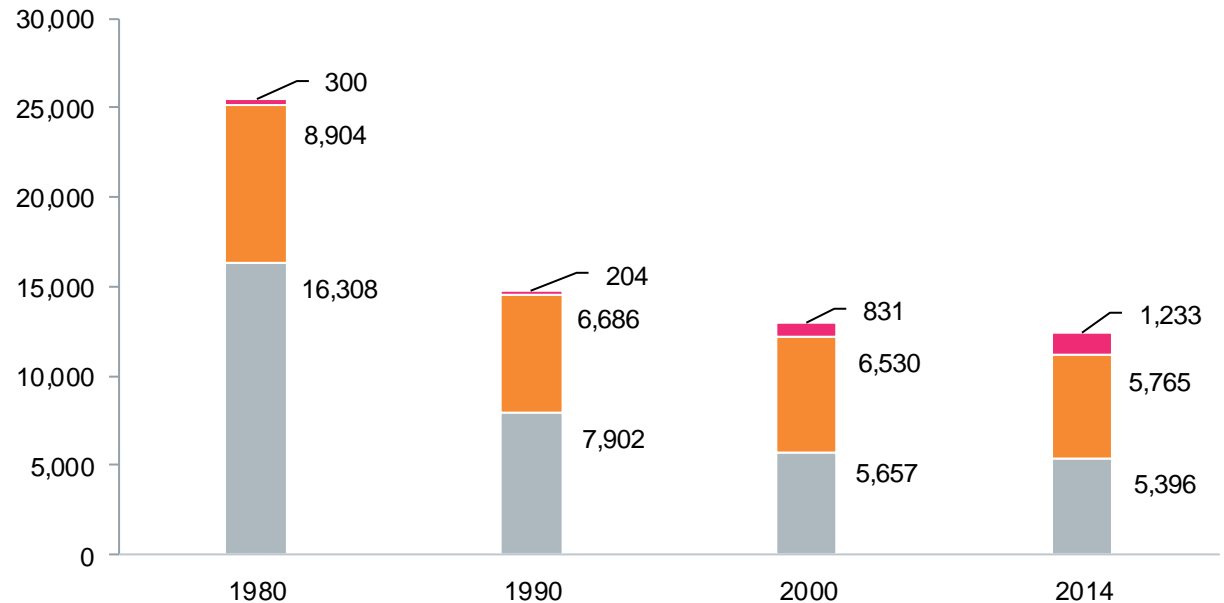Note: Data represent a 2010 through 2014 average.

Youth preparedness

Are youth ready to enter the workforce?

Youth of color are 56 percent of disconnected youth even though they make up just 37 percent of all young people. So while the number of youth who are disconnected has decreased, youth of color remain disproportionately disconnected. Of the nearly 12,400 disconnected youth in 2014, 47 percent were Black and 44 percent were White.

Disconnected Youth: 16- to 24-Year-Olds Not in School or Work by Race/Ethnicity, 1990 to 2014

- Latino, Asian, Native American or Other
- Black
- White

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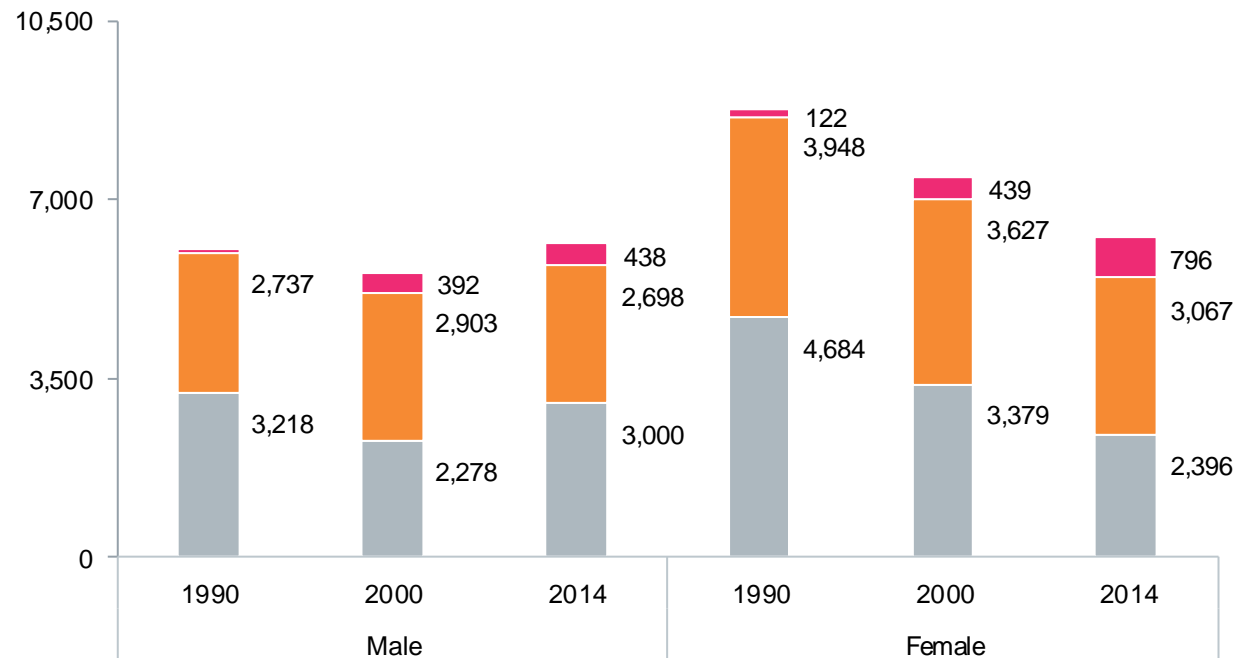Note: Data for 2014 represent a 2010 through 2014 average.

Youth preparedness

Are youth ready to enter the workforce?

Among youth of color, there are more young women who are disconnected than young men, but the opposite is true among White youth. Of the over 6,200 disconnected young women in Hamilton County, 62 percent are young women of color.

Disconnected Youth: 16- to 24-Year-Olds Not in School or Work by Race/Ethnicity and Gender, 1990 to 2014

■ Latino, Asian, Native American or Other
■ Black
■ White

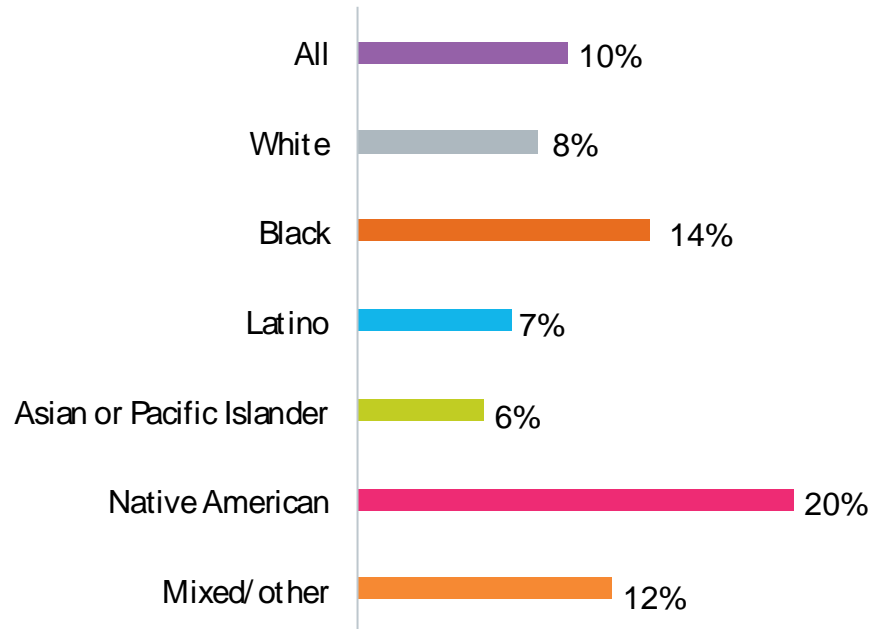|	1990	2000	2014
Male	2,737 / 3,218	392 / 2,903 / 2,278	438 / 2,698 / 3,000
Female	122 / 3,948 / 4,684	439 / 3,627 / 3,379	796 / 3,067 / 2,396

Healthy food access

Can all residents access healthy food?

Native Americans and African Americans in the county are the most likely to live in limited supermarket access areas (LSAs). Access to healthy food is a critical component of a healthy, thriving community.

Percent Living in Limited
Supermarket Access Areas
(LSAs) by Race/Ethnicity, 2014

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.

Race/Ethnicity	Percent
All	10%
White	8%
Black	14%
Latino	7%
Asian or Pacific Islander	6%
Native American	20%
Mixed/other	12%

Source: The Reinvestment Fund, 2014 LSA analysis; U.S. Census Bureau.
Note: Data on population by race/ethnicity reflects a 2010 through 2014 average.
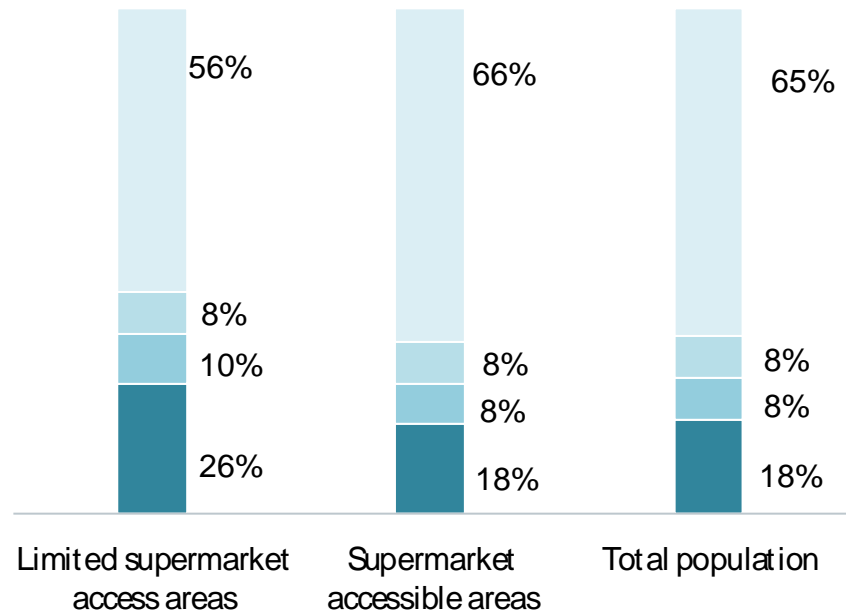
Healthy food access

Can all residents access healthy food?

The population living below poverty and close to poverty is also disproportionately located in LSAs. People living below the federal poverty level (FPL) make up 18 percent of the county's population but account for 26 percent of the population in LSAs.

Percent Population in Limited Supermarket Access Areas (LSAs), 2014

- ☐ 200% or above FPL
- ☐ 150-199% FPL
- ☐ 100-149% FPL
- ☐ Below 100% FPL

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.

	Limited supermarket access areas	Supermarket accessible areas	Total population
200% or above FPL	56%	66%	65%
150-199% FPL	8%	8%	8%
100-149% FPL	10%	8%	8%
Below 100% FPL	26%	18%	18%

Source: The Reinvestment Fund, 2014 LSA analysis; U.S. Census Bureau. Universe includes all persons not in group quarters.
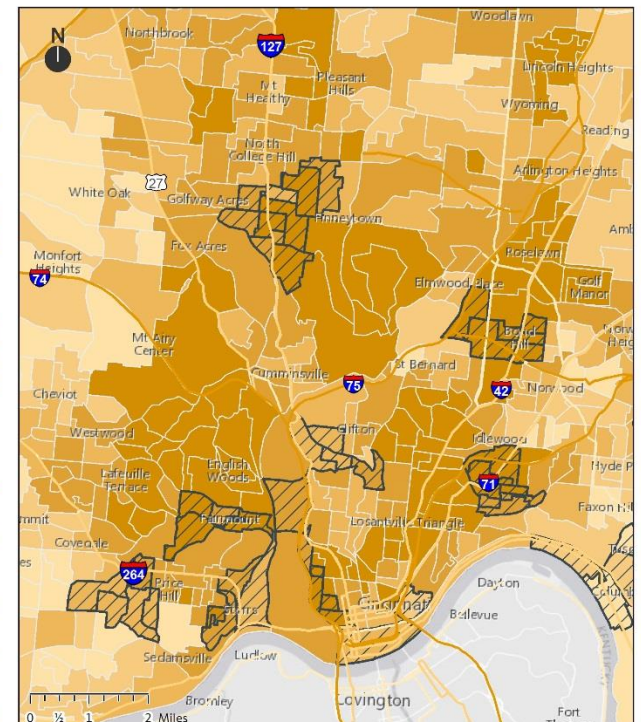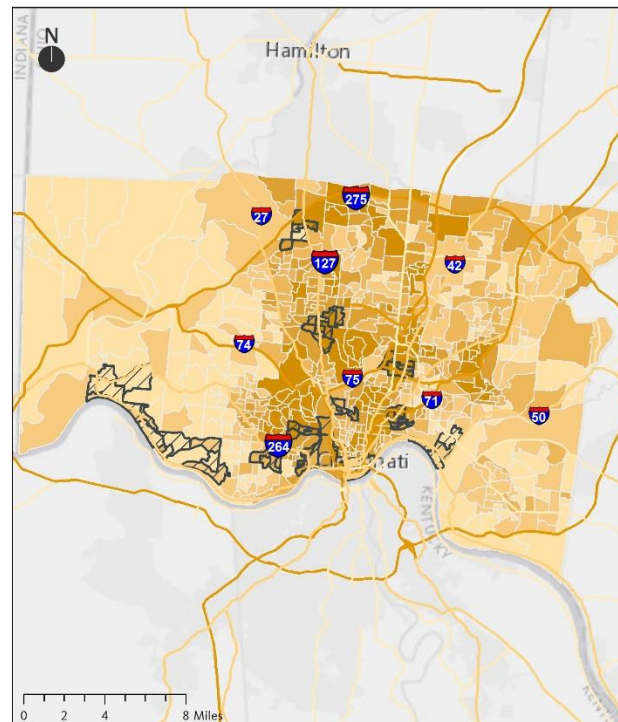Note: Data on population by poverty status reflects a 2010 through 2014 average.

Health-promoting environments

Can all residents access healthy food?

Most of the county's LSAs are clustered in the city of Cincinnati
– and in neighborhoods where at least two in three residents
are people of color. There are notable exceptions in the largely
White neighborhoods in the western part of the county along
the Kentucky border.

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

Less than 6%
6% to 16%
16% to 36%
36% to 65%
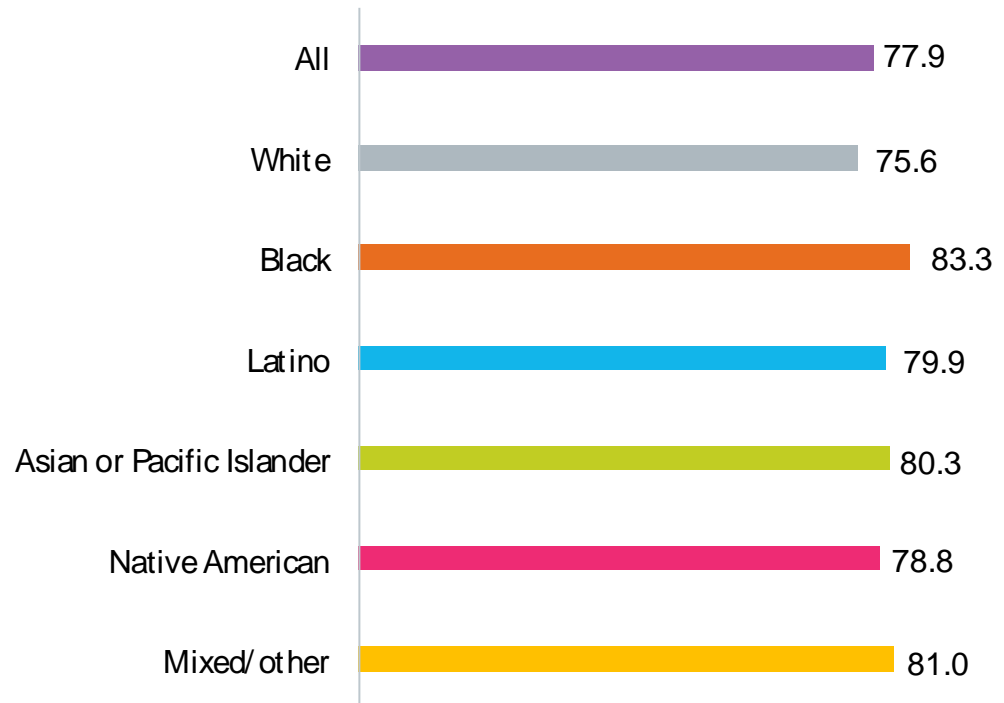65% or more
Limited Supermarket Access

Health-promoting environments

Do all residents live in areas with clean air?

Black residents live in neighborhoods that rank highest on the air pollution exposure index. The average Black resident of Hamilton County has more exposure to air pollution than 83 percent of census tracts in the United States. By contrast, the average White resident has more exposure than 76 percent of tracts in the country.

Air Pollution: Exposure Index
by Race/Ethnicity, 2014

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

Race/Ethnicity	Index
All	77.9
White	75.6
Black	83.3
Latino	79.9
Asian or Pacific Islander	80.3
Native American	78.8
Mixed/other	81.0

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

Health-promoting environments

Do all residents live in areas with clean air?

Both race and class impact exposure to pollutants. People of color have greater exposure to air pollution on average regardless of poverty status. White residents below poverty have lower exposure than people of color above poverty.

Air Pollution: Exposure Index
by Poverty Status, 2014
■ White
■ People of color

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

Below poverty — 79.8 / 83.6

Above poverty — 74.8 / 82.1

Source: U.S. EPA, 2011 National-Scale Air Toxics Assessment; U.S. Census Bureau. Universe includes all persons not in group quarters.
Note: Data on population by poverty status represent a 2010 through 2014 average.
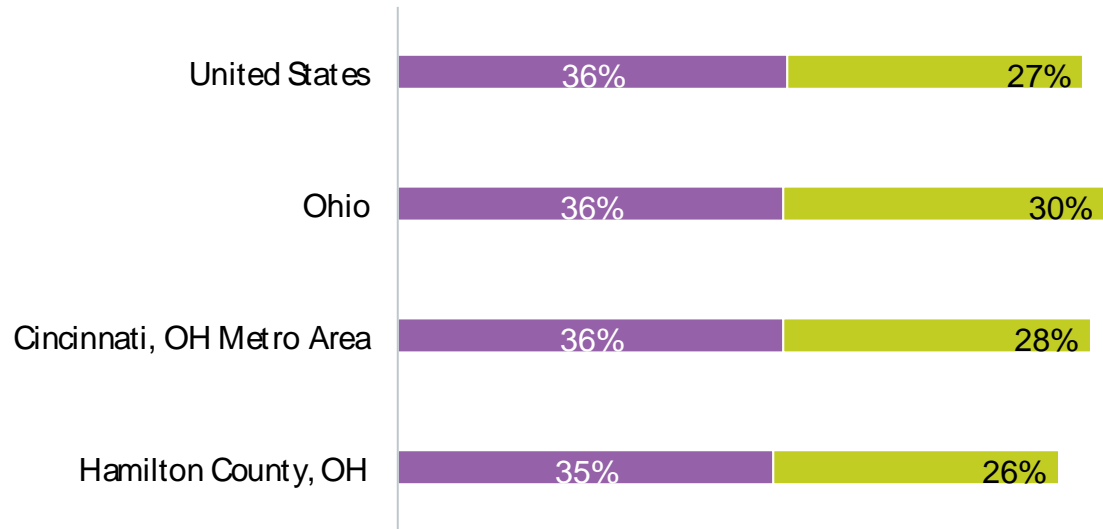
Health of residents

Do all residents have the opportunity to live long and healthy lives?

Overweight and obesity rates are lower in Hamilton County than the broader Cincinnati-Middletown metro area and the state overall. In 2012, 61 percent of adults in the county were overweight or obese compared with 66 percent of adults statewide.

Adult Overweight and Obesity by Geography, 2012

- Overweight
- Obese

Geography	Overweight	Obese
United States	36%	27%
Ohio	36%	30%
Cincinnati, OH Metro Area	36%	28%
Hamilton County, OH	35%	26%

Source: Centers for Disease Control and Prevention. Universe includes all persons ages 18 or older.
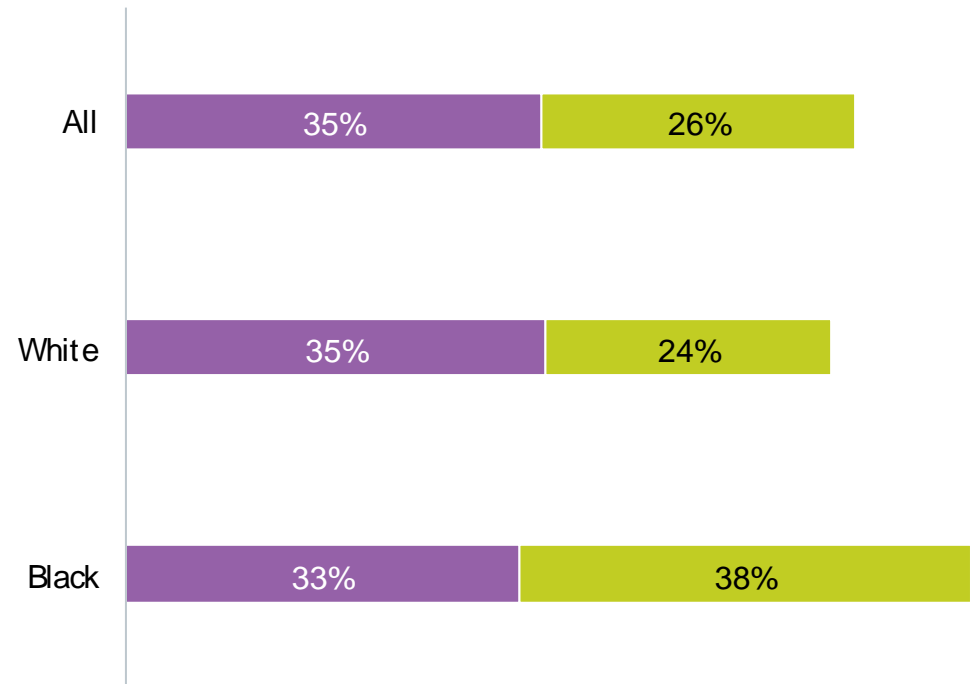Note: Data represent a 2008 through 2012 average.

Health of residents

Do all residents have the opportunity to live long and healthy lives?

Black adults, who are more likely to live in areas without access to healthy food, face higher obesity rates than White adults. While genetics matter, research shows there are other important social and environmental factors that influence obesity, including toxic stress, income, access to produce and healthy foods, and education.

Adult Overweight and Obesity Rates by Race/Ethnicity, 2012

■ Overweight
■ Obese

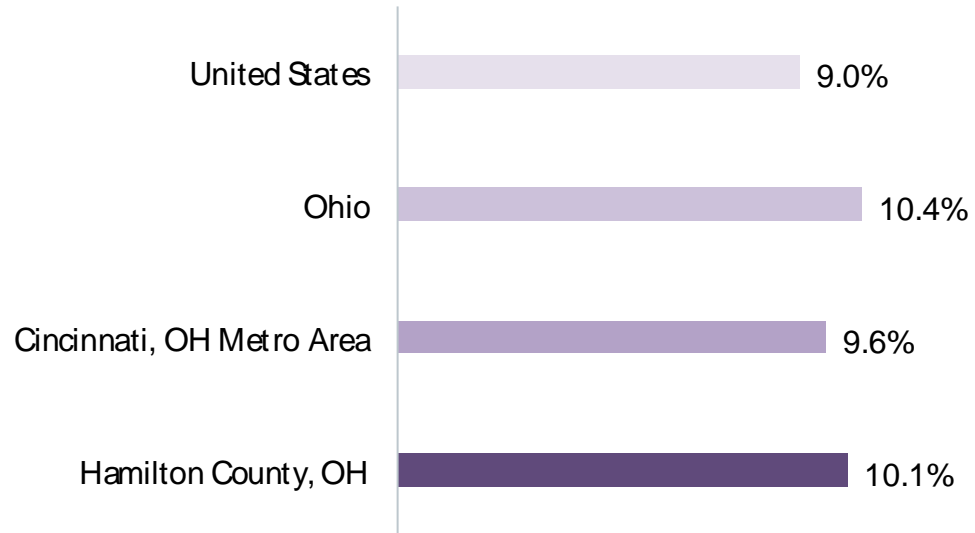|	Overweight	Obese
All	35%	26%
White	35%	24%
Black	33%	38%

Source: Centers for Disease Control and Prevention. Universe includes all persons ages 18 or older.
Note: Data represent a 2008 through 2012 average for Hamilton County, OH. Data for some racial/ethnic groups are excluded due to small sample size.

Health of residents

Do all residents have the opportunity to live long and healthy lives?

The adult diabetes rate is slightly higher in the county than in the broader Cincinnati metro area, though it is still lower than the state average. One in 10 adults in the county has diabetes.

Adult Diabetes Rates by
Geography, 2012

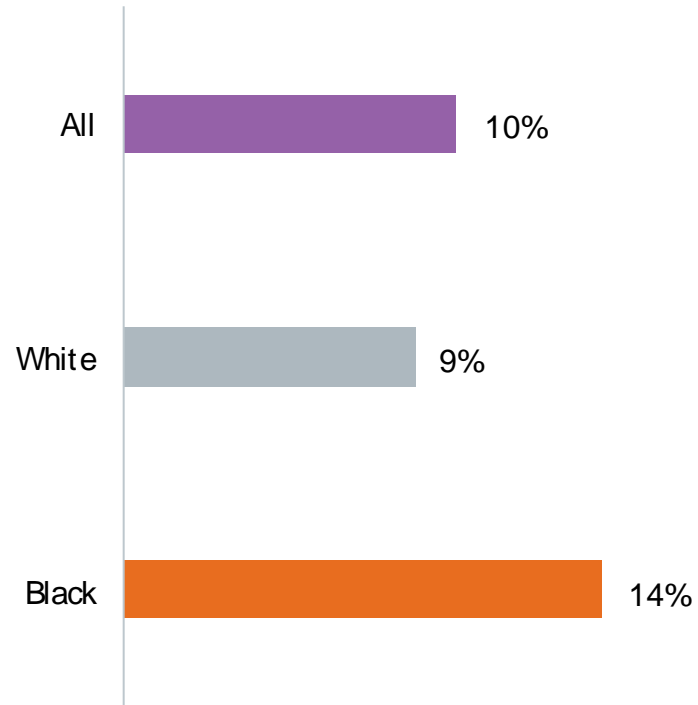| Geography	Rate
United States	9.0%
Ohio	10.4%
Cincinnati, OH Metro Area	9.6%
Hamilton County, OH	10.1%

Source: Centers for Disease Control and Prevention. Universe includes all persons ages 18 or older.
Note: Data represent a 2008 through 2012 average.

Health of residents

Do all residents have the opportunity to live long and healthy lives?

African American adults are also more likely than White adults in the county to have diabetes. The social determinants of health, where people live, work, and age, are increasingly recognized as influencing growing rates of chronic diseases, such as diabetes.

Adult Diabetes Rates by
Race/Ethnicity, 2012

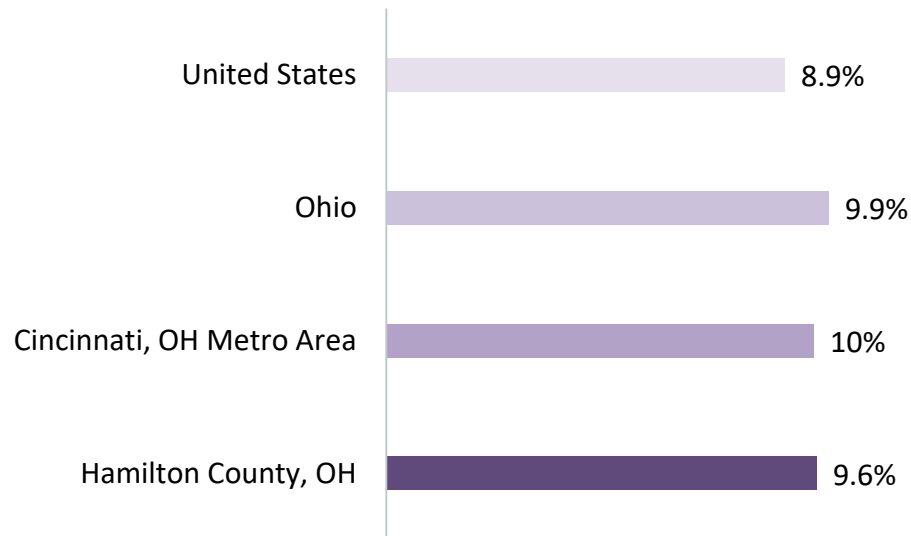All   10%

White   9%

Black   14%

Source: Centers for Disease Control and Prevention. Universe includes all persons ages 18 or older.
Note: Data represent a 2008 through 2012 average for Hamilton County, OH. Data for some racial/ethnic groups are excluded due to small sample size.

Health of residents

Do all residents have the opportunity to live long and healthy lives?

Though adult asthma rates in the county are higher than the national average, they are lower than the broader metro area and the state. Roughly 10 percent of adults have asthma.

Adult Asthma Rates by
Geography, 2012

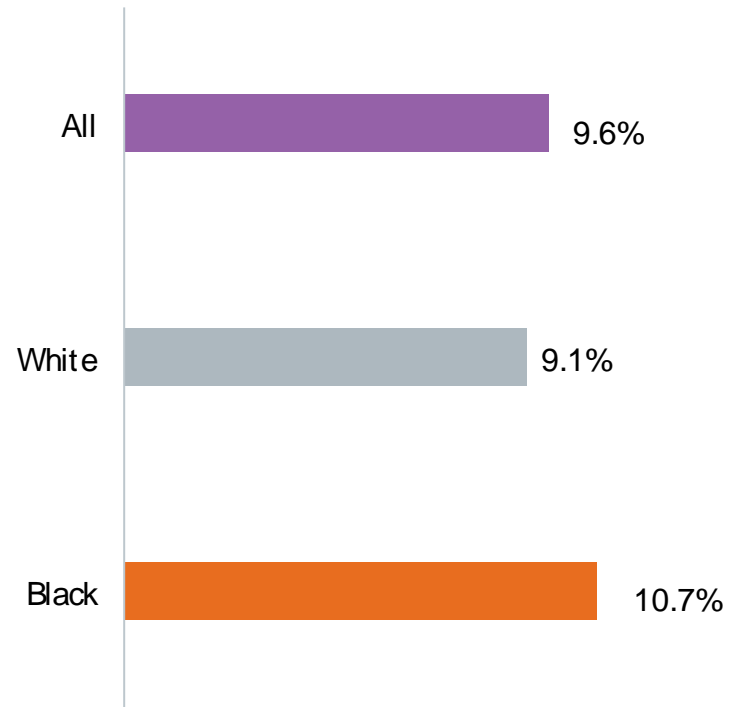| Geography	Rate
United States	8.9%
Ohio	9.9%
Cincinnati, OH Metro Area	10%
Hamilton County, OH	9.6%

Source: Centers for Disease Control and Prevention. Universe includes all persons ages 18 or older.
Note: Data represent a 2008 through 2012 average.

Health of residents

Do all residents have the opportunity to live long and healthy lives?

Black residents, who have greater exposure to air pollution on average, are more likely than White residents to have asthma.
Just over 9 percent of White adults have asthma compared with nearly 11 percent of Black adults.

Adult Asthma Rates by Race/Ethnicity, 2012

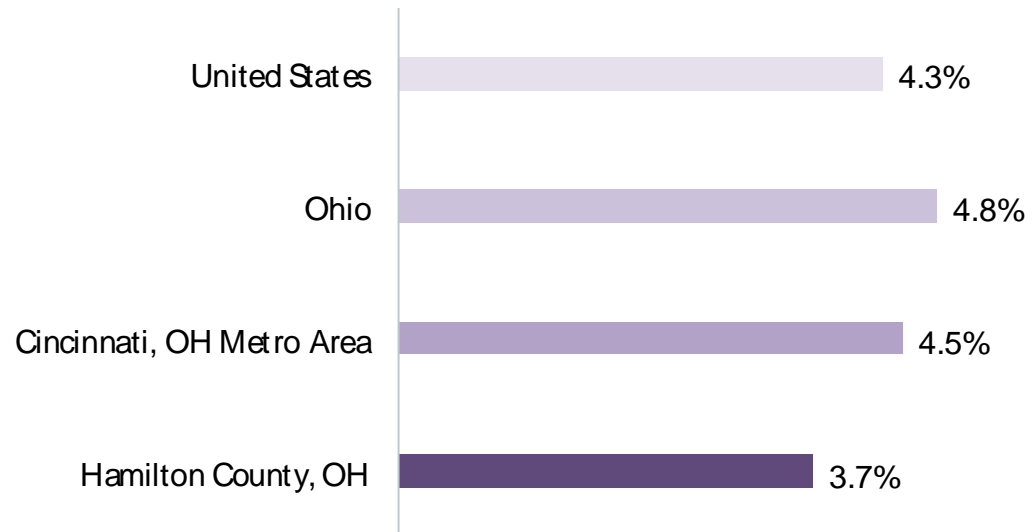|	
All	9.6%
White	9.1%
Black	10.7%

Source: Centers for Disease Control and Prevention. Universe includes all persons ages 18 or older.
Note: Data represent a 2008 through 2012 average for Hamilton County, OH. Data for some racial/ethnic groups are excluded due to small sample size.

Health of residents

Do all residents have the opportunity to live long and healthy lives?

The share of adults who have had a heart attack is also lower in Hamilton County than in both the region and state overall. As of 2012, 3.7 percent of adults have had a heart attack.

Share of Adults Who Have Had a Heart Attack by Geography, 2012

Geography	Percentage
United States	4.3%
Ohio	4.8%
Cincinnati, OH Metro Area	4.5%
Hamilton County, OH	3.7%

Source: Centers for Disease Control and Prevention. Universe includes all persons ages 18 or older.
Note: Data represent a 2008 through 2012 average.

Health of residents

Do all residents have the opportunity to live long and healthy lives?

Even though overall heart attack rates are relatively low, racial disparities persist: 5.1 percent of Black adults have had a heart attack compared with 3.3 percent of White adults.

Share of Adults Who Have Had
a Heart Attack by
Race/Ethnicity, 2012

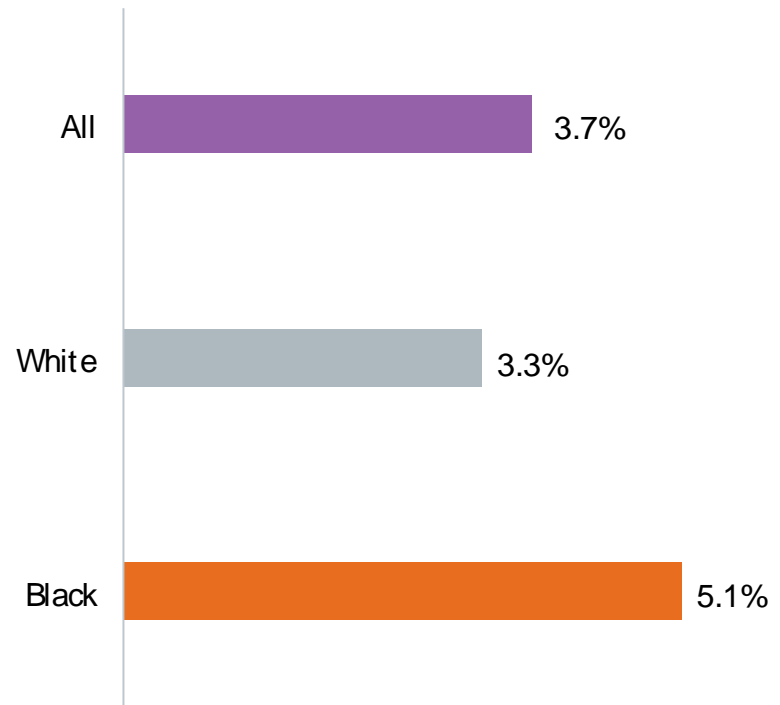|	
All	3.7%
White	3.3%
Black	5.1%

Source: Centers for Disease Control and Prevention. Universe includes all persons ages 18 or older.
Note: Data represent a 2008 through 2012 average for Hamilton County, OH. Data for some racial/ethnic groups are excluded due to small sample size.
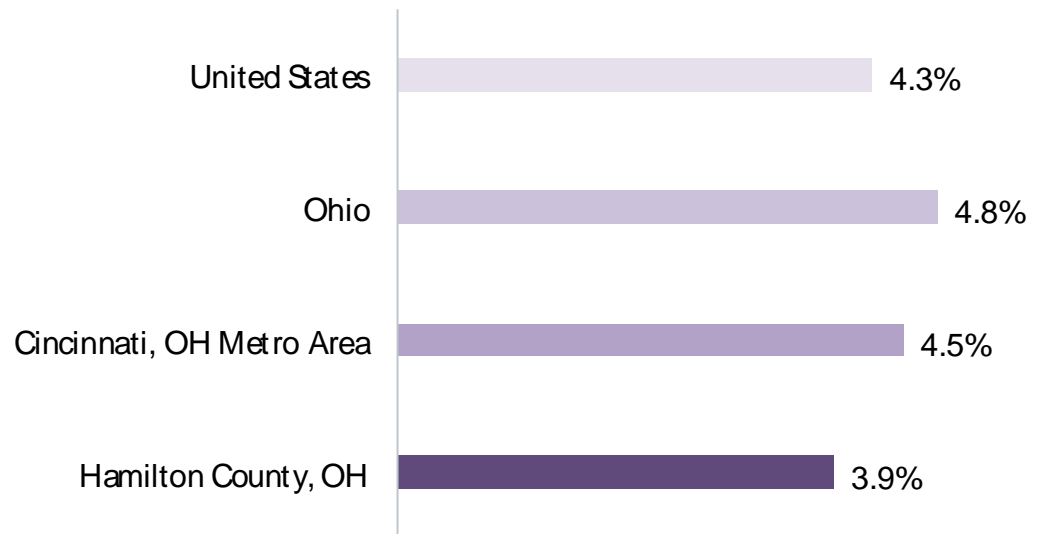
Health of residents

Do all residents have the opportunity to live long and healthy lives?

Heart disease is the leading cause of death in the United States.
The share of adults with angina or coronary heart disease (CHD)
in Hamilton County is lower than the metro, state, and national
averages: 3.9 percent of adults in the county have CHD.

Share of Adults with Angina or
Coronary Heart Disease by
Geography, 2012

Geography	Share
United States	4.3%
Ohio	4.8%
Cincinnati, OH Metro Area	4.5%
Hamilton County, OH	3.9%

Source: Centers for Disease Control and Prevention. Universe includes all persons ages 18 or older.
Note: Data represent a 2008 through 2012 average.

Health of residents

Do all residents have the opportunity to live long and healthy lives?

Racial disparities in coronary heart disease (CHD) in Hamilton County are much lower than other chronic illnesses: 3.9 percent of African Americans and 4.0 percent of Whites have CHD.

Share of Adults with Angina or Coronary Heart Disease by Race/Ethnicity, 2012

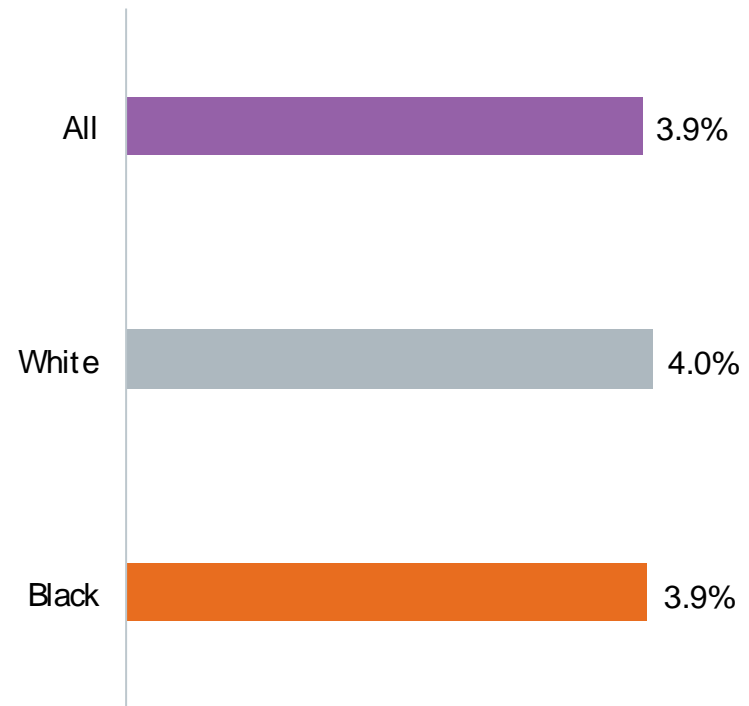|	
All	3.9%
White	4.0%
Black	3.9%

Source: Centers for Disease Control and Prevention. Universe includes all persons ages 18 or older.
Note: Data represent a 2008 through 2012 average for Hamilton County, OH. Data for some racial/ethnic groups are excluded due to small sample size.

Health of residents

Do all residents have the opportunity to live long and healthy lives?

Health equity means that everyone has a just and fair opportunity to lead a long and healthy life, but life expectancy at birth varies from place to place. Life expectancy at birth in Hamilton County is lower than in the United States overall and in the state of Ohio.
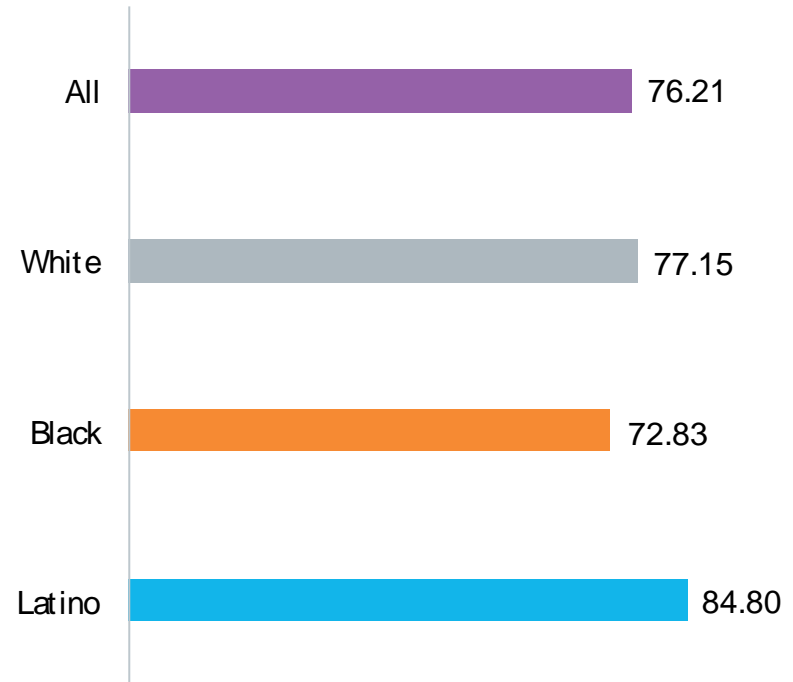
Life Expectancy at Birth by Geography, 2015
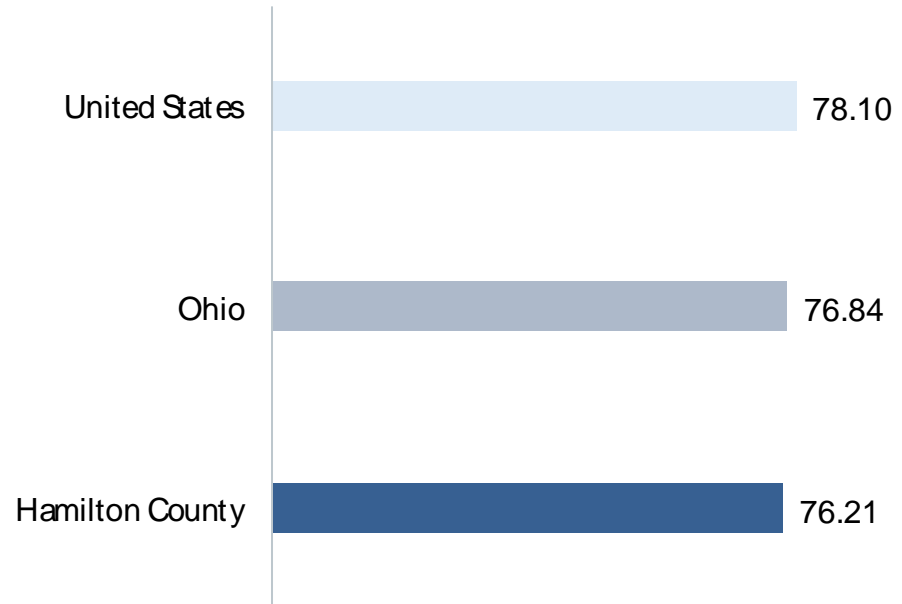
United States	78.10
Ohio	76.84
Hamilton County	76.21

Source: Centers for Disease Control and Prevention.
Note: Data represent a 2011 through 2015 average.

Health of residents

Do all residents have the opportunity to live long and healthy lives?

Life expectancy not only varies by place but also by race. In Hamilton County, Black residents have the shortest life expectancy at birth while Latinos have the longest. Newborn Black babies can expect to live about four years less than Whites and 12 years less than Latinos.

Life Expectancy at Birth by Race/Ethnicity, 2014

Race/Ethnicity	Life Expectancy
All	76.21
White	77.15
Black	72.83
Latino	84.80

Source: Centers for Disease Control and Prevention.
Note: Data represent a 2011 through 2015 average for Hamilton County, OH. Data for some racial/ethnic groups are excluded due to small sample size.
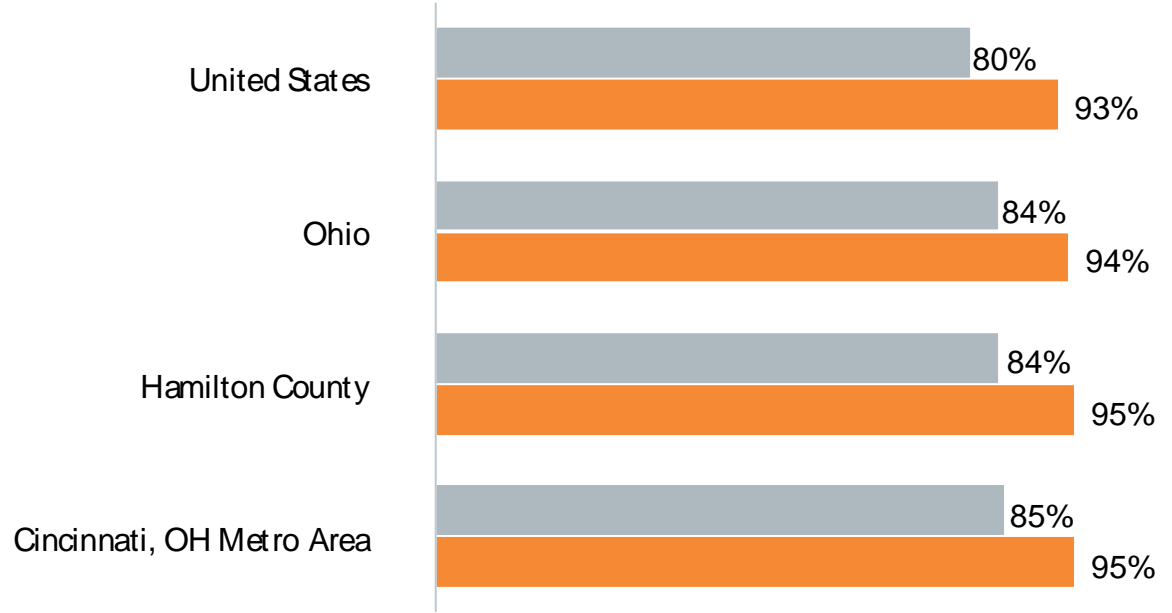
Health of residents

Do residents have access to health insurance and health-care services?

**Health insurance rates nearly match the state average and are
higher than the national average**. In Hamilton County, 84 percent
of adults and 95 percent of children have health insurance.

Health Insurance Rates by Geography, 2014

- 18-64 years
- 0-17 years

Geography	18-64 years	0-17 years
United States	80%	93%
Ohio	84%	94%
Hamilton County	84%	95%
Cincinnati, OH Metro Area	85%	95%

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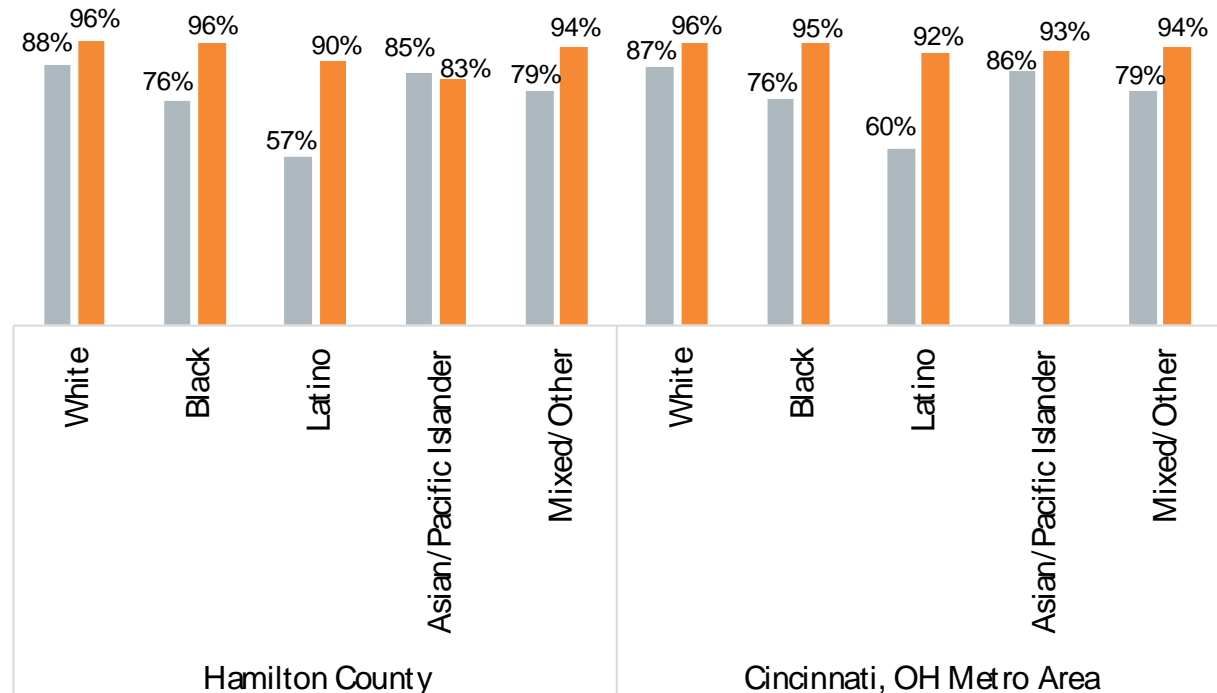Note: Data represent a 2010 through 2014 average.

Health of residents

Do residents have access to health insurance and health-care services?

Latinos and African Americans are the least likely to have health insurance: 57 percent of Latino adults and 76 percent of African Americans in the county have coverage. Without health insurance, many people go without needed medical treatment and are less likely to access preventative care.

Health Insurance Rates by Race/Ethnicity, 2014

■ 18-64 years
■ 0-17 years

			Hamilton County						Cincinnati, OH Metro Area		
	White	Black	Latino	Asian/Pacific Islander	Mixed/Other		White	Black	Latino	Asian/Pacific Islander	Mixed/Other
18-64 years	88%	76%	57%	85%	79%		87%	76%	60%	86%	79%
0-17 years	96%	96%	90%	83%	94%		96%	95%	92%	93%	94%

Source: Integrated Public Use Microdata Series.
Note: Data represent a 2010 through 2014 average. Data for some racial/ethnic groups are excluded due to small sample size.

Connectedness
Highlights

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

To build a **culture of health** – where every person, no matter where they live, has an equal opportunity to live the healthiest life possible – we must improve people's opportunities to be healthier in the places where they live, learn, work, and play.

- Low-income Black workers are the most likely to rely on public transit to get to work.

- Black households are most likely to be burdened by housing costs (spending more than 30 percent of their income on housing), regardless of whether they rent or own.

- Despite a decrease in overall racial residential segregation, White-Black segregation remains high. Public health researchers have argued that racial residential segregation is a fundamental cause of disease.

Share of renter households that pay too much for rent:

52%

Share of very low-income Black workers who rely on public transit:

16%

Share of Whites who would need to move to achieve Black-White integration:

62%

Connectedness

Can all residents access affordable, quality housing?

A greater share of rental housing is affordable in the county than the region or state overall. In the county, 23 percent of jobs are low wage (paying $1,250 per month or less) and 56 percent of rental units are affordable to two low-wage workers (i.e., with rent less than $750 per month, which is about 30 percent of the combined income of two low-wage workers).

Share of Low-Wage Jobs and
Affordable Rental Housing
Units, 2014

■ Share of jobs that are low-wage
■ Share of rental housing units that are affordable
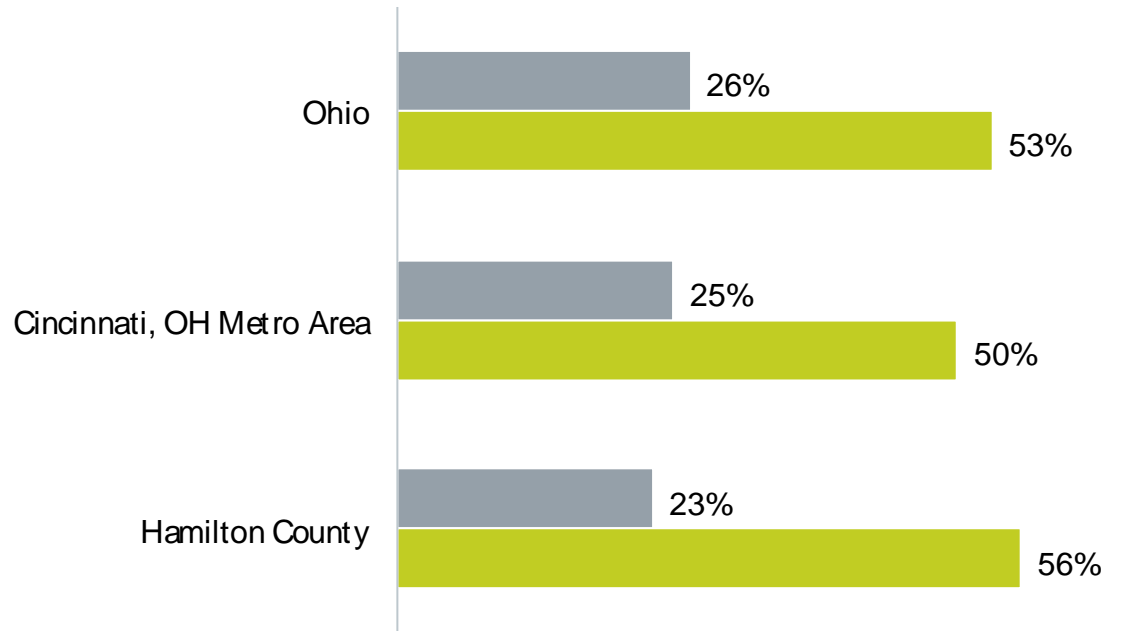
Ohio
26%
53%

Cincinnati, OH Metro Area
25%
50%

Hamilton County
23%
56%

Source: Housing data from the U.S. Census Bureau and jobs data from the 2012 Longitudinal-Employer Household Dynamics.
Note: Data represent a 2010 through 2014 average.

Connectedness

Can all residents access affordable, quality housing?

A ratio of low-wage jobs to affordable rental housing in a county that is higher than the regional average indicates a lower availability of affordable rental housing for low-wage workers. By this measure, Hamilton County has better rental affordability for low-wage workers then the Cincinnati metro or the state overall.

Low-Wage Jobs, Affordable
Rental Housing, and Jobs-
Housing Ratio, 2014

	Jobs (2012)		Housing (2010-14)			Jobs-Housing Ratios	
	All	Low-wage	All	Rental*	Affordable Rental*	All Jobs: All Housing	Low-wage Jobs-Affordable Rentals
Hamilton County	491,293	112,340	329,062	130,105	72,505	1.5	1.5
Cincinnati, OH Metro Area	961,459	237,598	823,237	257,796	129,011	1.2	1.8
Ohio	4,983,140	1,303,536	4,570,015	1,432,383	761,049	1.1	1.7

*Includes only those units paid for in cash rent.

Source: Housing data from the U.S. Census Bureau and jobs data from the 2012 Longitudinal Employer-Household Dynamics.
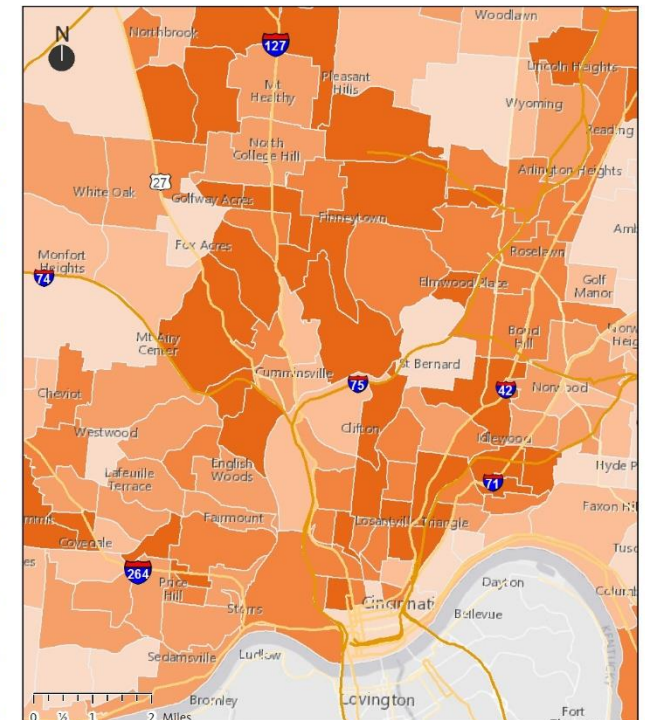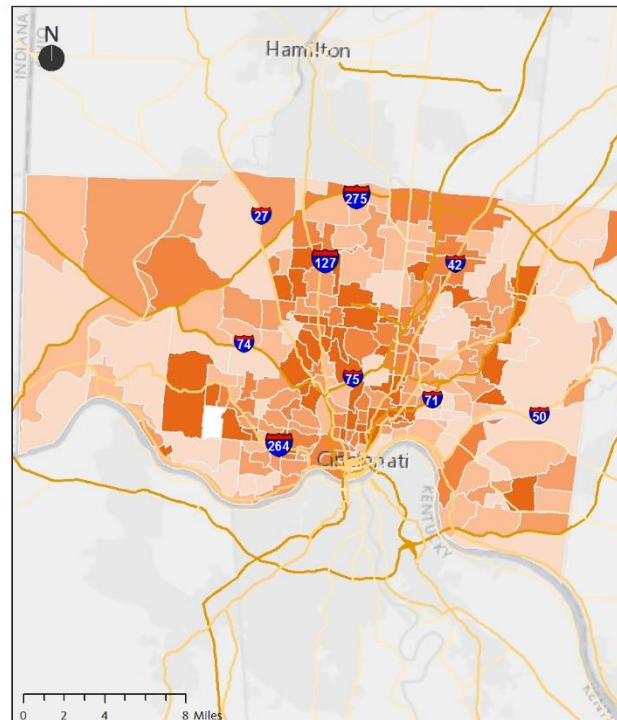Note: Housing data represent a 2010 through 2014 average.

Connectedness

Can all residents access affordable, quality housing?

There are high rent burdens across the county, including several neighborhoods where at least 64 percent of renter households are rent burdened (spending more than 30 percent of income on rent).

Percent Rent-Burdened Households by Census Tract, 2014

- Less than 37%
- 37% to 47%
- 47% to 57%
- 57% to 64%
- 64% or more

Source: U.S. Census Bureau; TomTom, ESRI, HERE, DeLorme, MaymyIndia, © OpenStreetMap contributors, and the GIS user community. Universe includes all renter-occupied households with cash rent.
Note: Data represent a 2010 through 2014 average. Areas in white are missing data.
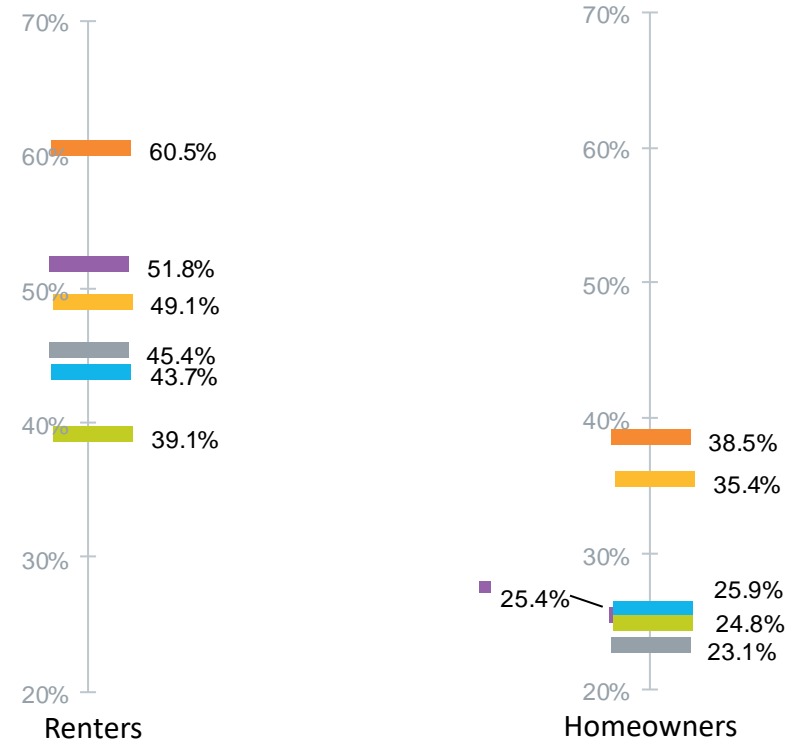
Connectedness

Can all residents access affordable, quality housing?

Half of renter households are rent-burdened while a quarter of homeowner households are cost-burdened (spending more than 30 percent of income on housing costs). Black households are the most likely to be cost burdened regardless of whether they rent or own.

Renter Housing Burden and
Homeowner Housing Burden
by Race/Ethnicity, 2014

- All
- White
- Black
- Latino
- Asian or Pacific Islander
- Mixed/other

Renters:
- 60.5%
- 51.8%
- 49.1%
- 45.4%
- 43.7%
- 39.1%

Homeowners:
- 38.5%
- 35.4%
- 25.4%
- 25.9%
- 24.8%
- 23.1%

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

Connectedness

Do residents have transportation choices?
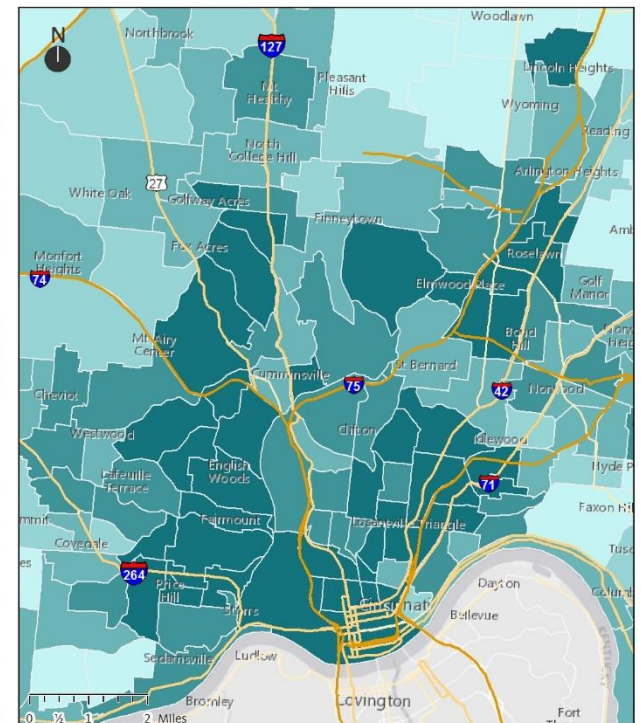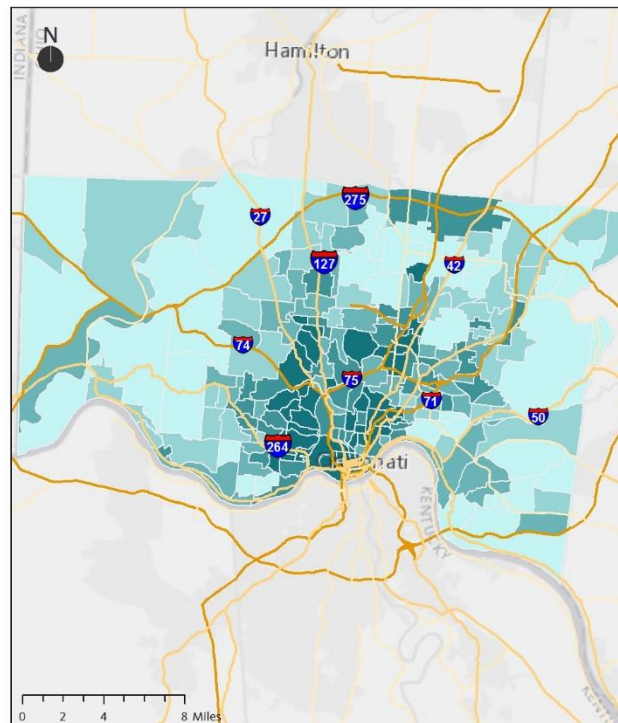
Car access varies considerably by neighborhood. In many communities outside of the city of Cincinnati, less than 3 percent of households are carless. This jumps to 24 percent or more, however, for many neighborhoods inside the city boundaries.

Percent Households without a Vehicle by Census Tract, 2014

- Less than 3%
- 3% to 7%
- 7% to 15%
- 15% to 24%
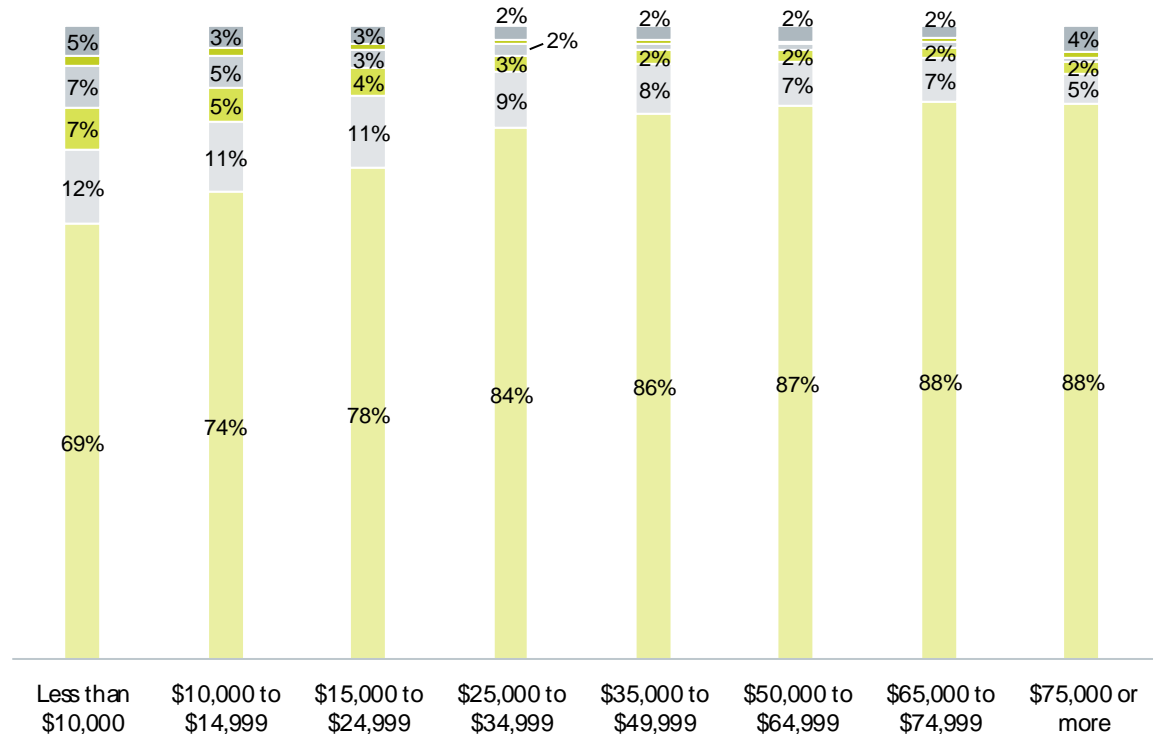- 24% or more

Connectedness

Do residents have transportation choices?

Lower-income residents are less likely to drive alone to work.

While 82 percent of all residents drive alone to work, single-driver commuting varies by income with 69 percent of workers earning under $10,000 a year driving alone compared to 88 percent of workers earning at least $75,000 a year.

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	$75,000 or more
Worked at home	5%	3%	3%	2%	2%	2%	2%	4%
Other	7%	5%	3%	2%	2%	2%	2%	2%
Walked	7%	5%	4%					5%
Public transportation	12%	11%	11%	3%	2%	2%	2%	
Auto-carpool				9%	8%	7%	7%	
Auto-alone	69%	74%	78%	84%	86%	87%	88%	88%

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.

Connectedness

Do residents have transportation choices?

Workers of color are more likely than White workers to rely on the regional transit system to get to work. Very low-income African Americans are the most likely to use transit: 16 percent of Black workers who earn less than $15,000 per year use transit as do 9 percent of Black workers who earn between $15,000 and $35,000 per year.

Percent Using Public Transit by Annual Earnings and Race/Ethnicity, 2014

■ White
■ Black
■ Latino
■ Asian or Pacific Islander
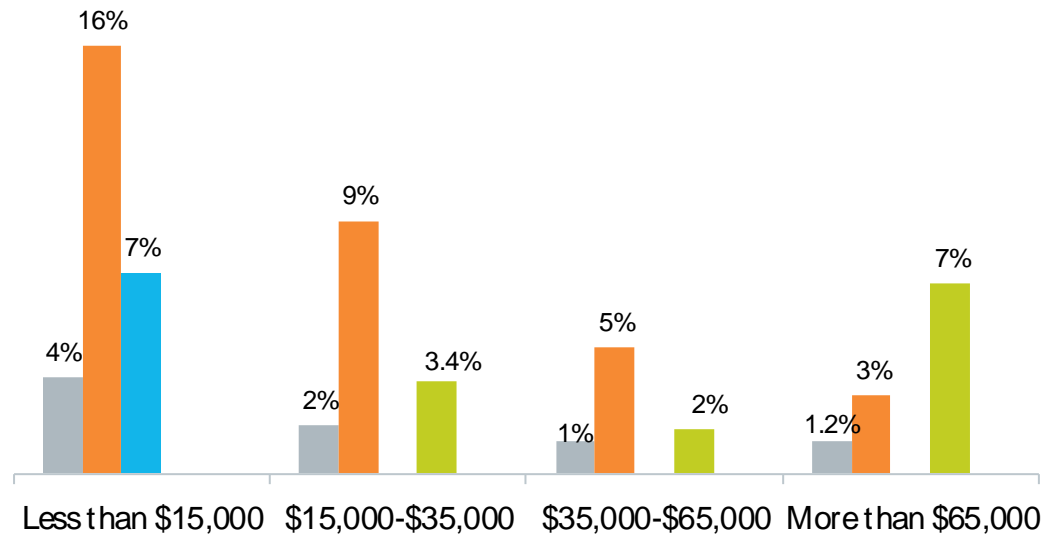
Source: Integrated Public Use Microdata Series. Universe includes workers ages 16 and older with earnings.
Note: Data represent a 2010 through 2014 average. Data for some racial/ethnic groups in some earnings categories are excluded due to small sample size. Dollar values are in 2014 dollars.

Connectedness

Do residents have transportation choices?

Longer commute times are associated with lower chances of upward mobility. The average commute time nationally is just under 26 minutes, but many neighborhoods, particularly those on the eastern side of the county, have commute times less than 20 minutes.

Average Travel Time to Work (in minutes) by Census Tract, 2014

- Less than 20 minutes
- 20 to 22 minutes
- 22 to 23 minutes
- 23 to 25 minutes
- 25 minutes or more
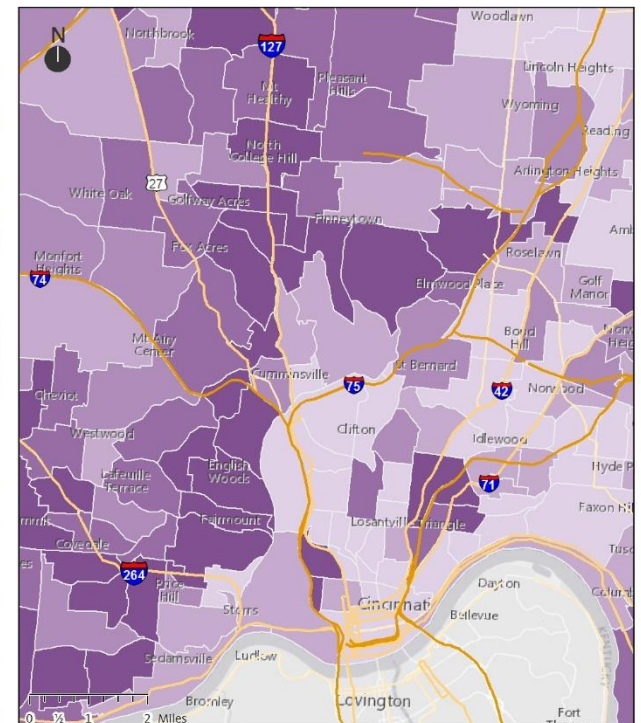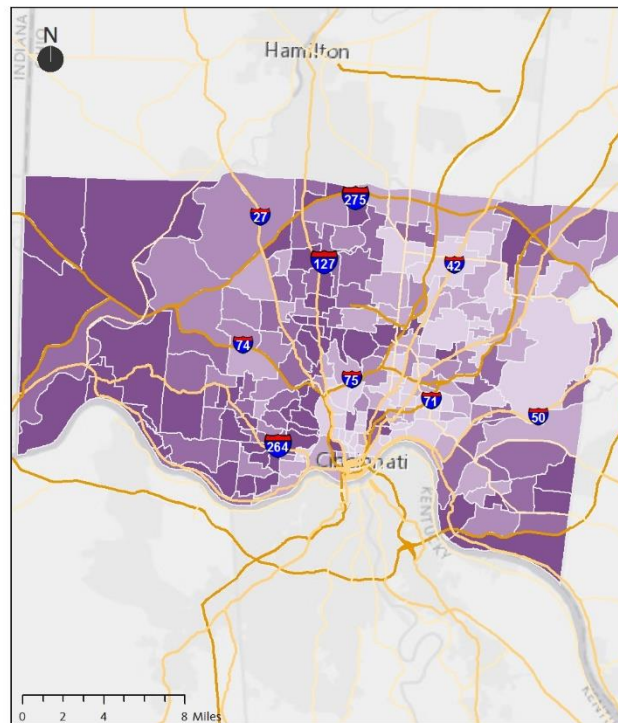
Source: U.S. Census Bureau; TomTom, ESRI, HERE, DeLorme, MaymyIndia, © OpenStreetMap contributors, and the GIS user community. Universe includes all persons ages 16 or older who work outside of home.
Note: Data represent a 2010 through 2014 average.

Connectedness

Do neighborhoods reflect the county's diversity?

Hamilton County was slightly more segregated than the nation overall in 1980 but segregation has declined each decade. The entropy index ranges from 0, if all census tracts had the same racial/ethnic composition as the entire metro area (fully integrated), to 1, if all census tracts contained one group only (fully segregated).

Residential Segregation, 1980-2012

- Hamilton County, OH
- United States
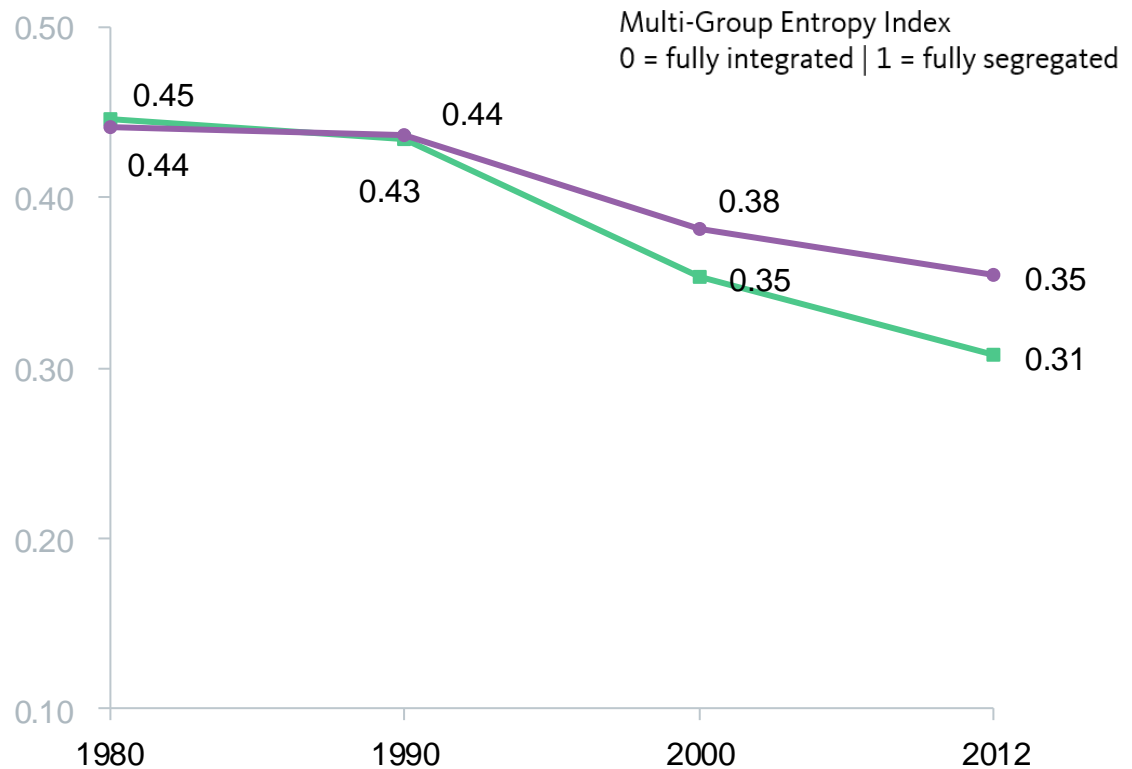
Multi-Group Entropy Index
0 = fully integrated | 1 = fully segregated

0.50

0.45

0.44

0.44

0.43

0.44

0.38

0.35

0.35

0.40

0.31

0.30

0.20

0.10

1980   1990   2000   2012

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

Connectedness

Do neighborhoods reflect the county's diversity?

Black-White segregation has declined but Latino-White segregation has increased. In 2014, Black-White segregation still remained high: 62 percent of White residents would have to move to achieve integration with Black residents. Research has shown that racial residential segregation is a fundamental cause of disease.

Residential Segregation, 1990 and 2014, Measured by the Dissimilarity Index

■ 1990
■ 2014

		1990	2014
White	Black	71%	62%
	Latino	39%	49%
	API	43%	50%
	Native American	66%	77%
Black	Latino	62%	56%
	API	71%	72%
	Native American	72%	83%
Latino	API	48%	64%
	Native American	67%	79%
API	Native American	73%	78%
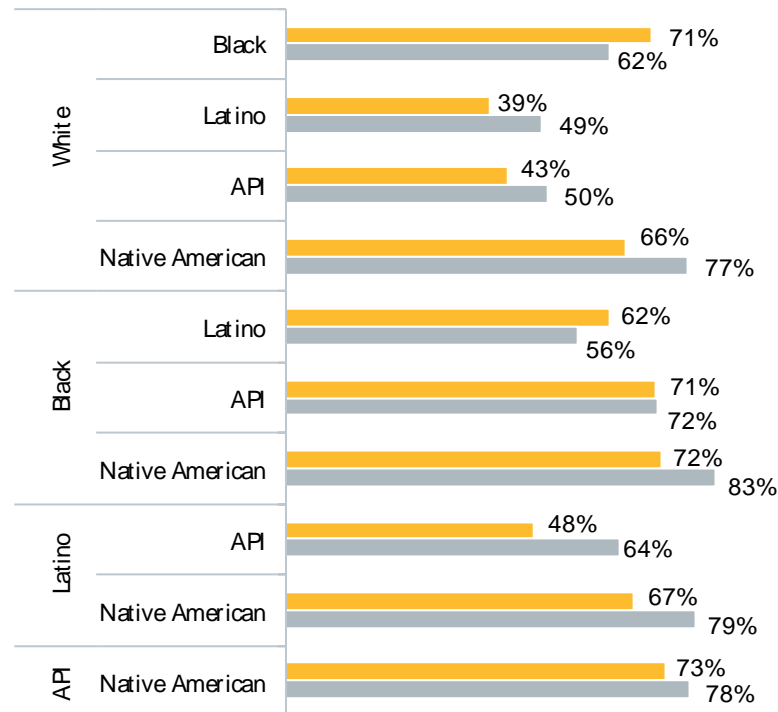
Source: U.S. Census Bureau.
Note: Data for 2014 represent a 2010 through 2014 average. Segregation between all groups and Native Americans increased substantially, but this is attributable to the very small size of the Native American population.

Economic benefits of equity
Highlights

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

- The county's economy could have been nearly $10 billion stronger in 2014 if its racial gaps in income were eliminated.

- Black residents would see an 88 percent increase in average annual income with racial equity in the county while people of Mixed/other races would see an increase of 53 percent.

- For people of color as a whole, 56 percent of projected income gains would come from closing racial wage gaps in the county.

Potential gain in GDP with racial equity in the broader region:

$9.9B

Percentage gain in average Black income with racial equity:

88%

Economic benefits of equity

What are the economic benefits of inclusion?

The Cincinnati metro area's GDP would have been $9.9 billion higher in 2014 if racial gaps in income were closed. This is a 14 percent increase in GDP.

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: $9.9 billion

$68.3

$78.2

Source: Integrated Public Use Microdata Series; Bureau of Economic Analysis.
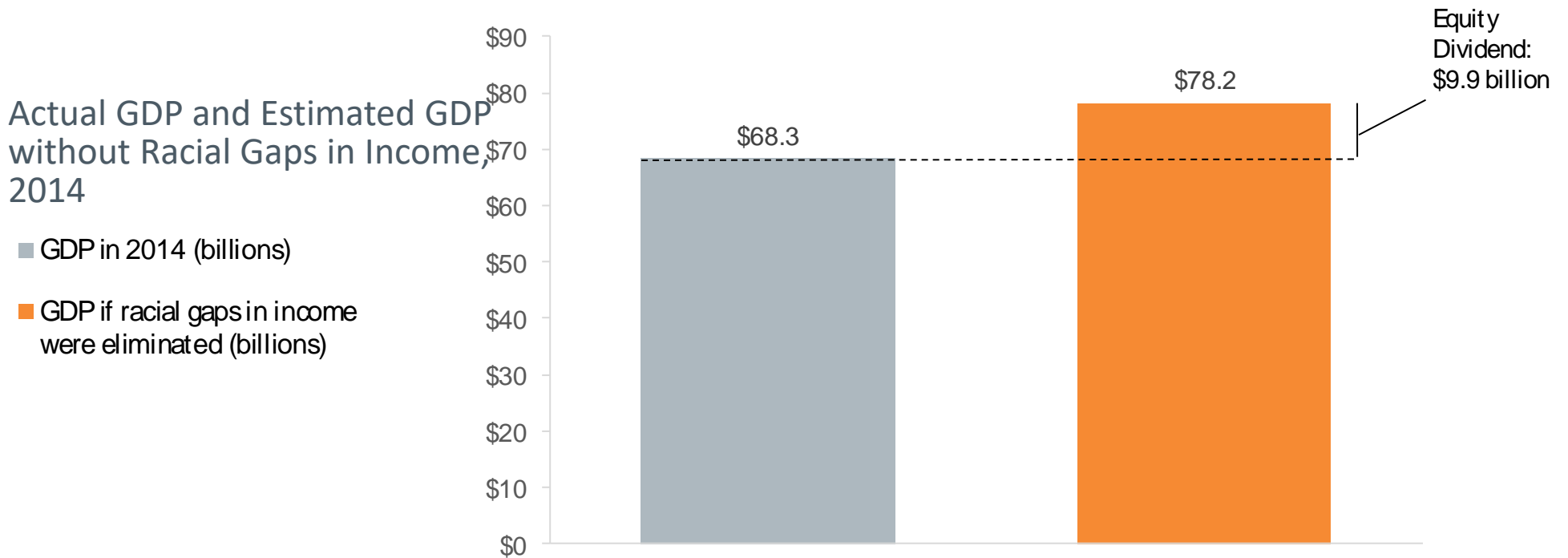
Economic benefits of equity

What are the economic benefits of inclusion?

African Americans would see the largest increase in average income with racial equity both in the county and metro area as a whole. In Hamilton County, the average Black income would rise by 88 percent and the average income of those of Mixed/other races would rise by 53 percent.

Percentage Gain in Income with Racial Equity, 2014

- ■ Hamilton County
- ■ Cincinnati, OH Metro Area

	Hamilton County	Cincinnati, OH Metro Area
Black	88%	65%
Latino	36%	38%
Asian or Pacific Islander	13%	2%
Mixed/other	53%	38%
People of Color	72%	47%
All	14%	6%
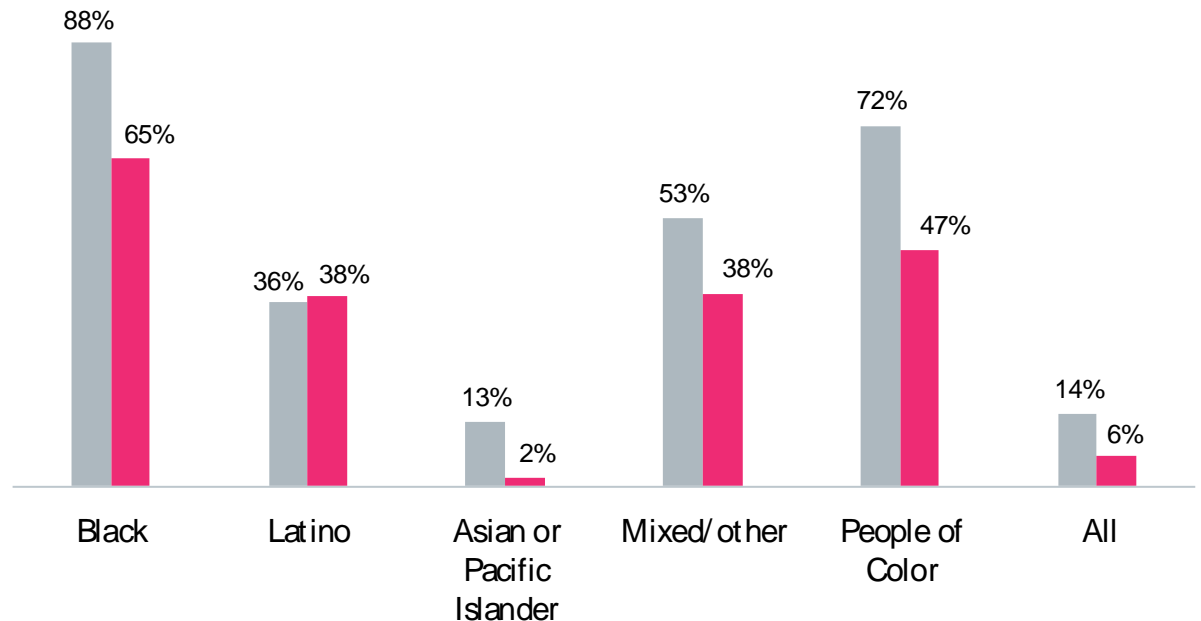
Source: Integrated Public Use Microdata Series.

Economic benefits of equity

What are the economic benefits of inclusion?

The potential gains in average income would come more from closing wage gaps between White residents and Black residents than employment gaps. For Latino residents, the gains are more evenly split between closing employment (measured as the number of hours worked) and wage gaps.

Source of Income Gains, 2014

■ Employment
■ Wages

	Black	Latino	Asian or Pacific Islander	Mixed/other	People of Color
Employment	42%	51%	59%	63%	44%
Wages	58%	49%	41%	37%	56%

Source: Integrated Public Use Microdata Series.
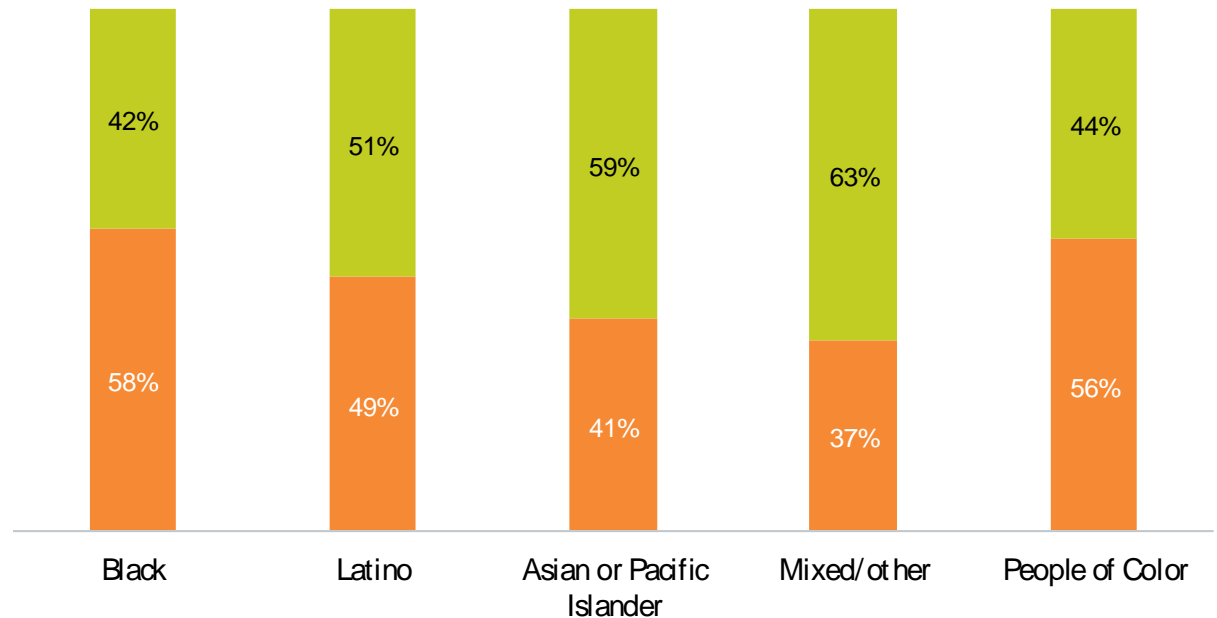
Data and methods

Data source summary and geography

Selected terms and general notes
Broad racial/ethnic origin
Nativity
Detailed racial/ethnic ancestry
Other selected terms
General notes on analyses

Summary measures from IPUMS microdata

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

Adjustments made to demographic projections
National projections
County and regional projections

Estimates and adjustments made to BEA data on GDP
Adjustments at the state and national levels
County and metropolitan-area estimates

Middle-class analysis

Assembling a complete dataset on employment and wages by industry

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

Analysis of occupations by opportunity level

Health data and analysis

Analysis of access to healthy food

Air pollution data and analysis

Estimated life expectancy at birth

Measures of diversity and segregation

Estimates of GDP without racial gaps in income

Data and methods
Data source summary and 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 Hamilton County, Ohio. The specific data sources are listed in the table shown here.

While much of the data and analysis presented in this profile are intuitive, in the following text we describe some of the estimation techniques and adjustments made to create the underlying database, and provide more detail on terms and methods used. The reader should bear in mind that while only a single region is profiled here, many of the analytical choices in generating the underlying data and analyses were made with an eye toward replicating them in other 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 are drawn 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
	2014 American Community Survey, 5-year microdata sample
U.S. Census Bureau	1980 Summary Tape File 1 (STF1)
	1980 Summary Tape File 2 (STF2)
	1980 Summary Tape File 3 (STF3)
	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 ACS 5-year Summary File (2012 5-year ACS)
	2012 Longitudinal Employer-Household Dynamics, LODES7
	2014 National Population Projections
	2015 Population Estimates
	2015 ACS 1-year Summary File (2015 1-year ACS)
	2010 TIGER/Line Shapefiles, 2010 Census Block Groups
	2010 TIGER/Line Shapefiles, 2010 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
Ohio Department of Job and Family Services, Bureau of Labor Market Information	Industry Employment Projection Report, 2012-2022
	Occupational Employment Projections Report, 2012-2022
Centers for Disease Control and Prevention	Behavioral Risk Factor Surveillance System (BRFSS)
	WONDER Compressed Mortality Data
Reinvestment Fund	2014 Analysis of Limited Supermarket Access (LSA)
U.S. Environmental Protection Agency	2011 National-Scale Air Toxics Assessment (NATA)
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
The diversitydatakids.org project and the Kirwan Institute for the Study of Race and Ethnicity	Child Opportunity Index Maps

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:

- "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" and "other or mixed race" 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 the large presence of immigrants among the Latino and Asian populations, we sometimes present data for more detailed racial/ethnic categories within these groups. 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 only do so for immigrants, leaving only the broad "Asian" and "Latino" 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 terms "region," "metropolitan area," "metro area," and "metro" are used interchangeably to refer to the geographic areas defined as Metropolitan Statistical Areas under the Office of Management and Budget (OMB) December 2003 definitions.
- 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 here.

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, available at https://www.bls.gov/cpi/cpid1612.pdf (see table 24).

Data and methods
Summary measures from IPUMS microdata

Although a variety of data sources was used, much of our analysis is based on a unique dataset created using microdata samples (i.e., "individual-level" data) from IPUMS, for four points in time: 1980, 1990, 2000, and 2010 through 2014 pooled together. While the 1980 through 2000 files are based on the decennial census and cover about 5 percent of the U.S. population each, the 2010 through 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 through 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 in each region of 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) or "county groups." PUMAs are drawn to contain a population of about 100,000, and vary greatly in geographical 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.

Because PUMAs do not always neatly align with the boundaries of cities, counties, and metropolitan areas, the geography of the IPUMS microdata can pose a challenge for the creation of regional summary measures. This was not the case for Hamilton County, however, as the geography of the region could be assembled perfectly by combining entire 1980 County Groups and 1990, 2000, and 2010 PUMAs.

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

For the racial generation gap indicator, we used the U.S. Census Bureau files to generate 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 through 2014 average), at the county level, which was 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/Alaskan Native, and non-Hispanic Other (including other single race alone and those identifying as multiracial). While for 2000, this information is readily available in the SF1 dataset, 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 county level for all the requisite groups in the STF1 dataset,

for race/ethnicity by age group we had to look to the STF2 dataset, 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 Asians and Pacific Islanders, non-Hispanic Native Americans/Alaskan Natives, and non-Hispanic Others among the remainder for each age group, we applied the distribution of these three groups from the overall county population (of all ages) from STF1.

For 1990, population by race/ethnicity at the county level was taken from STF2A, while population by race/ethnicity was taken from the 1990 Modified Age Race Sex (MARS) file – special tabulation of people by age, race, sex, and Hispanic origin. However, to be consistent with the way race is categorized by the OMB Directive 15, the MARS file allocates all persons identifying as "Other race" or multiracial to a specific race. After confirming that population totals by county were consistent between the MARS file and STF2A, we calculated the number of "Other race" or

multiracial individuals who had been added to each racial/ethnic group in each county (for all ages combined) by subtracting the number that is reported in STF2A for the corresponding group. We then derived the share of each racial/ethnic group in the MARS file that was made up of other or mixed race people and applied this share to estimate the number of people by race/ethnicity and age group exclusive of the other or mixed race category, and finally the number of the other or mixed race people by age group.

For 2014 (which, again, reflects a 2010 through 2014 average), population by race/ethnicity and age was taken from the 2014 ACS 5-year summary file, which provides counts by race/ethnicity and age for the non-Hispanic White, Hispanic/Latino, and total population combined. County by race/ethnicity and age for all people of color combined was derived by subtracting non-Hispanic Whites from the total population.

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 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 avoid 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 up 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 non-metropolitan gross product by state, was then allocated to the non-metropolitan 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 the state agreed with our final estimate of gross product by state. This was done using a simple IPF procedure.

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 2014 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 32 and 50, 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 undisclosed) 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.) While we refer to counties in describing the process for "filling in" missing QCEW data below, the same process was used for the regional and state levels of geography.

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 undisclosed industries.

Therefore, our approach was to first calculate the number of jobs and total wages from undisclosed industries in each county, and then distribute those amounts across the undisclosed 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. Second, while the QCEW data are available on an annual basis, the Woods & Poole data are available on a decadal basis until 1995, at which point they become available on an annual basis. For the 1990-1995 period, we estimated the Woods & Poole annual jobs and wages figures using a

straight-line approach. Finally, we standardized the 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.

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

The analysis on page 33 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 broad 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, *Building From Strength: Creating Opportunity*

in Greater Baltimore's Next Economy. For more information, see https://www.brookings.edu/wp-content/uploads/2016/06/0426_baltimoreeconomy_vey.pdf.

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 high-opportunity occupations on pages 51-56 and occupational opportunity by race/ethnicity and nativity on pages 57-60 are related and based on an analysis that seeks to classify occupations in the region by opportunity level. Industries and occupations with high concentrations in the region, strong growth potential, and decent and growing wages are considered strong.

To identify "high-opportunity" occupations, we developed an "occcupation 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, occupations were sorted into three categories (high, middle, and low opportunity). Occupations were evenly distributed into the categories based on employment. The strong occupations shown on page 52 are those found in the top, or high category (though not all occupations may be listed due to limited space). 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 57-60 possible.

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

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 54-56), was estimated using national 2010 IPUMS ACS microdata (for the employed civilian noninstitutional population 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, we would note

that a similar approach was used by Jonathan Rothwell and Alan Berube of the Brookings Institution in *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 54-56, and the charts depicting the opportunity level associated with jobs held by workers with different education levels and backgrounds by race/ethnicity and nativity, presented on pages 58-60. 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 level fairly 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

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

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 shown on pages 58-60, this was kept broad 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 the years 2008 through 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, 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
Analysis of access to healthy food

Analysis of access to healthy food is based on the 2014 Analysis of Limited Supermarket Access (LSA) from the Reinvestment Fund. LSA areas are defined as one or more contiguous census block groups (with a collective population of at least 5,000) 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.

The methodology's key assumption is that block groups with a median household income greater than 120 percent of their respective metropolitan area's median (or non-metro state median for non-metropolitan areas) are adequately served by supermarkets and thus travel an appropriate distance to access food. Thus, higher-income block groups establish the benchmark to which all block groups are compared controlling for population density and car ownership rates.

An LSA score is calculated as the percentage by which the distance to the nearest supermarket would have to be reduced to make a block group's access equal to the access observed for adequately served areas. Block groups with an LSA score greater than 45 were subjected to a spatial connectivity analysis, with 45 chosen as the minimum threshold because it was roughly equal to the average LSA score for all LSA block groups in the 2011 Reinvestment Fund analysis.

Block groups with contiguous spatial connectivity of high LSA scores are referred to as LSA areas. They represent areas with the strongest need for increased access to supermarkets. Our analysis of the percent of people living in LSA areas by race/ethnicity and poverty level was done by merging data from the 2014 5-year ACS summary file with LSA areas at the block group level and aggregating up to the city, county, region, and higher levels of geography.

For more information on the 2014 LSA analysis, see https://www.reinvestment.com/wp-content/uploads/2015/12/2014_Limited_Supermarket_Access_Analysis-Brief_2015.pdf.

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 (non-cancer risk) at the census tract level based on exposure to outdoor sources. It is important to note that while diesel particulate matter exposure is included in the NATA non-cancer risk estimates, it is not included in the cancer risk estimates (even though particulate matter 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, region, 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
Estimated life expectancy at birth

To estimate life expectancy at birth, by race/ethnicity and geography, we used information on mortality and mid-year population estimates from the Centers for Disease Control and Prevention's Wide-ranging OnLine Data for Epidemiologic Research (WONDER) databases (the Compressed Mortality Data) and constructed abridged life tables. A life table is a table that includes the number of deaths, total population, probability of dying, and remaining life expectancy by single year of age. Abridged life tables are similar, but present the information for age groups rather than by single year of age. Remaining life expectancy for each age group is largely a function of the probability of dying for people in their own age group and in older age groups.

To prepare the data, we made a series of parallel extracts at the county, state, census region (Northeast, Midwest, South, and West), and national levels to derive data on the number of deaths and mid-year population counts by race/ethnicity and age

group, for the years 2011 through 2015 combined. Multiple years of data were pooled together to improve the accuracy of our estimates at the county level (and the same pooling was applied to the state and national extracts for reasons of comparability). We then used the data to construct abridged life tables following the methodology described in an article by Chin Long Chiang, "On Constructing Current Life Tables," published in the *Journal of the American Statistical Association* in September, 1972, Volume 67, Number 339.

In the publicly available information from the WONDER Compressed Mortality Data, the death counts are not disclosed if there are fewer than 10 deaths in a given age group. The age groups for which data was extracted include less than one year, one to four years, five to nine years, 10 to 14 years, 15 to 19 years, 20 to 24 years, 25 to 34 years, 35 to 44 years, 45 to 54 years, 55 to 64 years, 65 to 74 years, 75 to 84 years, and 85 years or older. For larger counties and states, and the nation as a whole, all of the death counts for each

group by age and race/ethnicity were disclosed. For smaller counties and states, however, some of the death counts were not disclosed – particularly for the younger age groups and for smaller racial/ethnic groups.

In order to generate estimates for all groups by race/ethnicity and age, we made a series of substitutions. For age groups with undisclosed death counts, we substituted in the probability of dying from the state level (for the corresponding racial/ethnic group); if the state-level death counts were also undisclosed, we applied the probability of dying from the census region; if the census-region death count was also missing (which was very seldom the case), we applied the probability of dying from the nation overall.

Once all of the abridged life tables were complete, county-level information on mid-year population and death counts (imputed death counts for age groups where substitutions were made) was aggregated to the metro area and regional levels. To calculate estimated life expectancy at birth,

Data and methods
Estimated life expectancy at birth
(continued)

0.5 years was added to the life expectancy estimate for the less than one-year-old age group (since the midpoint of that estimate reflects the population age 0.5 years).

While applying death probabilities from higher levels of geography when they are missing in a local geography does amount to ecological fallacy, the approach finds some justification in the fact that estimated life expectancy does exhibit a high degree of spatial autocorrelation. It is also important to point out that remaining life expectancy for any particular age group is not only a function of the probability of dying for that age group, but also for all of the older age groups in the distribution. Also, given that younger age groups are far more likely to be nondisclosed than the older age groups, even when their death rates are drawn for higher levels of geography, their life expectancy estimates still tend to be based upon a lot of original, geographically specific information.

Still, to avoid reporting highly unreliable estimates – that is, those for which too many substitutions were made – we only report estimates for which at least 90 percent of the total number of deaths for a population are from age groups that had disclosed death counts in the underlying data (and thus did not require substitution of death probabilities from higher levels of geography). We also only report estimates that are based on at least 100 total deaths (for all age groups combined).

Finally, because the WONDER Compressed Mortality Data does not provide data for individuals of mixed or other race, we cannot make estimates for that broad racial/ethnic group.

Data and methods
Measures of diversity and segregation

In the profile, we refer to measures of residential segregation by race/ethnicity (the "multi-group entropy index" on page 96 and the "dissimilarity index" on page 97). 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.

Both 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 and Pacific Islanders in that year. For this reason, we set 1990 as the base year (rather than 1980) in the chart on page 97, but keep the 1980 data in the chart on page 96 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 ages 16 or older in the IPUMS ACS into six mutually exclusive racial/ethnic groups: non-Hispanic White, non-Hispanic Black, Latino, non-Hispanic Asian/Pacific Islander, non-Hispanic Native American, and non-Hispanic other or multiracial. Following the approach of Lynch and Oakford in *All-In Nation*, we excluded from the non-Hispanic Asian/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 average annual hours of work would reflect both expanded work hours for those currently working and an increased share of workers – an important factor to consider given sizeable 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 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.

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