

RESEARCH REPORT

# Demographic Change in the Great Lakes Region

**Recent Population Trends and Possible Futures**

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# Demographic Change in the Great Lakes Region

This report examines population change in six Great Lakes states: Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin.<sup>1</sup> Our analysis relies on census and census-based data from 1990 to 2015 and on projections to 2040 using scenarios from the Urban Institute's Mapping America's Futures model. The Great Lakes states have recently grown in population (albeit more slowly than the US as a whole), with a slowly increasing proportion of the population in prime working age and a slowly diversifying racial and ethnic mix. But if current migration patterns persist and population aging proceeds as expected, by 2040, the region's population will level off, the prime-working-age population will decrease both as an absolute number and as a share of the total population, and the pace of increasing racial and ethnic diversity will pick up slightly.

We examine each factor by comparing the Great Lakes region with the US as a whole and with respect to each of the six states and selected regions within each state.

The Great Lakes states face economic, political, and social challenges. A critical part of the US industrial heartland, they have been hard hit by the decades-long decline in manufacturing employment, exacerbated by the Great Recession and subsequent economic restructuring. Economic strain has exacerbated the political and social challenges, uncertain economic outcomes have put additional stress on government and family resources, and uneven educational outcomes are of particular concern to the economic future of minority youth.

Population dynamics will influence the future scope and intensity of these challenges. The steady population growth of other regions, especially growth in the working-age population, increases both the supply of and the demand for economic activity. Growth, in turn, promotes greater political and social stability, which fuels increased in-migration from within and outside the US. The Great Lakes region has been characterized by high levels of out-migration, with people leaving in search of opportunities elsewhere, reducing population growth and even resulting in population decline, shrinking the economic base and further depressing the demand for labor.

In this report, we examine population change in the Great Lakes region from 1990 through 2040. From 1990 to 2015, we report overall population estimates, rates of population increase (or decrease), demographic drivers of population change (e.g., births, deaths, and international and domestic migration), and differences between age categories and racial and ethnic groups. A review of

demographic patterns helps explain how the Great Lakes states are distinct from each other and the nation as a whole.

We then carry our demographic analysis into the future. We use plausible demographic assumptions to generate population projections as far as 2040. We discuss potential populations and growth rates, as well as possible changes in age and racial and ethnic distributions. Our analysis examines the region as whole, individual states, and selected large metropolitan regions. We conclude with a speculative discussion of how demographic futures could influence economic and social development.

## Great Lakes Population Change from 1990 to 2015

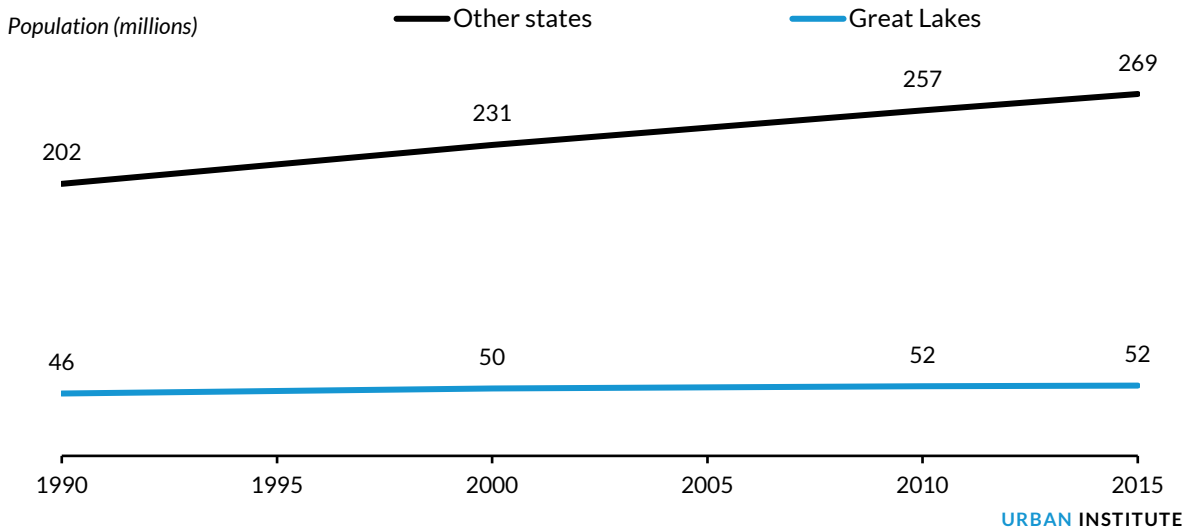
An analysis of population change over the past 25 years underscores three regional trends: (1) the population of the Great Lakes region is growing, but growth is slower than it was for the US overall and falling toward zero (in Michigan, growth fell below zero between 2005 and 2010); (2) the population that is of prime working age (ages 25 to 64) has been growing in absolute numbers and as a share of the total population; and (3) the Great Lakes states are becoming more racially and ethnically diverse, but the pace of change (with some exceptions) is slower than it is for the US overall. In sum, recent demographic change has been gradual rather than abrupt.

### Overall Population Growth

The population in the Great Lakes region is growing, but growth is slower than in the rest of the US. The population of the other US states has increased about 33 percent over the past 25 years, from 202 million in 1990 to 269 million in 2015. In contrast, the population in the Great Lakes region increased only 13 percent from 46 million in 1990 to 52 million in 2015 (figures 1 and 2).

FIGURE 1

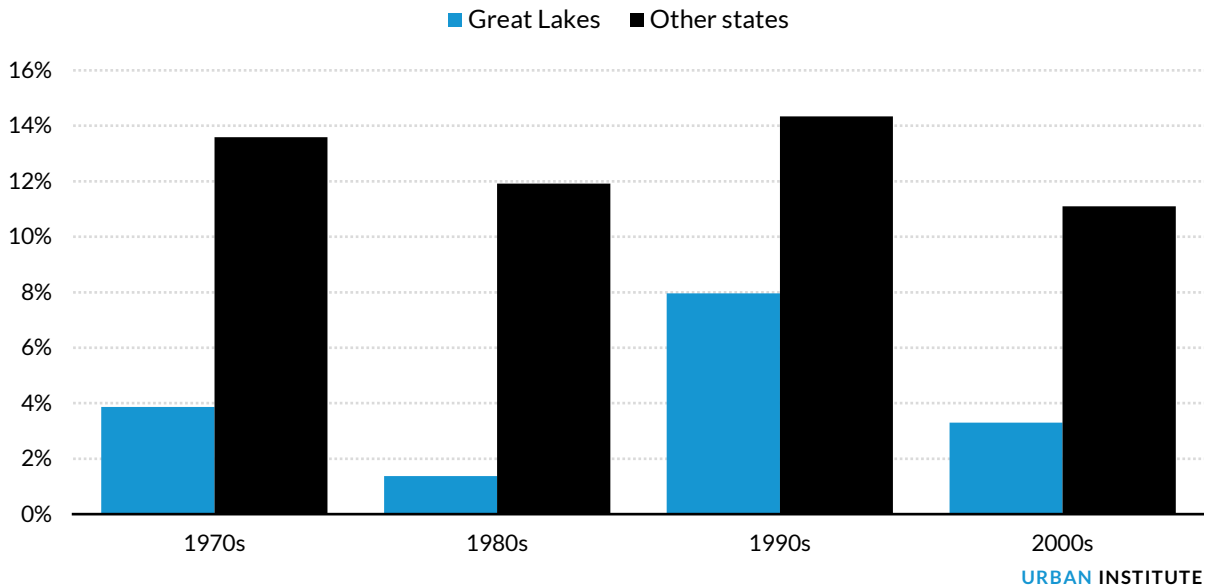
Population Change in the Great Lakes States and Other States, 1990–2015



Source: Urban Institute analysis of population estimates from the 1990, 2000, and 2010 Censuses and the 2015 American Community Survey one-year estimates.

FIGURE 2

Percentage Change in Population in the Great Lakes States and Other States, 1970–2010



Source: 1970–2010 US Census of Population 100 percent count data.

Slowing regional growth, with spells of negative growth (e.g., in Michigan between 2005 and 2010), presents challenges for maintaining a vigorous economy and an effective government. Slow growth can

create disincentives for business investment, with businesses preferring to invest in areas with rapidly growing demand for goods and services. Sluggish growth can also reduce the tax base state governments use to meet pension obligations. Understanding the determinants of population change is fundamental to understanding the complex relationship between the demographics of the Great Lakes region and its recent economic, social, and political challenges.

## Drivers of Population Change

Population change is determined by the number of births, the number of deaths, international migration, and domestic migration. Between 2010 and 2015, the US experienced a net population increase of about 12.7 million. The majority of growth (7.3 million) was because of natural increase: 20.8 million births compared with only 13.5 million deaths.<sup>2</sup> Net international migration accounted for the remaining 5.3 million.<sup>3</sup>

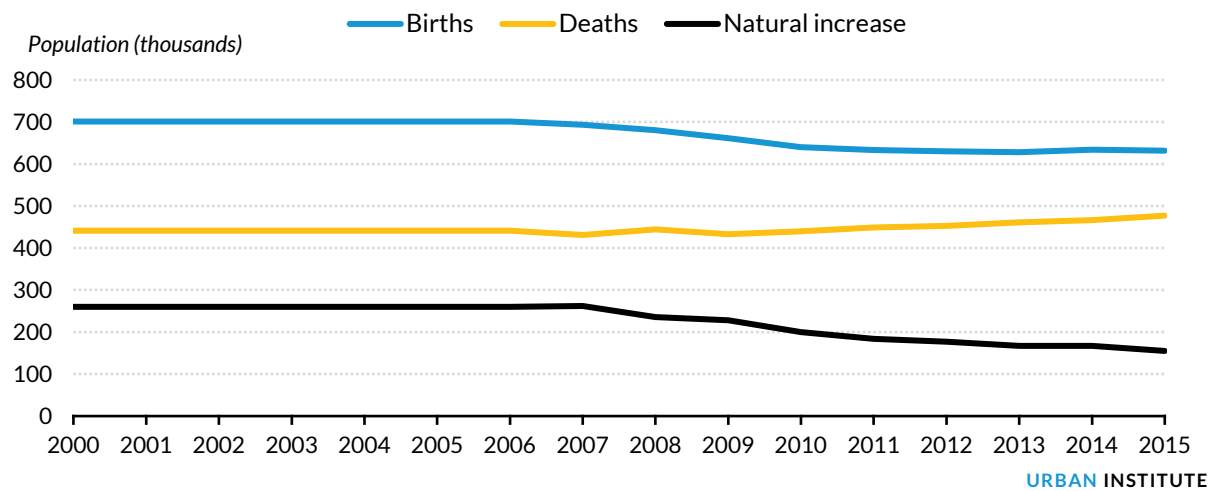
### REGIONAL POPULATION CHANGE

Natural increase in the Great Lakes region yielded growth of about 165,000 people in 2014, a drop from 200,000 per year as recently as 2010, as births have fallen and deaths have risen. In 2014, about 630,000 children were born to mothers living in the region (figure 3). The number of children born decreased from 2000 (when births exceeded 700,000) to 2014, but as the millennial generation reaches prime childbearing years in the next five to ten years, the number of births may stabilize or rise. The number of deaths remained stable during the 2000s as the small Depression-era generation replaced a larger generation born before 1930. But from 2009 to 2015, as baby boomers approached age 70, the number of deaths increased, a trend that will continue for the next 15 years. By 2014, about 465,000 people died in the Great Lakes states, nearly 30,000 more than died four years earlier.



FIGURE 3

**Births, Deaths, and Natural Population Increase in the Great Lakes Region, 2000–15**



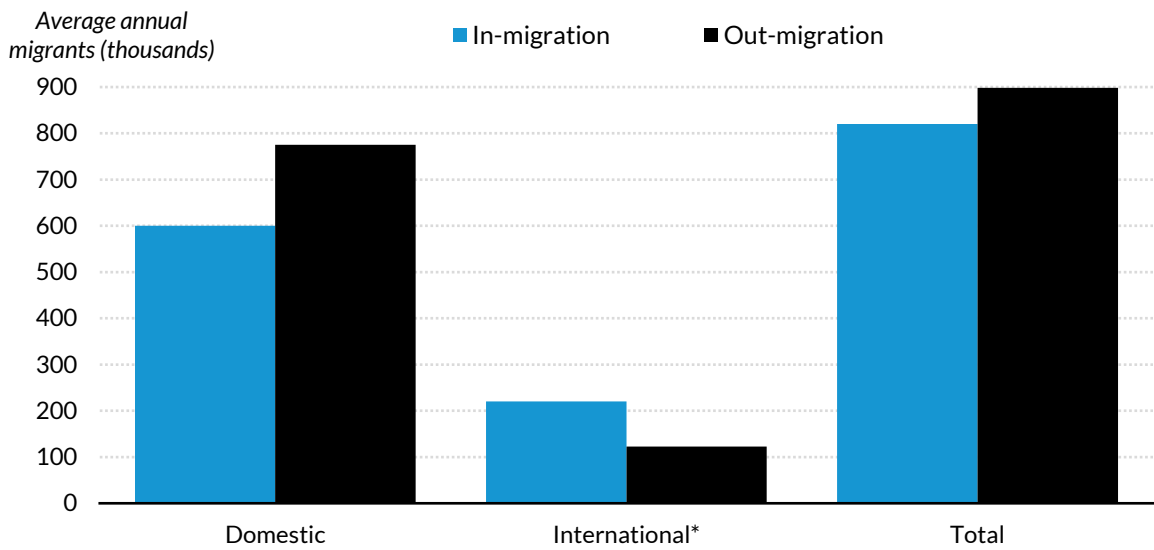
Sources: “About Natality, 2007–2015,” Centers for Disease Control and Prevention, CDC WONDER, accessed January 28, 2018, <https://wonder.cdc.gov/natality-current.html>.

Rising deaths and declining births are mainly a function of trends in the overall population (the growing number of older residents and a general decline in the number of births per woman). But the Great Lakes states are growing more slowly than other states, even after accounting for age composition. Most Great Lakes residents live in states with lower fertility rates (defined as the number of births per 1,000 women of childbearing age) than average.<sup>4</sup> Furthermore, the Great Lakes states have low to average proportions of women of childbearing age in their populations compared with other states. These two factors add up to below-average birthrates in the Great Lakes region as a whole.<sup>5</sup>

About 80,000 more people move out of the Great Lakes states annually than move in (figure 4). But estimates of migration are complicated and suffer from data availability problems. We are more confident about estimates of movements within the US than we are about estimates of arrivals from overseas. We have no direct estimates of people who leave the US annually, but we know there are some departures. Migration has also fluctuated substantially since the Great Recession, making it even more difficult to identify a true “normal” level of migration based on those recent data.

FIGURE 4

Average Annual Migration to and from the Great Lakes States, 2007–15



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Sources: American Community Survey annual 1 percent survey via the Integrated Public Use Microdata Series, except international out-migration, which is an average of two estimates (95,000 and 150,000) produced by the Urban Institute.

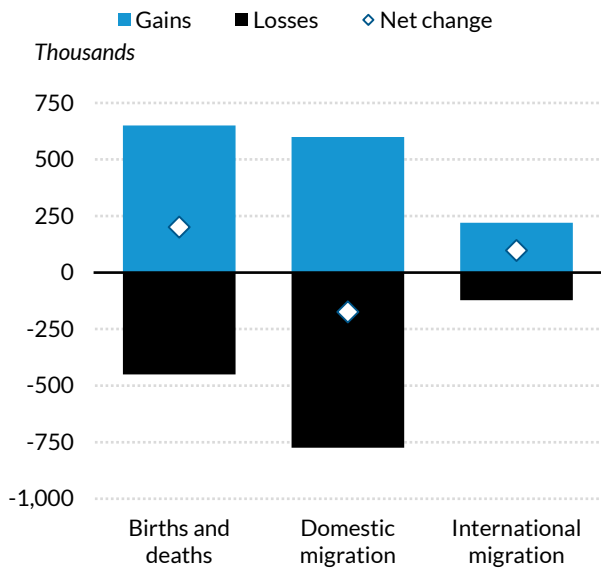
\* If international out-migration is at the lower of the two Urban Institute estimates (95,000), net domestic and international out-migration would be closer to 50,000. If international out-migration is closer to the higher estimate (150,000), net domestic and international out-migration would be closer to 105,000.

Notwithstanding the uncertainty about the precise level of migration into and out of the region, the Great Lakes states lose more people to other states every year than they gain from other states.<sup>6</sup> From 2007 to 2015, on average, about 600,000 people moved into the Great Lakes states each year from other states and the District of Columbia, while about 775,000 moved from the Great Lakes to other states, adding up to net domestic out-migration of about 175,000 annually (figure 5).

The American Community Survey also provides reliable estimates of arrivals from abroad, Puerto Rico, and US possessions, which added an average 218,000 new residents for the Great Lakes states each year.<sup>7</sup> About 73,000 of these were born in the US but returned after having lived overseas (e.g., military personnel, students in foreign study programs, or people returning from international employment postings). The remaining 145,000 were foreign-born arrivals (including a few people born abroad to US citizens). The final component of change is Great Lakes residents who left the US. We lack direct data on annual departures, but we estimate them at between about 95,000 and 150,000 departures per year, including foreign nationals and US-born people departing to live overseas for at least a year.<sup>8</sup> Together, these flows add up to an estimate of average annual net out-migration from

2007 to 2014 of between 50,000 and 105,000 people. Net out-migration appears to have declined after the Great Recession.

**FIGURE 5**  
**Drivers of Population Change in the Great Lakes States**  
*Average annual population change, 2007–15*



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**Sources:** Natural increase data (2007–15 only) come from the CDC WONDER online database. See “About Natality, 2007–2015,” Centers for Disease Control and Prevention, CDC WONDER, accessed January 25, 2018, <https://wonder.cdc.gov/natality-current.html>. Domestic migration and international in-migration data come from the American Community Survey annual 1 percent survey via the Integrated Public Use Microdata Series. International out-migration data come from average of Urban Institute estimates.

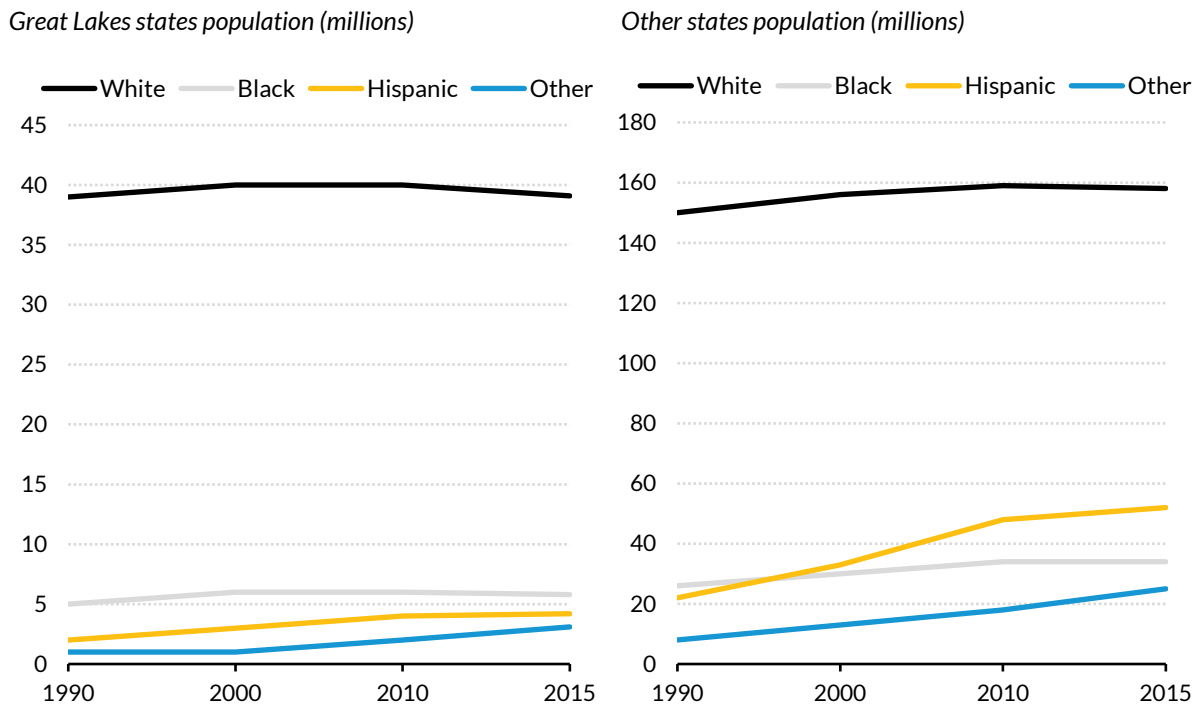
## Changes in Racial and Ethnic Distribution

The Great Lakes region has become more diverse over the past two decades, but it remains less diverse than the remainder of the US. In 1990, 84 percent of the population in the Great Lakes region was white, compared with 73 percent of the remainder of the US. Black people made up 11 percent of the region’s population compared with 13 percent for other states, while Hispanic people were only 3 percent of the population, compared with 11 percent in other states. People of other races (including Asian, American Indian, unclassified, and multiple races) made up the remaining 2 percent in the Great Lakes States and 4 percent in other states.<sup>9</sup>

In 2000, white people made up about 80 percent of the population of the Great Lakes region. By 2010, this share had fallen to 77 percent. Over the same period, the black, other, and Hispanic populations increased 3 percentage points (from 20 to 23 percent), with the Hispanic population driving a significant amount of the growth.<sup>10</sup>

By 2015, the white population of the Great Lakes region had peaked and receded to nearly exactly the level of 1990, while the black population stood 14 percent higher than in 1990 (though this reflects a drop of about 300,000 between 2010 and 2015). The Hispanic population more than doubled from 1.5 million to 4.0 million, and people of other races more than tripled from about 0.8 million to 2.9 million (figure 6).

**FIGURE 6**  
**Recent Population Growth in the Great Lakes States and Other States, by Race or Ethnicity, 1990–2015**



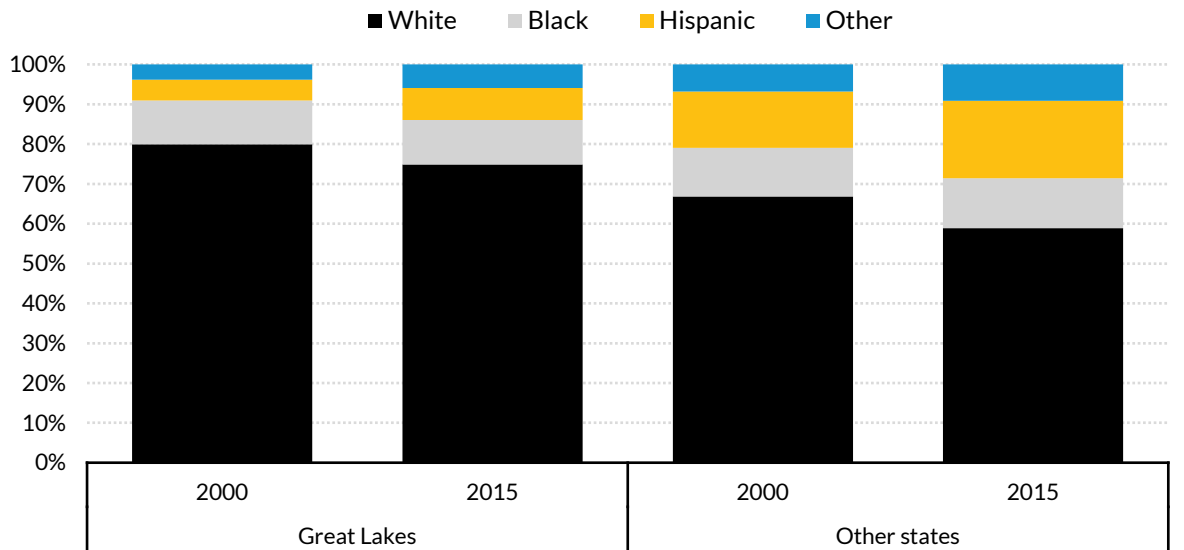
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Sources: 1990, 2000, and 2010 Censuses and the 2015 American Community Survey.

Even with this rapid growth in the minority population, the region remained less diverse in 2015 than the rest of the nation had been in 1990. White people still account for 75 percent of its residents, black people account for 11 percent, Hispanic people account for 8 percent, and people of other races account for 6 percent (figure 7).

FIGURE 7

Racial and Ethnic Composition of the Great Lakes States and Other States, 2000 and 2015



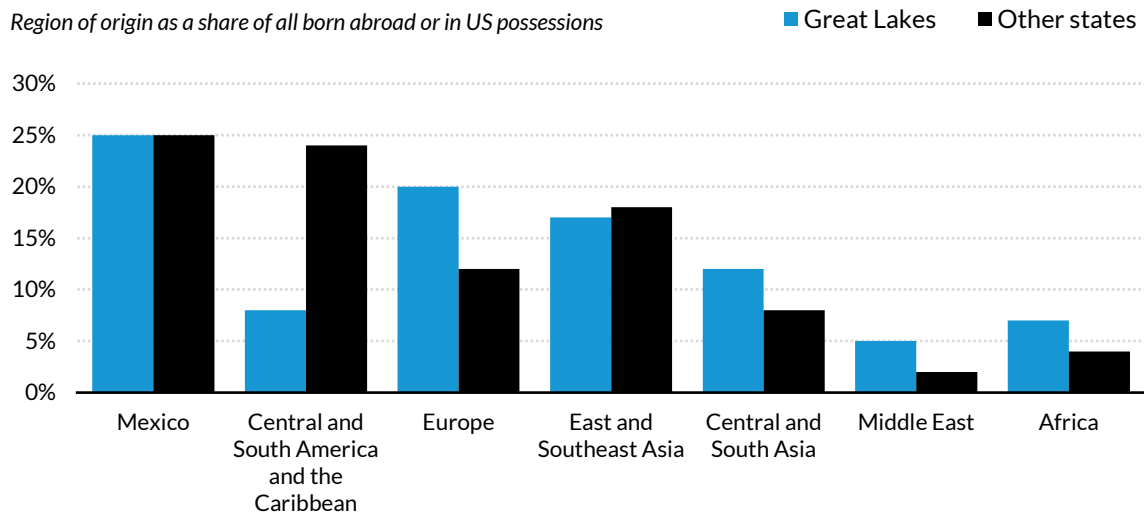
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Sources: 2000 and 2015 Censuses and the American Community Survey one-year estimates.

The Great Lakes states also have a smaller share of foreign-born people than the rest of the US. Just over 4.4 million residents in the Great Lakes region in 2015 were born abroad, or 8.5 percent of the total population. This compares with 16.2 percent of residents elsewhere in the US. From 2007 to 2015, the population of foreign-born people in the Great Lakes states increased by more than 400,000, from just below 4 million to more than 4.4 million, a gain of 11.8 percent. The foreign-born population elsewhere in the US increased 15.2 percent. Immigrants in the Great Lakes states are more likely to come from Europe, Central and South Asia, the Middle East, and Africa than those in the rest of the US and are markedly less likely to have been born in Central and South America or the Caribbean. Mexicans and people from East and Southeast Asia constitute about the same share—about 25 and 17 percent, respectively—as elsewhere in the US (figure 8). Children of immigrants now account for 26 percent of children in Illinois, 16 percent in Minnesota, 12 percent in Michigan, and 10 percent in Wisconsin.

FIGURE 8

Regions of Origin among Foreign-Born Residents in the Great Lakes States, 2015



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Source: 2015 American Community Survey via the Integrated Public Use Microdata Series.

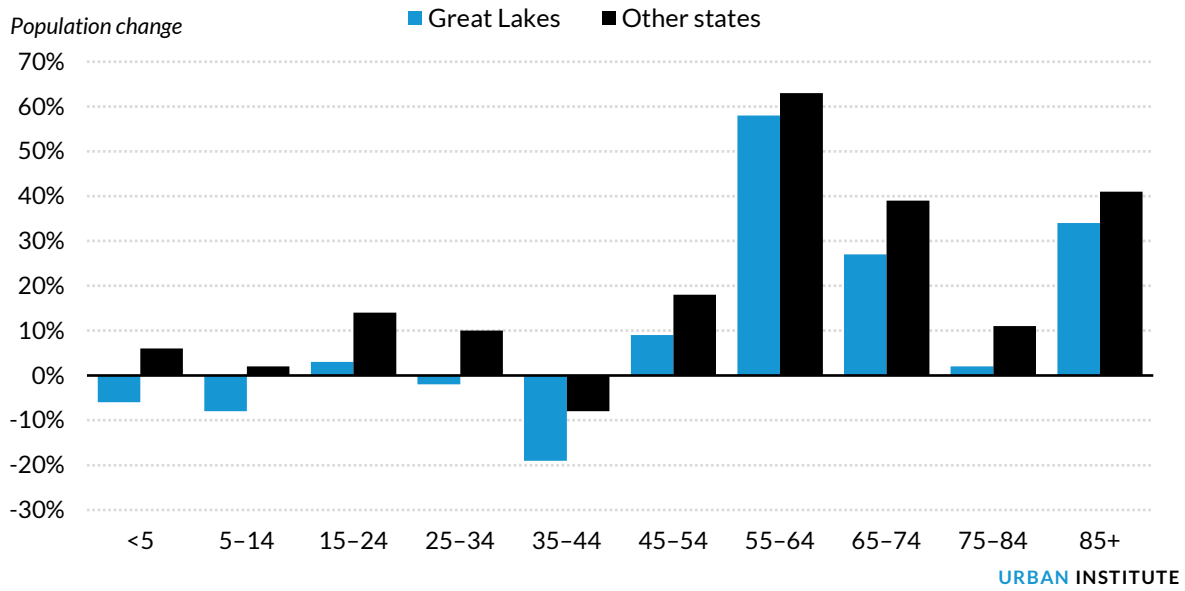
Note: Total includes about 1.8 million people born in Puerto Rico and US territories or possessions for the other states and 130,000 for the Great Lakes states, about 4 percent and 3 percent of the total, respectively.

### Changes in Age Structure

The Great Lakes states have become more diverse by age, race, and nativity over the past 25 years, reflecting national trends. But between 2000 and 2015, the Great Lakes states diverged from other states, with a more pronounced decline in people ages 35 to 44 than the rest of the US (figure 9). (This trend owes to the replacement in this age group of the numerous baby boom with the smaller Generation X.) Just as critically, the Great Lakes region lost people ages 25 to 34, even as the rest of the US gained because of the replacement of Generation X (born between 1966 and 1980) with the millennials (born between 1981 and 1995). With the loss of people in prime childbearing years came a consequent loss in children younger than 15, again contradicting increases in other states. Meanwhile, the older age groups all grew, though always less rapidly than in other states. Because this anemic population growth occurred across most cohorts, the Great Lakes states have a population profile that remains similar to that of other states (figure 10).

FIGURE 9

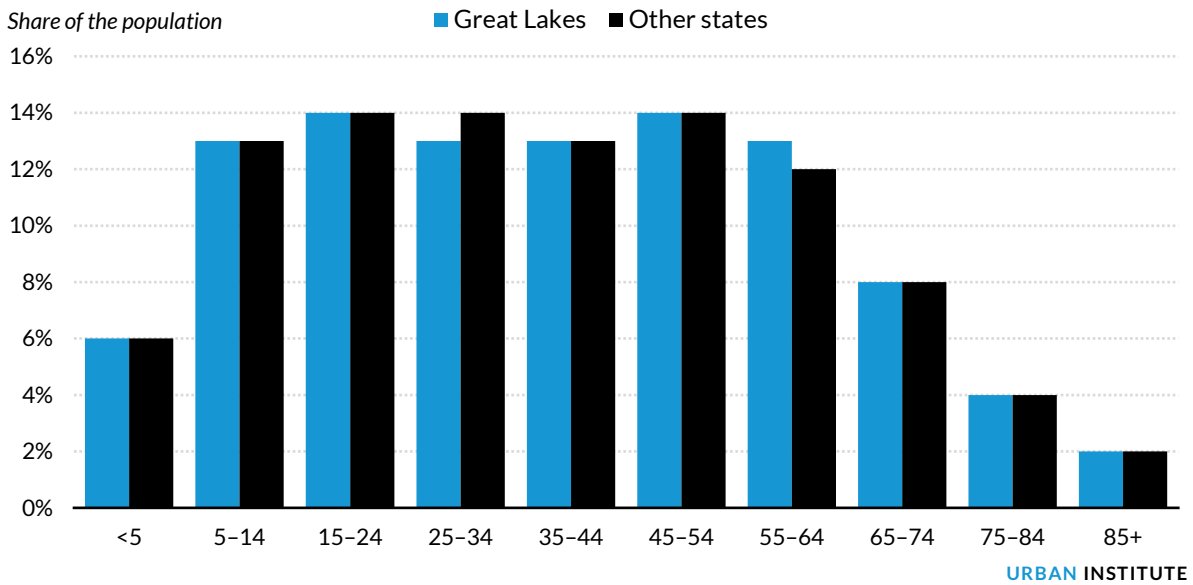
Population Change by Age Group in the Great Lakes States and Other States, 2000–15



Sources: 2000 Census and the 2015 American Community Survey.

FIGURE 10

Share of the Population by Age in the Great Lakes States and Other States, 2015



Source: 2015 American Community Survey.

# Projected Population Change in the Great Lakes Region from 2010 to 2040

This section presents projected population totals for 2020, 2030, and 2040 for the six-state region, relying on state and local population scenarios developed by the Urban Institute’s Mapping America’s Futures initiative. To account for the uncertainty of any population projection, we report on differences among fast, slow, and average growth scenarios, highlighting how the projections diverge between 2010 and 2040. Each of the three scenarios reflects different assumptions about migration, which would result in different projected population totals for the Great Lakes region and for the US. Our assumptions are outlined in table 1. The appendix provides more details on the projection methodology.

**TABLE 1**  
**Scenario Assumptions**

<b>Assumptions</b>	
Births	<ul style="list-style-type: none"> <li>▪ National birthrates will match US Census projections for future birthrates by women’s age, race, and ethnicity.</li> <li>▪ Each county’s birthrate will maintain its current ratio to national birthrates, adjusted for women’s age, race, and ethnicity.</li> </ul>
Deaths	<ul style="list-style-type: none"> <li>▪ National deathrates will match US Census projections for future deathrates by gender, age, race, and ethnicity.</li> <li>▪ Each state’s deathrate will maintain its current ratio to national deathrates, adjusted for gender, age, race, and ethnicity.</li> </ul>
Migration (all scenarios)	<ul style="list-style-type: none"> <li>▪ Each county’s population of net migrants for each gender, age, and racial or ethnic category is projected to be the same as in 2000 through 2010.</li> </ul>
Migration (average scenario)	<ul style="list-style-type: none"> <li>▪ For any five-year age group of a given gender, race, or ethnicity within a county, the projected net out-migration over any five-year period will not exceed 10 percent of the population at the beginning of the period.</li> </ul>
Migration (slow growth scenario)	<ul style="list-style-type: none"> <li>▪ Assumes a higher level of migration. Each county’s number of net migrants (in or out) for each gender, age, and racial or ethnic category is projected to be 25 percent greater in magnitude than in the average scenario.</li> </ul>
Migration (fast growth scenario)	<ul style="list-style-type: none"> <li>▪ Assumes a lower level of migration. Each county’s number of net migrants (in or out) for each gender, age, and racial or ethnic category is projected to be 20 percent less in magnitude than in the average scenario.</li> </ul>

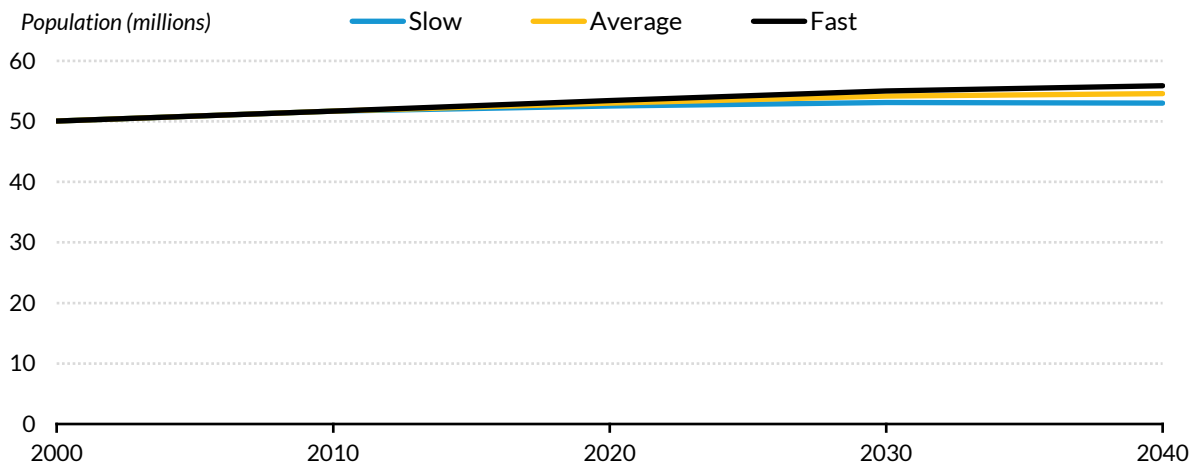
These assumptions are within the bounds of generally accepted demographic projections, and they hold up well in tests using historical data before 2000, as well as in comparisons of 2010–15 projections to published 2015 midyear population estimates from the US Census Bureau. But no assumptions are perfect, particularly for migration. New patterns can emerge that would represent a sharp departure from the past.

Our fast scenario model projects a population of the Great Lakes region of about 55.9 million by 2040, a reflection of low levels of out-migration. (Out-migration affects future population both directly



and indirectly, because residential mobility peaks in the same stage of life as childbearing. Fewer out-migrants will also yield a larger number of children being born.) Our slow scenario assumes a high level of regional out-migration and would result in a population of 53.0 million by 2040. The average scenario assumes a level of migration between the fast and slow scenarios. By 2040, this scenario projects that the regional population will be 54.6 million. Differences that emerge between the scenarios in the 2010s will become more pronounced in the subsequent two decades (figure 11). For the remainder of our analysis, we will use projections from the average scenario.

**FIGURE 11**  
**Population Growth Scenarios for the Great Lakes Region, 2000–40**



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**Sources:** Data for 2000 to 2010 come from Richelle Winkler, Kenneth M. Johnson, Cheng Cheng, Jim Beaudoin, Paul R. Voss, and Katherine J. Curtis, “Age-Specific Net Migration Estimates for US Counties, 1950–2010,” University of Wisconsin–Madison, Applied Population Laboratory, accessed January 26, 2018, <http://www.netmigration.wisc.edu/>. Data for 2010 to 2040 come from Rolf Pendall, Nan Marie Astone, Steven Martin, H. Elizabeth Peters, Austin Nichols, Kaitlin Franks Hildner, Allison Stolte, et al., “Mapping America’s Futures,” Urban Institute, accessed January 26, 2018, <http://apps.urban.org/features/mapping-americas-futures/>.

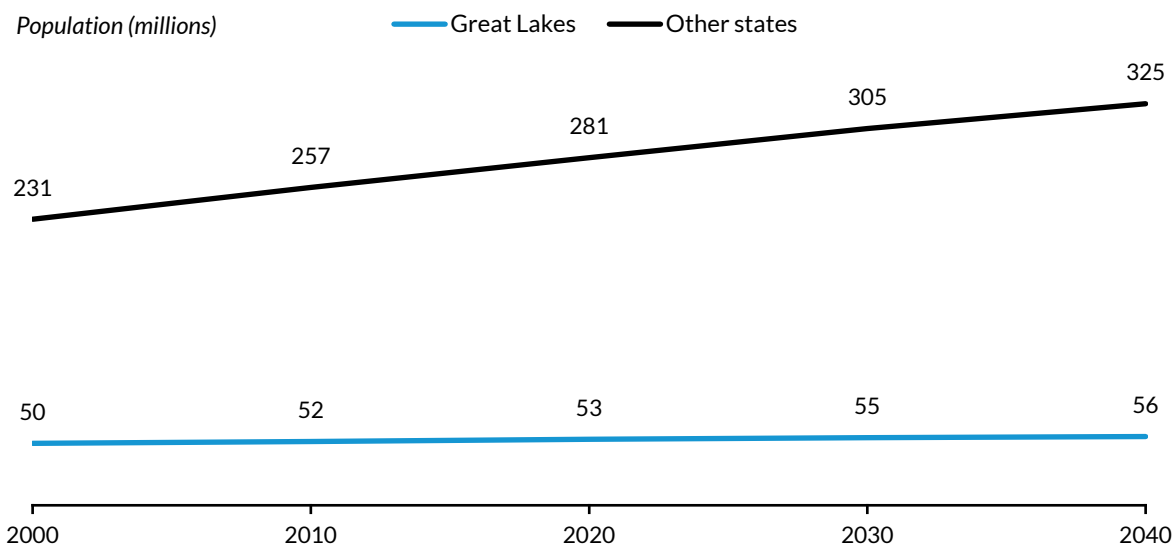
How well does the average scenario—which assumes future migration rates will parallel those from 2000 to 2010—align with post-2010 estimates of the Great Lakes states’ population? Michigan’s high rate of out-migration from 2000 to 2010 decreased between 2010 and 2015. Meanwhile, Illinois experienced higher out-migration rates between 2010 and 2015 than it did between 2000 and 2010. Consequently, Michigan’s estimated population in 2015 is about 1 percent higher than the average Mapping America’s Futures scenario would project, while Illinois’s population is about 1 percent lower. The other state projections are closer to the average Mapping America’s Futures scenario.

## Overall Population Growth

The population of the Great Lakes region is projected to grow through 2040, but growth is expected to be slow. We project that the population will increase from 51.7 million in 2010 to 53.3 million in 2020, to 54.8 million in 2030, and to 55.6 million in 2040. Between 2000 and 2010, regional growth increased about 0.33 percent annually. But projections suggest this will slow to 0.31 percent between 2010 and 2020 and to 0.28 percent between 2020 and 2030. Between 2030 and 2040, annual population increase will fall to 0.12 percent. Annual population growth will slow in the other US states as well, but growth rates will remain higher than those in the Great Lakes states. In each decade between the 2000s and the 2030s, average annual national population growth will also fall, from 1.12 percent annually to 0.66 percent annually. Despite the decline, the national average annual growth rate in the 2030s will likely be higher than it was in the Great Lakes region from 2000 to 2010 (figure 12).

FIGURE 12

### Projected Populations for the United States and the Great Lakes States, 2000–40



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**Source:** Data for 2000 and 2010 come from the censuses. Data for 2020 to 2040 come from Rolf Pendall, Nan Marie Astone, Steven Martin, H. Elizabeth Peters, Austin Nichols, Kaitlin Franks Hildner, Allison Stolte, et al., “Mapping America’s Futures,” Urban Institute, accessed January 26, 2018, <http://apps.urban.org/features/mapping-americas-futures/>.

## Changes in Racial and Ethnic Distribution

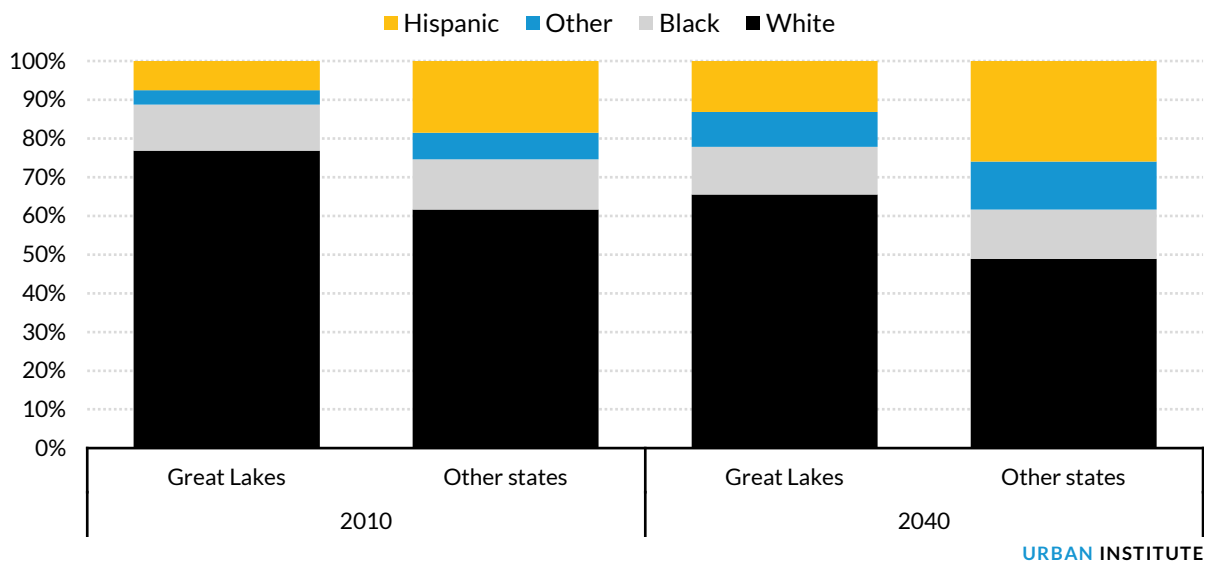
The Great Lakes states are projected to become more racially and ethnically diverse by 2040, and the pace of growth in diversity is projected to be faster than it is today (figure 13). The white population

share is projected to decrease from 77 percent in 2010 to 66 percent in 2040, while the nonwhite population is projected to increase from 23 percent to about 34 percent. Growth in the nonwhite population will largely be driven by growth in the Hispanic and non-Hispanic other race populations. The Hispanic population share is projected to increase from 8 percent to 13 percent, and the non-Hispanic other race population is also projected to increase from 4 percent to 9 percent. The black population share is projected to remain relatively unchanged, at about 12 percent. Geographically, Illinois will be largely responsible for increasing diversity in the region. Absent Illinois, the region would be considerably less diverse than the rest of the US.

The pace of growing diversity will also increase between 2000 and 2040. Between 2000 and 2010, the white population share decreased from 80 percent to 77 percent. In the future, the white population share is projected to continue to decrease. By 2020, the white population will account for 73 percent of the total population and will fall to 70 percent in 2030 and to 66 percent in 2040. Despite increases in racial and ethnic diversity, the white population share is still expected to remain higher in the region than projections for the other states. By 2040, the white population is projected to make up only 49 percent of the population of the other US states.

FIGURE 13

Racial and Ethnic Composition of the Great Lakes States and the United States, 2010 and 2040



**Sources:** Data for 2000 to 2010 come from Richelle Winkler, Kenneth M. Johnson, Cheng Cheng, Jim Beaudoin, Paul R. Voss, and Katherine J. Curtis, “Age-Specific Net Migration Estimates for US Counties, 1950–2010,” University of Wisconsin–Madison, Applied Population Laboratory, accessed January 26, 2018, <http://www.netmigration.wisc.edu/>. Data for 2010 to 2040 come from Rolf Pendall, Nan Marie Astone, Steven Martin, H. Elizabeth Peters, Austin Nichols, Kaitlin Franks Hildner, Allison Stolte, et al., “Mapping America’s Futures,” Urban Institute, accessed January 26, 2018, <http://apps.urban.org/features/mapping-americas-futures/>.

**Notes:** The “other” category includes non-Hispanic Asians, Native Americans and Alaska Natives, Native Hawaiians and Pacific Islanders, and people of multiple races.

### Changes in Age Structure

The population of the Great Lakes region is projected to age over the next 22 years, with change being driven by a rapidly increasing senior population and a shrinking of the population younger than 65 (figure 14). This section highlights three key trends by age category. First, the population younger than 25 is projected to shrink as an absolute number and as a share of the total population. Between 2010 and 2040, the under-25 population will decrease from about 17.5 million to 16.1 million (from 34 percent to 29 percent of the total). Second, the prime-working-age population (ages 25 to 64) will decrease from 27.3 million to 26.4 million (from 53 percent to 48 percent). Finally, the population ages 65 and older will almost double, increasing from 6.8 million in 2010 to 13.0 million in 2040. The senior population will also increase as a share of the total population by almost 11 percentage points (from 13 percent in 2010 to 24 percent in 2040).

The population of the other US states is also projected to age over the next 22 years, though changes will be less dramatic. The population younger than 25 will increase from 88.1 million in 2010 to 93.9 million in 2040 but will decrease as a share of the total population (from 34 percent to 29 percent). Similarly, the prime-working-age population is expected to grow as an absolute number from 136.6 million in 2010 to 161.5 million in 2040 but will decrease as a share of the total population about 3 percentage points (from 53 percent in 2010 to 50 percent in 2040). Meanwhile, the population ages 65 and older will more than double, growing from 33.1 million to 69.2 million. The senior population share will also increase from 13 percent to 21 percent.

FIGURE 14A

Population Change by Age Group in the Great Lakes Region, 2000–40

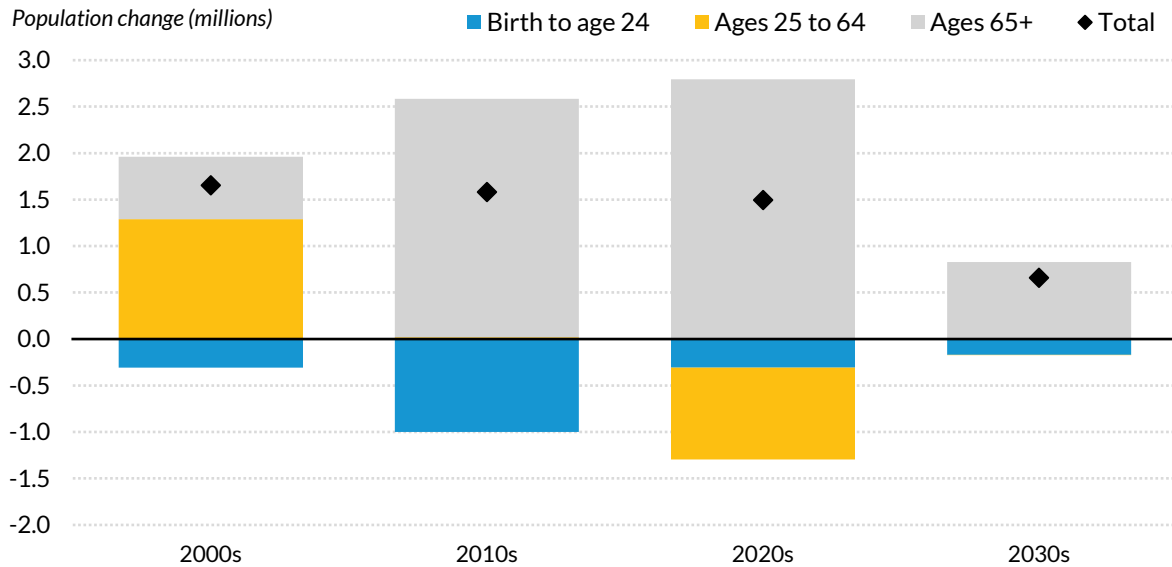
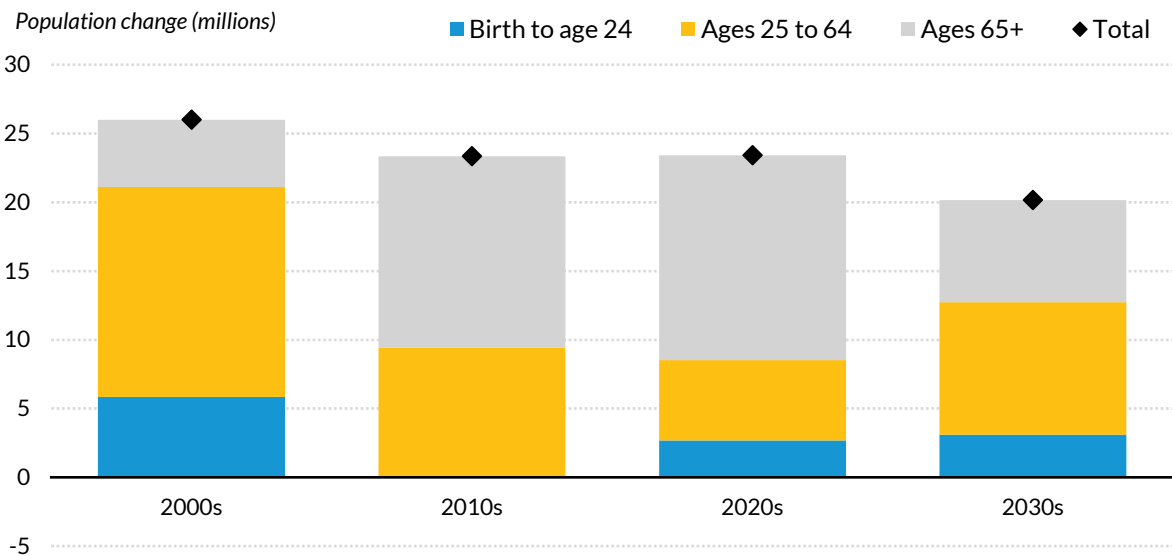


FIGURE 14B

Population Change by Age Group in the United States, 2000–40



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Sources: Data for 2000 to 2010 come from Richelle Winkler, Kenneth M. Johnson, Cheng Cheng, Jim Beaudoin, Paul R. Voss, and Katherine J. Curtis, “Age-Specific Net Migration Estimates for US Counties, 1950–2010,” University of Wisconsin–Madison, Applied Population Laboratory, accessed January 26, 2018, <http://www.netmigration.wisc.edu/>. Data for 2010 to 2040 come from Rolf Pendall, Nan Marie Astone, Steven Martin, H. Elizabeth Peters, Austin Nichols, Kaitlin Franks Hildner, Allison Stolte, et al., “Mapping America’s Futures,” Urban Institute, accessed January 26, 2018, <http://apps.urban.org/features/mapping-americas-futures/>.

## Population Change at the State Level

The Great Lakes states fall in two groups. Minnesota, Indiana, and Wisconsin are moderate-growth states, which are likely to continue growing modestly between 2010 and 2040. Illinois, Ohio, and Michigan are slow-growth states, where growth is expected to slow considerably and may experience negative growth by 2040. All the states are projected to experience faster increases in racial and ethnic diversity than they underwent between 2000 and 2010. States with the fastest population growth will experience more rapid changes in diversity, while change will happen more slowly in states where overall growth is slower. Most of the Great Lakes states are projected to have growing numbers of prime-working-age adults, but large losses in Michigan and Ohio (and, to some extent, Illinois) will be responsible for a regional net loss.

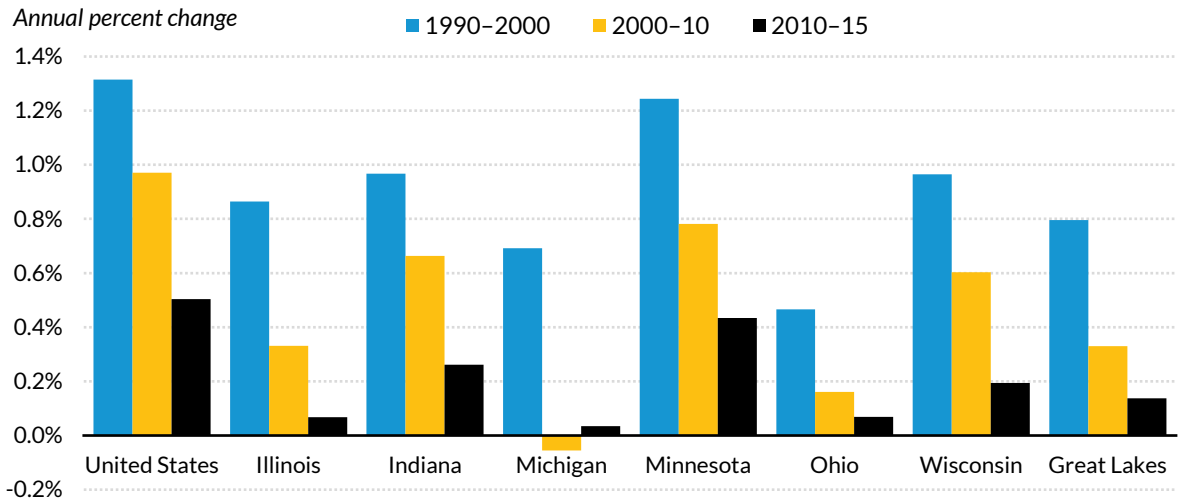
### Overall Population Growth

Between 2000 and 2010, the states with the smallest populations grew the fastest. Minnesota grew 0.79 percent per year, the region's highest rate and just below the US average. Indiana and Wisconsin grew 0.67 percent and 0.61 percent, respectively. Illinois, Ohio, and Michigan (which had larger populations) had slower growth rates. This trend was most pronounced in Michigan, which experienced negative growth (-0.06 percent).

Historical data suggest that state projections of population change through 2040 have some validity but are unlikely to be perfect. The Great Lakes states had close to the same order of high and low growth for each five-year period from 1990 to 2015 as in the period from 2000 to 2010, with some exceptions (figure 15). Illinois had the third-slowest population growth rate for each period 10-year period between 1990 and 2010. But between 2010 and 2015, Illinois had the second-lowest growth rate behind Michigan. Similarly, Michigan's population loss between 2000 and 2010 was followed by slow growth between 2010 and 2015. Ultimately, projections should be a guideline. Minnesota, Indiana, and Wisconsin are all likely to have slow population growth. Illinois, Ohio, and Michigan all could have negative growth.

FIGURE 15

Historical Annual Population Change in the United States and the Great Lakes States, 1990–2015



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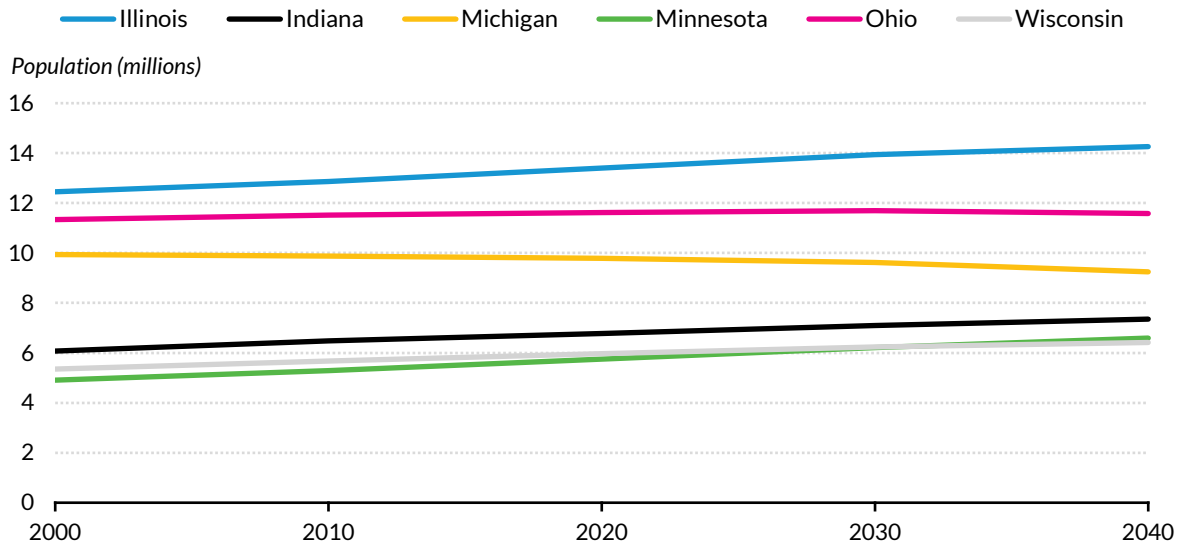
Sources: 1990, 2000, and 2010 Censuses and 2011–15 American Community Survey.

Our population projections extend the historical pattern between 2000 and 2010. Minnesota, Indiana, and Wisconsin are projected to have the fastest growth rates between 2010 and 2040, and Illinois, Ohio, and Michigan are projected to have the slowest (figure 16).



FIGURE 16

Projected Population Growth for Great Lakes States, 2000–40



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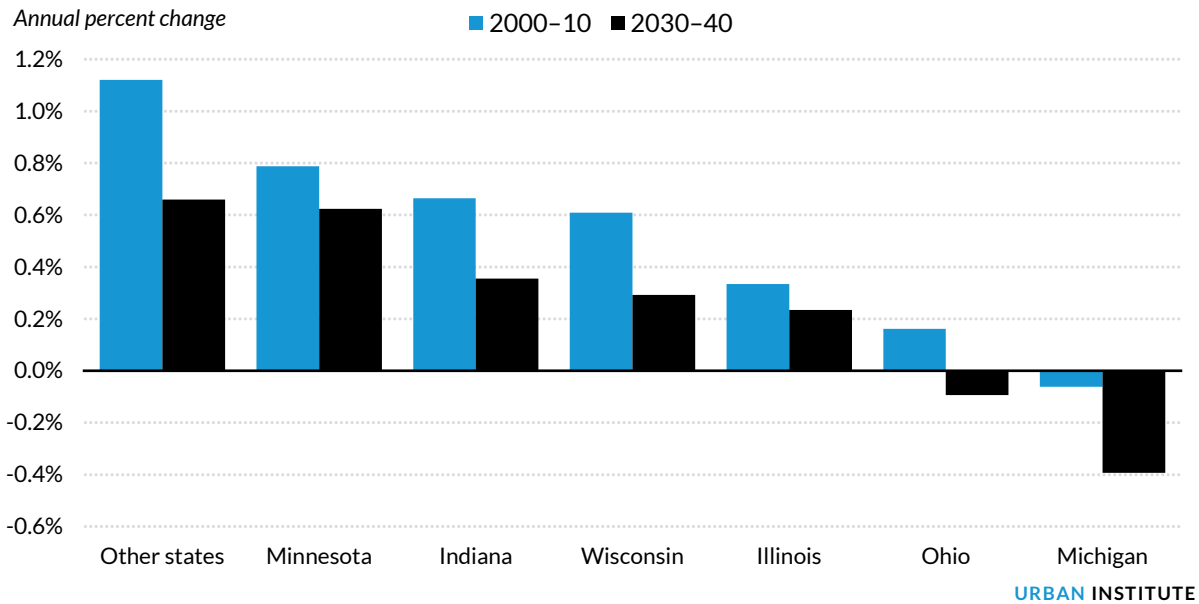
**Sources:** Data for 2000 to 2010 come from Richelle Winkler, Kenneth M. Johnson, Cheng Cheng, Jim Beaudoin, Paul R. Voss, and Katherine J. Curtis, “Age-Specific Net Migration Estimates for US Counties, 1950–2010,” University of Wisconsin–Madison, Applied Population Laboratory, accessed January 26, 2018, <http://www.netmigration.wisc.edu/>. Data for 2010 to 2040 come from Rolf Pendall, Nan Marie Astone, Steven Martin, H. Elizabeth Peters, Austin Nichols, Kaitlin Franks Hildner, Allison Stolte, et al., “Mapping America’s Futures,” Urban Institute, accessed January 26, 2018, <http://apps.urban.org/features/mapping-americas-futures/>.

**Notes:** If future migration follows 2010-2015 patterns more closely than the 2000-2010 patterns used in the projections, future change in the Illinois and Michigan populations might more closely follow the Ohio population change than in the projections shown here, but trends in the remaining four states would otherwise follow about projected trends.

That said, each state is projected to have slower growth rates between 2030 and 2040 than it had between 2000 and 2010. Both Ohio and Michigan, which experienced the lowest growth rates between 2000 and 2010, are projected to have negative population growth rates by 2040 (figure 17).

FIGURE 17

**Projected Annual Population Change in the Great Lakes States and in Other States, 2000–10 and 2030–40**



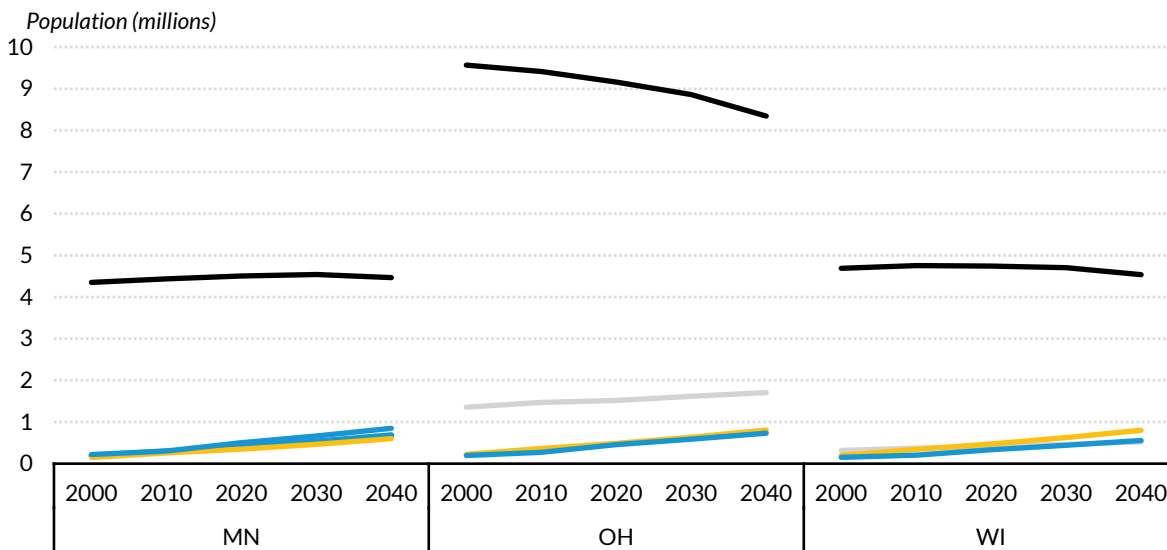
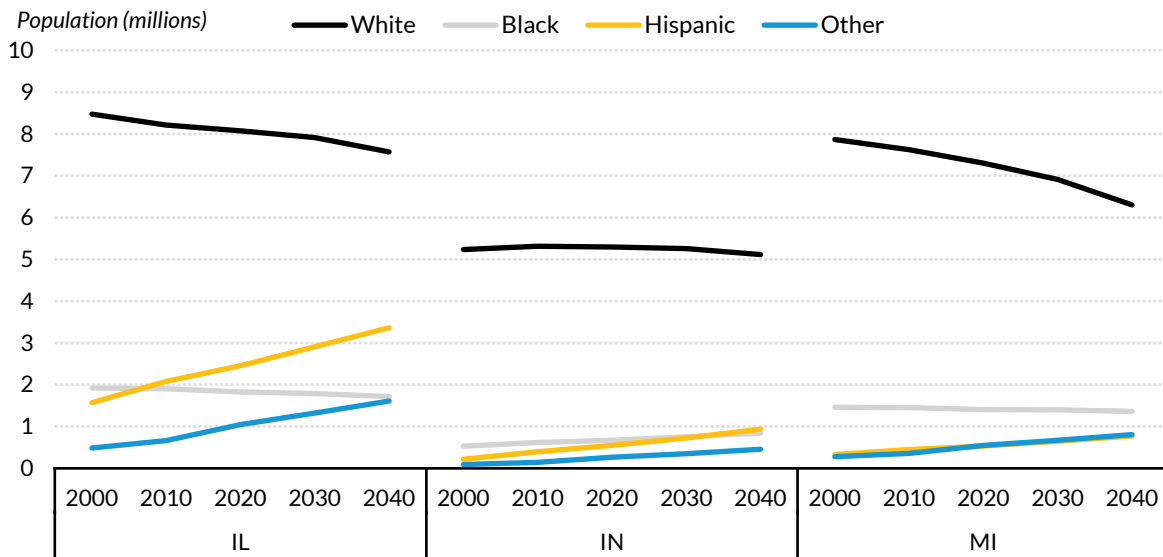
**Sources:** Data for 2000 to 2010 come from Richelle Winkler, Kenneth M. Johnson, Cheng Cheng, Jim Beaudoin, Paul R. Voss, and Katherine J. Curtis, “Age-Specific Net Migration Estimates for US Counties, 1950–2010,” University of Wisconsin–Madison, Applied Population Laboratory, accessed January 26, 2018, <http://www.netmigration.wisc.edu/>. Data for 2010 to 2040 come from Rolf Pendall, Nan Marie Astone, Steven Martin, H. Elizabeth Peters, Austin Nichols, Kaitlin Franks Hildner, Allison Stolte, et al., “Mapping America’s Futures,” Urban Institute, accessed January 26, 2018, <http://apps.urban.org/features/mapping-americas-futures/>.

### Changes in Racial and Ethnic Distribution

The Great Lakes states are projected to become more racially and ethnically diverse. Between 2000 and 2010, all the Great Lakes states experienced an increase in racial and ethnic diversity, a trend that is projected to continue. Between 2010 and 2040, absolute decreases in the white population will be most pronounced in Michigan (1.3 million), Ohio (1.1 million), and Illinois (0.6 million). In contrast, the white population in Minnesota will increase slightly through 2030 and then fall slightly between 2030 and 2040 (figure 18).

FIGURE 18

Population Changes by Race or Ethnicity in the Great Lakes States, 2000–40



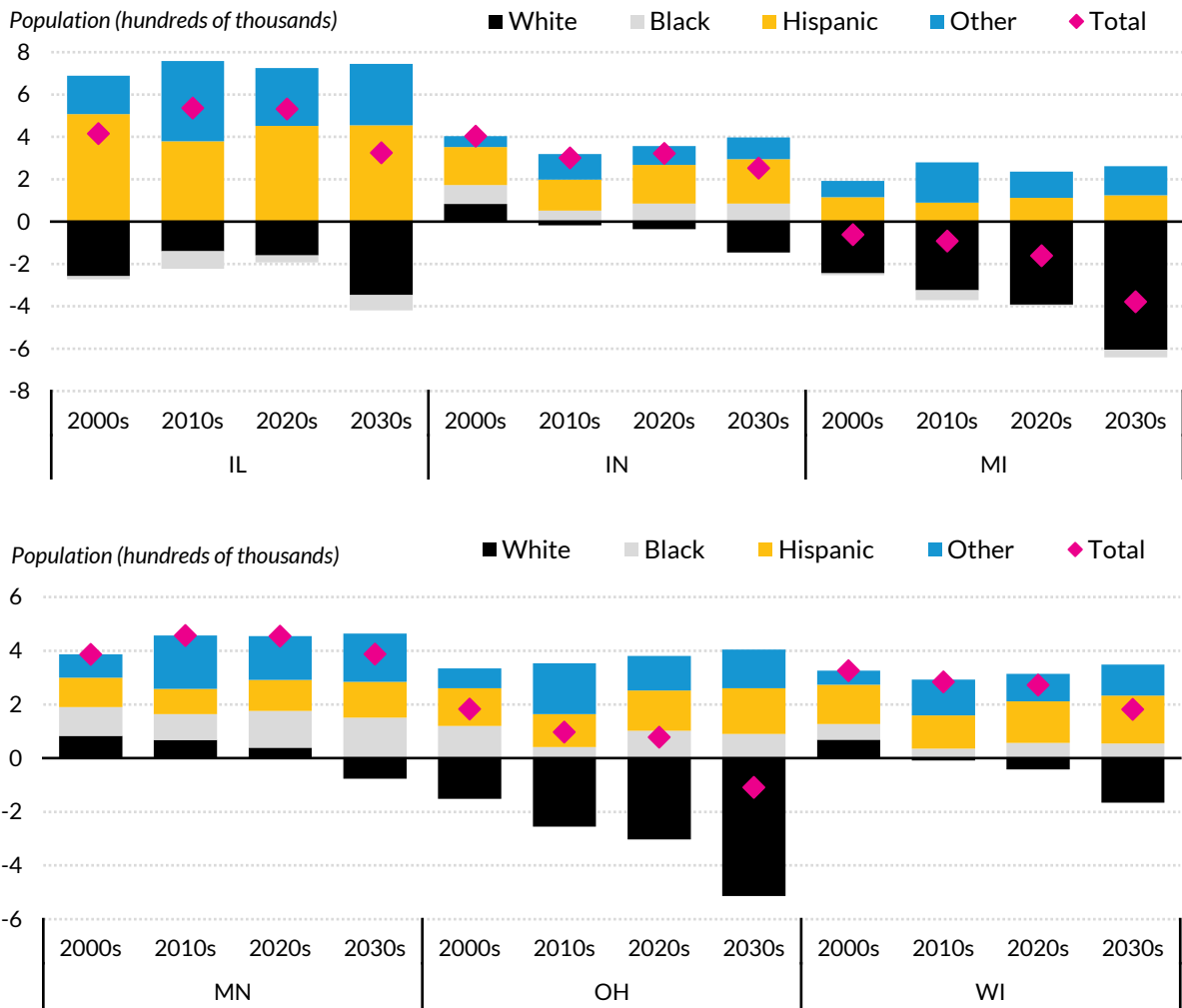
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Sources: Data for 2000 to 2010 come from Richelle Winkler, Kenneth M. Johnson, Cheng Cheng, Jim Beaudoin, Paul R. Voss, and Katherine J. Curtis, "Age-Specific Net Migration Estimates for US Counties, 1950–2010," University of Wisconsin–Madison, Applied Population Laboratory, accessed January 26, 2018, <http://www.netmigration.wisc.edu/>. Data for 2010 to 2040 come from Rolf Pendall, Nan Marie Astone, Steven Martin, H. Elizabeth Peters, Austin Nichols, Kaitlin Franks Hildner, Allison Stolte, et al., "Mapping America's Futures," Urban Institute, accessed January 26, 2018, <http://apps.urban.org/features/mapping-americas-futures/>.

All the states are projected to experience faster increases in diversity in the future than in the 2000s. The growth in the share of people who are not white is mainly an outcome of the diversity of

today's children and young adults compared with those of a few decades ago. Also, immigrants to the Great Lakes region from abroad—who help make up for net domestic out-migration—are predominantly Asian and Hispanic. About 83 percent of baby boomers in the Great Lakes region are white, and baby boomers will account for growing population loss because of mortality in the 2020s and 2030s (figures 19 and 20).

**FIGURE 19**  
**Absolute Population Change by Race or Ethnicity in the Great Lakes States, 2000–40**

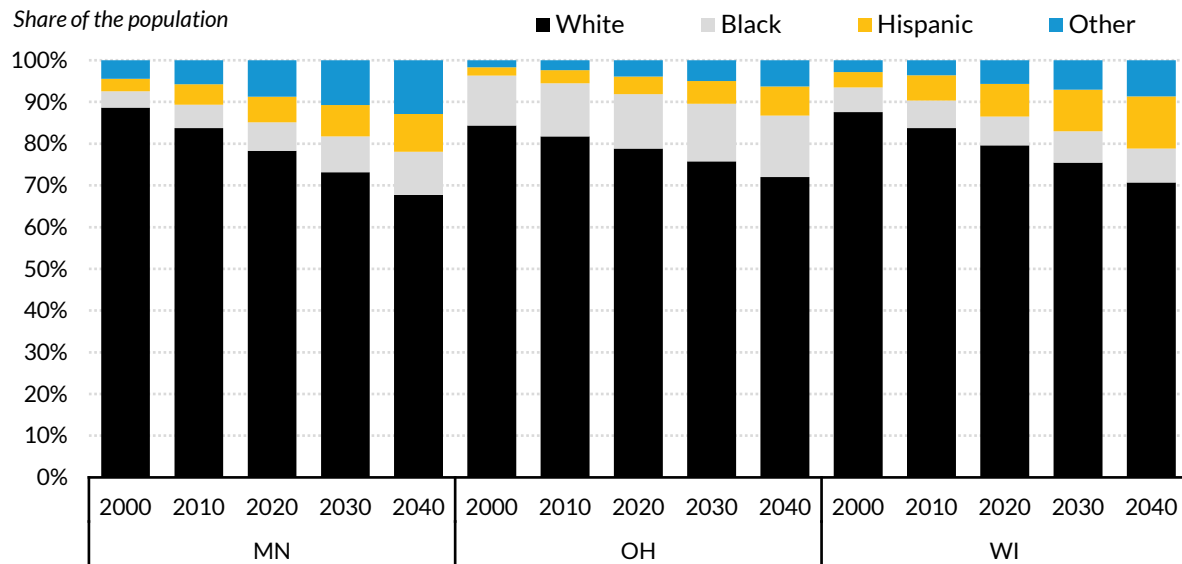
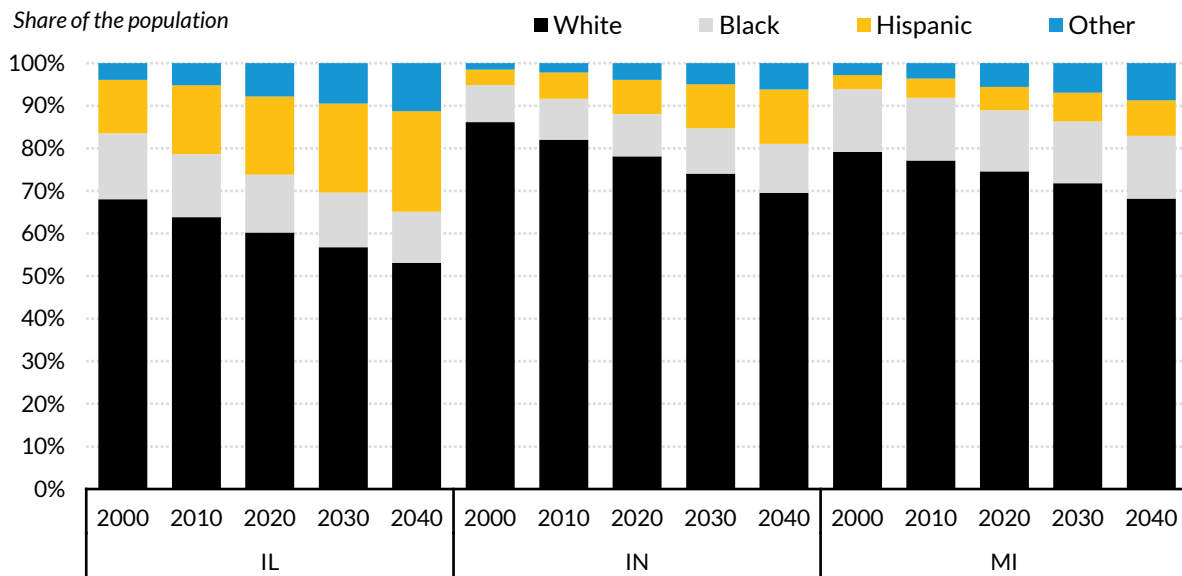


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**Sources:** Data for 2000 to 2010 come from Richelle Winkler, Kenneth M. Johnson, Cheng Cheng, Jim Beaudoin, Paul R. Voss, and Katherine J. Curtis, “Age-Specific Net Migration Estimates for US Counties, 1950–2010,” University of Wisconsin–Madison, Applied Population Laboratory, accessed January 26, 2018, <http://www.netmigration.wisc.edu/>. Data for 2010 to 2040 come from Rolf Pendall, Nan Marie Astone, Steven Martin, H. Elizabeth Peters, Austin Nichols, Kaitlin Franks Hildner, Allison Stolte, et al., “Mapping America’s Futures,” Urban Institute, accessed January 26, 2018, <http://apps.urban.org/features/mapping-americas-futures/>.

FIGURE 20

Distribution of Racial and Ethnic Groups in the Great Lakes States, 2000–40



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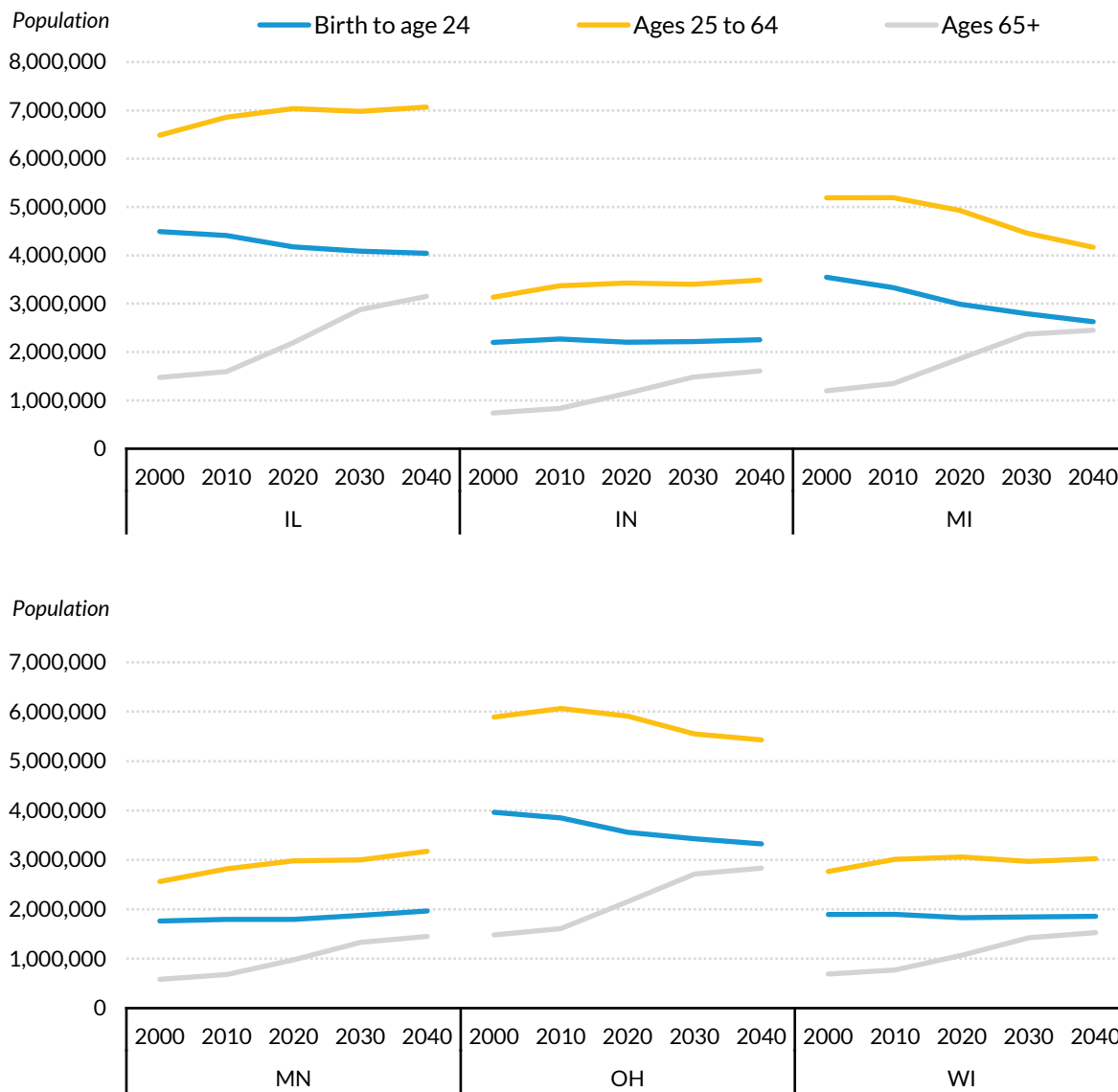
Sources: Data for 2000 to 2010 come from Richelle Winkler, Kenneth M. Johnson, Cheng Cheng, Jim Beaudoin, Paul R. Voss, and Katherine J. Curtis, "Age-Specific Net Migration Estimates for US Counties, 1950–2010," University of Wisconsin–Madison, Applied Population Laboratory, accessed January 26, 2018, <http://www.netmigration.wisc.edu/>. Data for 2010 to 2040 come from Rolf Pendall, Nan Marie Astone, Steven Martin, H. Elizabeth Peters, Austin Nichols, Kaitlin Franks Hildner, Allison Stolte, et al., "Mapping America's Futures," Urban Institute, accessed January 26, 2018, <http://apps.urban.org/features/mapping-americas-futures/>.

## Changes in Age Structure

All the Great Lakes states are projected to see increases in the size of the population ages 65 and older. Minnesota and Indiana, moderate-growth states, are expected to see growth in the size of the prime-working-age population (ages 25 to 64), while the size of the population younger than 25 is expected to stay constant. But in Wisconsin, the size of the prime-working-age population and the population younger than 25 are both expected to stay constant. Meanwhile, the slow growth states of Michigan and Ohio are projected to see the prime-working-age population decrease, though in Illinois, the size of this population is expected to increase (from 6.5 million to 7.1 million). The slow-growth states (Michigan, Ohio, and Illinois) are also likely to see a decline in the size of the population younger than 25 (figure 21).

FIGURE 21

Population by Age Group in the Great Lakes States, 2000–40



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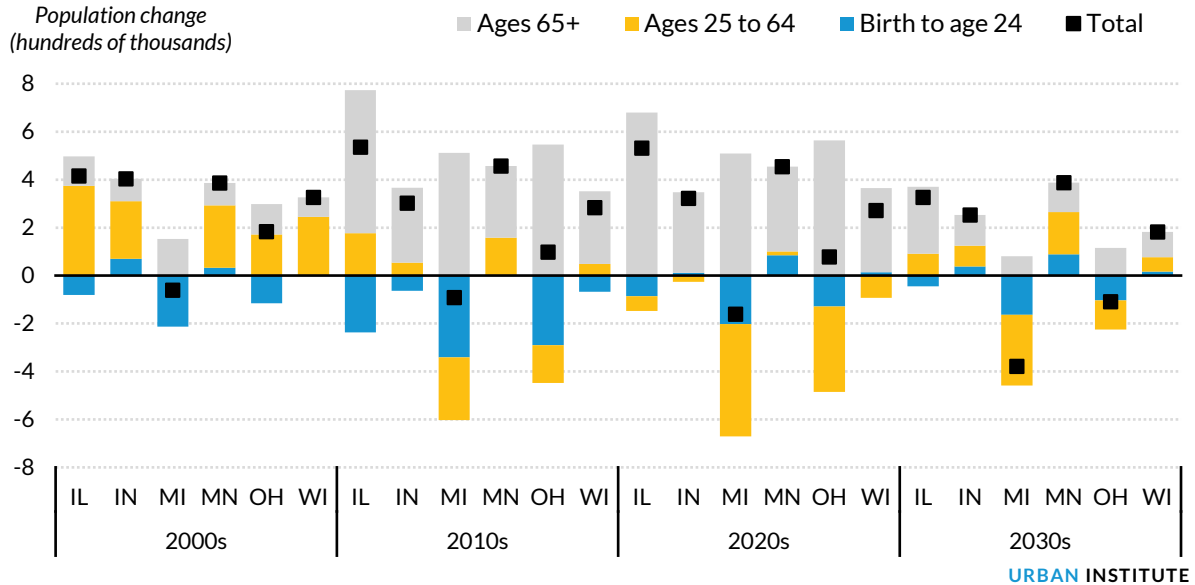
Sources: Data for 2000 to 2010 come from Richelle Winkler, Kenneth M. Johnson, Cheng Cheng, Jim Beaudoin, Paul R. Voss, and Katherine J. Curtis, "Age-Specific Net Migration Estimates for US Counties, 1950–2010," University of Wisconsin–Madison, Applied Population Laboratory, accessed January 26, 2018, <http://www.netmigration.wisc.edu/>. Data for 2010 to 2040 come from Rolf Pendall, Nan Marie Astone, Steven Martin, H. Elizabeth Peters, Austin Nichols, Kaitlin Franks Hildner, Allison Stolte, et al., "Mapping America's Futures," Urban Institute, accessed January 26, 2018, <http://apps.urban.org/features/mapping-americas-futures/>.

Between 2000 and 2040, all six states are projected to see increases in the size of the population that is ages 65 and older. These changes will be more dramatic in the 2010s and the 2020s but are likely

to wane by the 2030s. Illinois, in particular, is expected to see large increases in the size of this population and decreases in the size of the population younger than 25 (figure 22).

**FIGURE 22**

**Absolute Population Change by Age Group in the Great Lakes States, 2000–40**



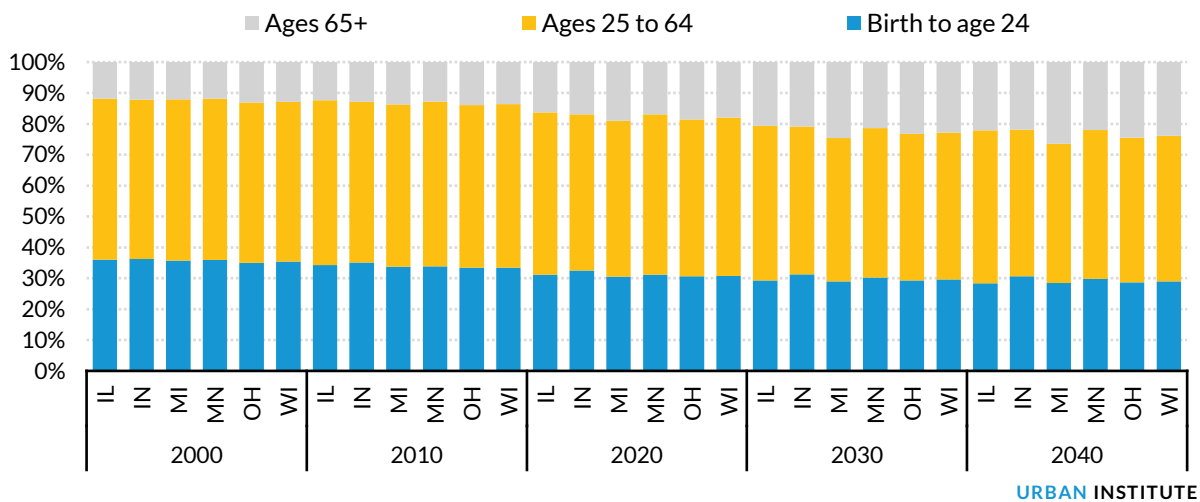
**Sources:** Data for 2000 to 2010 come from Richelle Winkler, Kenneth M. Johnson, Cheng Cheng, Jim Beaudoin, Paul R. Voss, and Katherine J. Curtis, “Age-Specific Net Migration Estimates for US Counties, 1950–2010,” University of Wisconsin–Madison, Applied Population Laboratory, accessed January 26, 2018, <http://www.netmigration.wisc.edu/>. Data for 2010 to 2040 come from Rolf Pendall, Nan Marie Astone, Steven Martin, H. Elizabeth Peters, Austin Nichols, Kaitlin Franks Hildner, Allison Stolte, et al., “Mapping America’s Futures,” Urban Institute, accessed January 26, 2018, <http://apps.urban.org/features/mapping-americas-futures/>.

The share of the population ages 65 and older is projected to increase in all six states. Some states will see increases in the size of the working-age population, but no state is projected to experience an increase in the share of the prime-working-age population (figure 23).



FIGURE 23

Distribution of the Population by Age Group in the Great Lakes States, 2000–40



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Sources: Data for 2000 to 2010 come from Richelle Winkler, Kenneth M. Johnson, Cheng Cheng, Jim Beaudoin, Paul R. Voss, and Katherine J. Curtis, "Age-Specific Net Migration Estimates for US Counties, 1950–2010," University of Wisconsin–Madison, Applied Population Laboratory, accessed January 26, 2018, <http://www.netmigration.wisc.edu/>. Data for 2010 to 2040 come from Rolf Pendall, Nan Marie Astone, Steven Martin, H. Elizabeth Peters, Austin Nichols, Kaitlin Franks Hildner, Allison Stolte, et al., "Mapping America's Futures," Urban Institute, accessed January 26, 2018, <http://apps.urban.org/features/mapping-americas-futures/>.

## Population Change in Selected Metropolitan Areas

This section examines demographic change for seven key metropolitan areas in the Great Lakes region: Chicago, Columbus, Detroit, Indianapolis, Milwaukee, the Twin Cities of Minneapolis and St. Paul, and Toledo.<sup>11</sup> To explore patterns of growth, we divide the metropolitan areas into three categories based on population change between 2000 and 2010: Columbus, Indianapolis, and the Twin Cities are fast-growth areas, experiencing population growth of 1 percent or more a year; Chicago and Milwaukee are slow-growth areas, experiencing growth between 0 percent and 1 percent; and Detroit and Toledo are negative-growth areas.

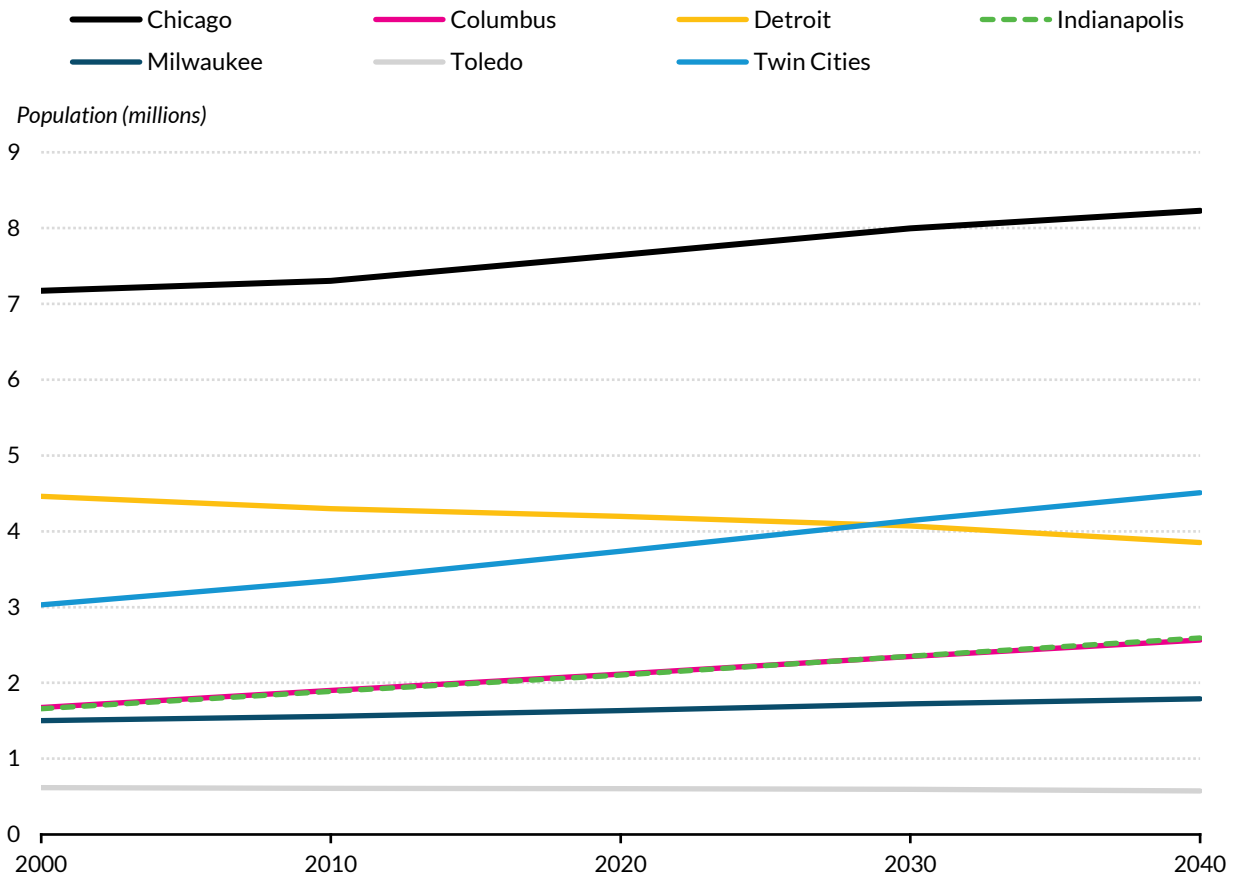
### Overall Population Growth

The population is projected to increase between 2010 and 2040 (with the exception of Detroit and Toledo), although all seven areas will experience slower growth.<sup>12</sup> Areas that decreased in population

between 2000 and 2010 are projected to continue to decrease in population and will do so slightly faster than in the past (figure 24).

**FIGURE 24**

**Population of the Great Lakes Metropolitan Areas, 2000–40**



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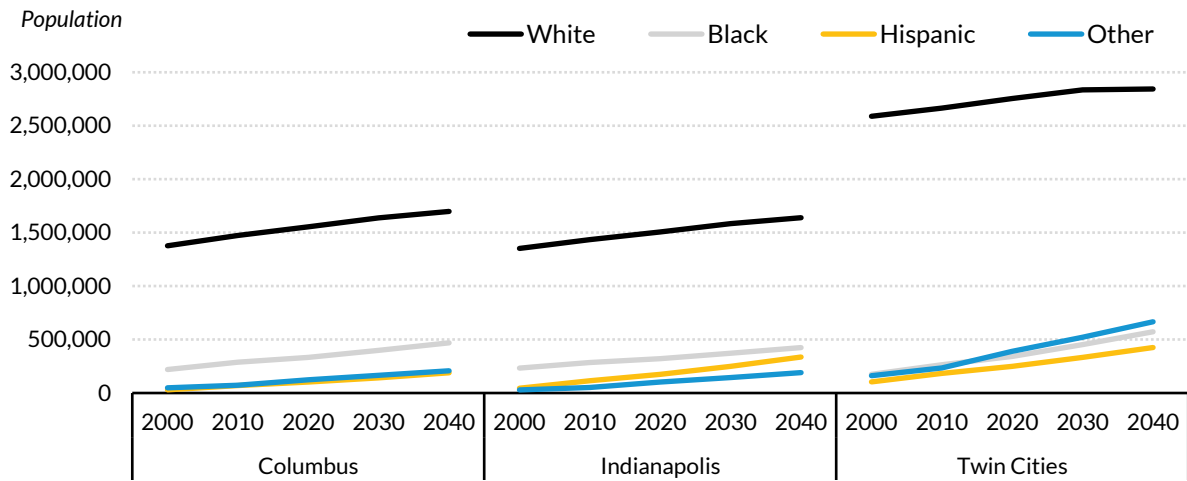
**Sources:** Data for 2000 to 2010 come from Richelle Winkler, Kenneth M. Johnson, Cheng Cheng, Jim Beaudoin, Paul R. Voss, and Katherine J. Curtis, “Age-Specific Net Migration Estimates for US Counties, 1950–2010,” University of Wisconsin–Madison, Applied Population Laboratory, accessed January 26, 2018, <http://www.netmigration.wisc.edu/>. Data for 2010 to 2040 come from Rolf Pendall, Nan Marie Astone, Steven Martin, H. Elizabeth Peters, Austin Nichols, Kaitlin Franks Hildner, Allison Stolte, et al., “Mapping America’s Futures,” Urban Institute, accessed January 26, 2018, <http://apps.urban.org/features/mapping-america-futures/>.

## Changes in Racial and Ethnic Distribution

The Great Lakes metropolitan areas are projected to become more diverse, though growth will differ by area (figure 25). Indianapolis, Columbus, and the Twin Cities will see population growth across all racial

and ethnic groups. Milwaukee and Chicago will see population growth in the non-Hispanic other race and Hispanic populations but are projected to see decreases in the white population. The black population will increase slightly in Milwaukee but will decrease in Chicago. Toledo and Detroit are projected to experience a decline in the size of the white population. Both areas will see increases in the Hispanic and non-Hispanic other race populations, with the black population projected to decrease in Detroit and increase in Toledo.

**FIGURE 25A**  
**Changes in Racial and Ethnic Populations in Fast-Growth Great Lakes Metropolitan Areas, 2000–40**



**FIGURE 25B**  
**Changes in Racial and Ethnic Populations in Slow-Growth Great Lakes Metropolitan Areas, 2000–40**

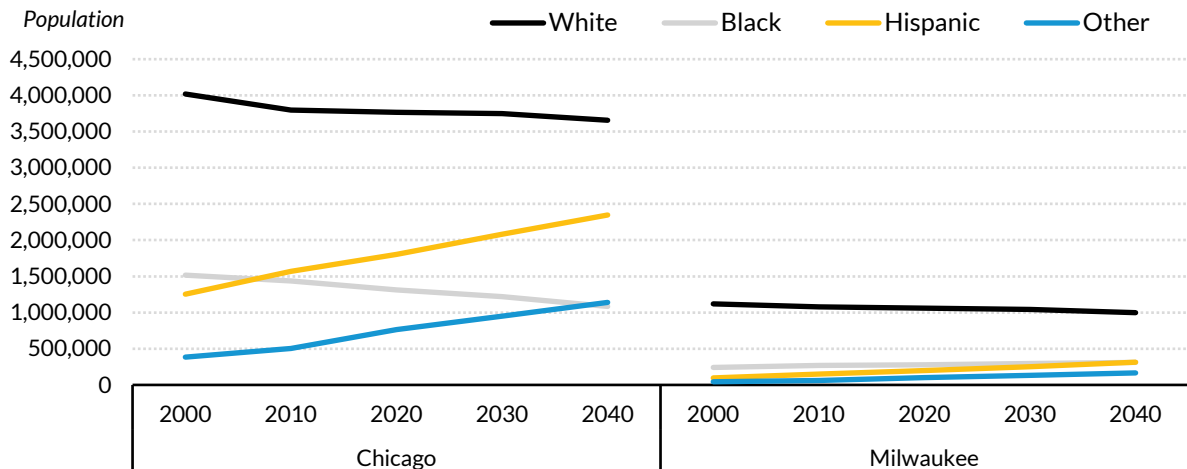
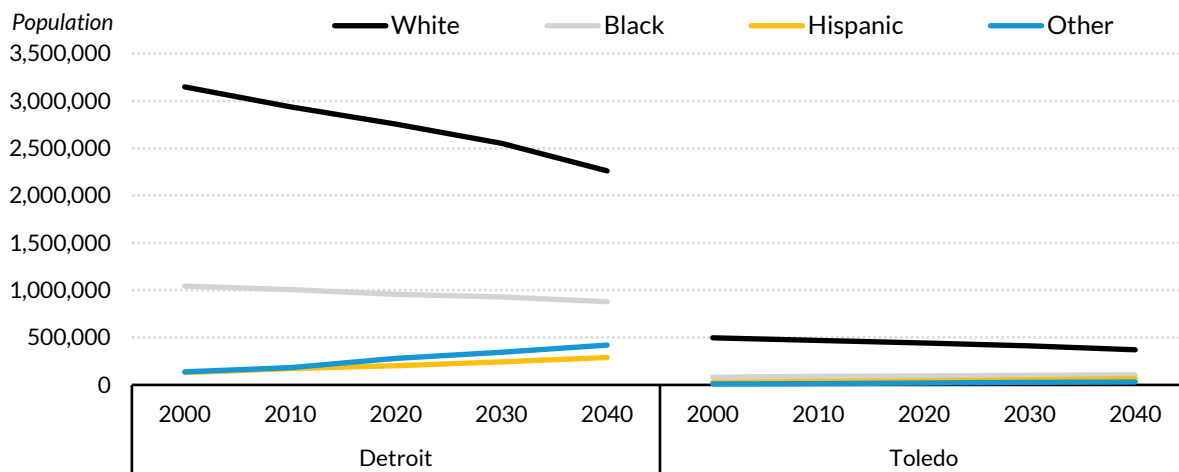


FIGURE 25C

Changes in Racial and Ethnic Populations in Negative-Growth Great Lakes Metropolitan Areas, 2000–40



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**Sources:** Data for 2000 to 2010 come from Richelle Winkler, Kenneth M. Johnson, Cheng Cheng, Jim Beaudoin, Paul R. Voss, and Katherine J. Curtis, “Age-Specific Net Migration Estimates for US Counties, 1950–2010,” University of Wisconsin–Madison, Applied Population Laboratory, accessed January 26, 2018, <http://www.netmigration.wisc.edu/>. Data for 2010 to 2040 come from Rolf Pendall, Nan Marie Astone, Steven Martin, H. Elizabeth Peters, Austin Nichols, Kaitlin Franks Hildner, Allison Stolte, et al., “Mapping America’s Futures,” Urban Institute, accessed January 26, 2018, <http://apps.urban.org/features/mapping-americas-futures/>.

Over the next two decades, slow- and negative-growth cities will see the size of the white population fall (figure 26). Both Milwaukee and Toledo will see modest decreases in the size of the white population (between 18,000 and 45,000 per decade). The largest absolute decreases in the size of the white population will happen in Chicago and Detroit (between 93,000 and 291,000 per decade), which both had the largest total population of all seven metropolitan areas in 2000. In contrast, Indianapolis, Columbus, and the Twin Cities will see moderate growth in the size of the white population (between 8,000 and 89,000 per decade).

FIGURE 26A

Largest Decrease in the White Population in Great Lakes Metropolitan Areas, 2000–40

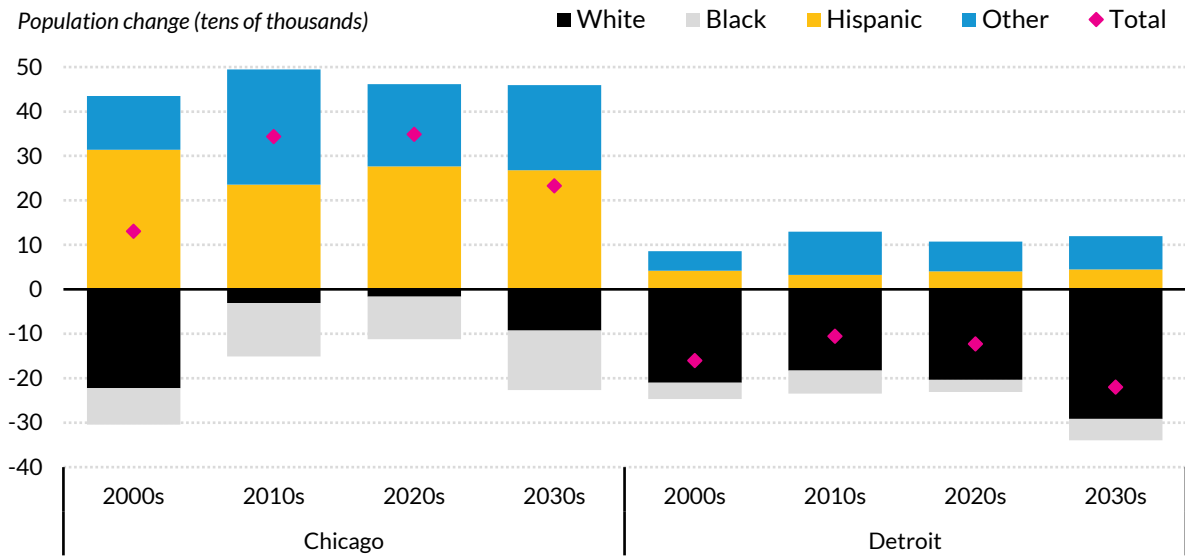


FIGURE 26B

Medium Decrease in the White Population in Great Lakes Metropolitan Areas, 2000–40

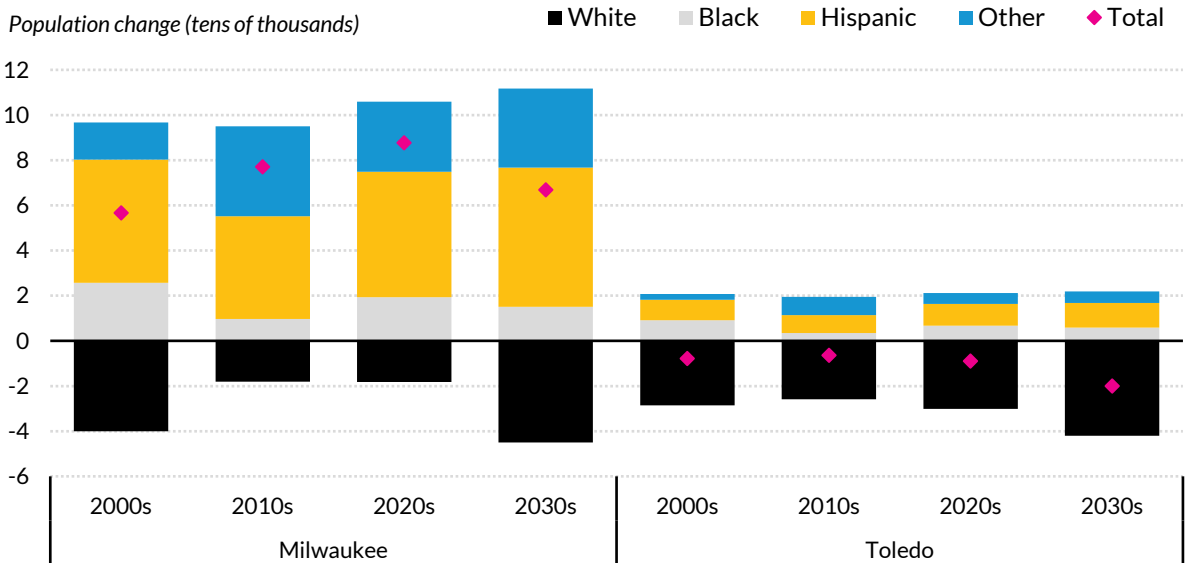
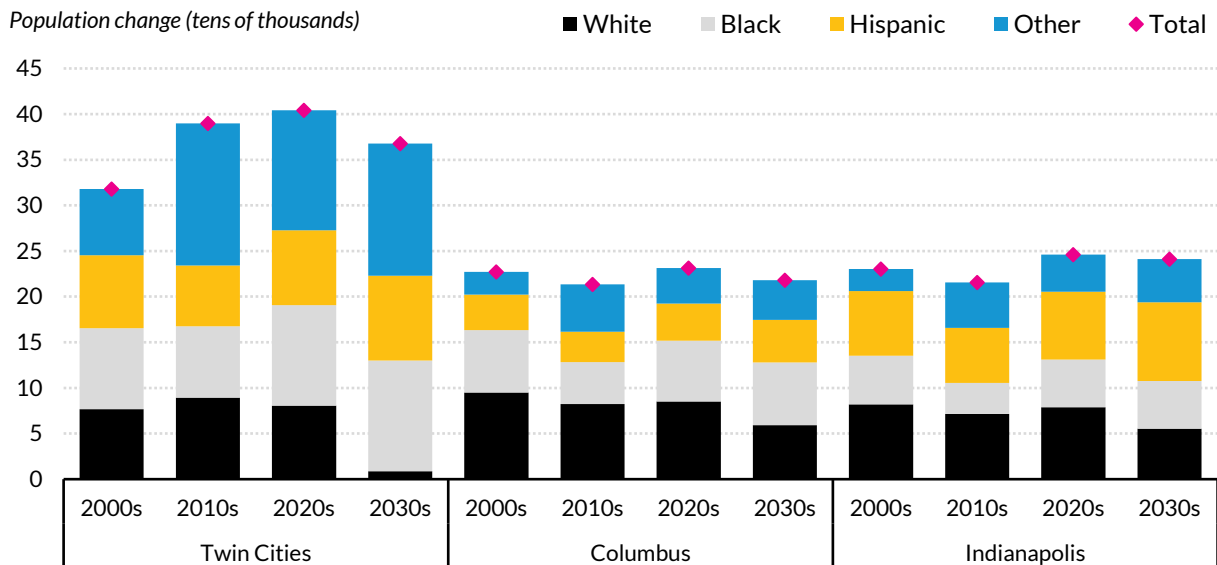


FIGURE 26C

Slowing Growth of the White Population in Great Lakes Metropolitan Areas, 2000–40



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Sources: Data for 2000 to 2010 come from Richelle Winkler, Kenneth M. Johnson, Cheng Cheng, Jim Beaudoin, Paul R. Voss, and Katherine J. Curtis, “Age-Specific Net Migration Estimates for US Counties, 1950–2010,” University of Wisconsin–Madison, Applied Population Laboratory, accessed January 26, 2018, <http://www.netmigration.wisc.edu/>. Data for 2010 to 2040 come from Rolf Pendall, Nan Marie Astone, Steven Martin, H. Elizabeth Peters, Austin Nichols, Kaitlin Franks Hildner, Allison Stolte, et al., “Mapping America’s Futures,” Urban Institute, accessed January 26, 2018, <http://apps.urban.org/features/mapping-americas-futures/>.

Between 2010 and 2040, every metropolitan area is projected to experience at least a 2-percentage-points-per-decade decrease in the share of the white population (figure 27). The largest percentage point decreases in the white population will occur in the metropolitan areas that had the largest white population share in 2000. All three fast-growth metropolitan areas had the largest white population shares in 2000: 85 percent in the Twin Cities and roughly 82 percent in both Columbus and Indianapolis. Between 2000 and 2040, the largest decreases are projected to occur in the Twin Cities (22 percentage points), Indianapolis (18 percentage points), and Columbus (16 percentage points). In contrast, Chicago (56 percent) and Detroit (71 percent) both had the smallest white population shares in 2000. These areas are projected to experience the smallest decreases in the white population shares (approximately 12 percentage points in both areas)

One exception is Milwaukee, which had a small white population share in 2000 (about 75 percent) and is projected to experience a 19 percentage-point decrease in the white population share (second only to the Twin Cities).

FIGURE 27A

Distribution of Racial and Ethnic Populations in Fast-Growth Metropolitan Areas, 2000–40

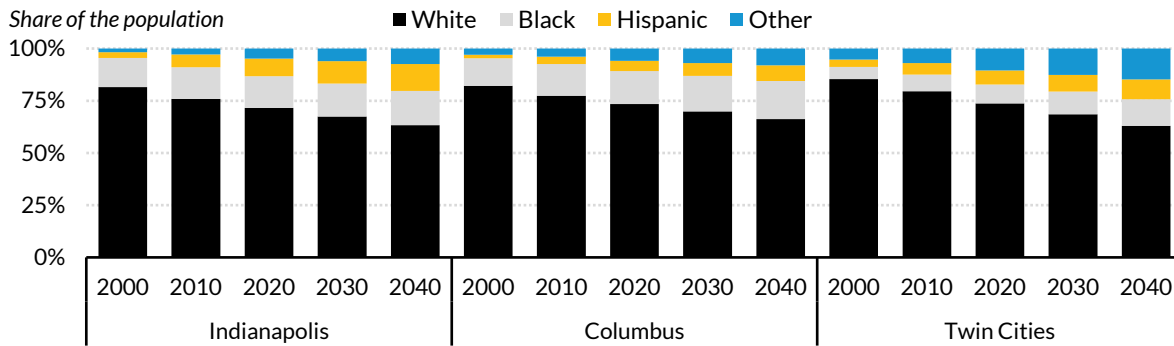


FIGURE 27B

Distribution of Racial and Ethnic Populations in Slow-Growth Metropolitan Areas, 2000–40

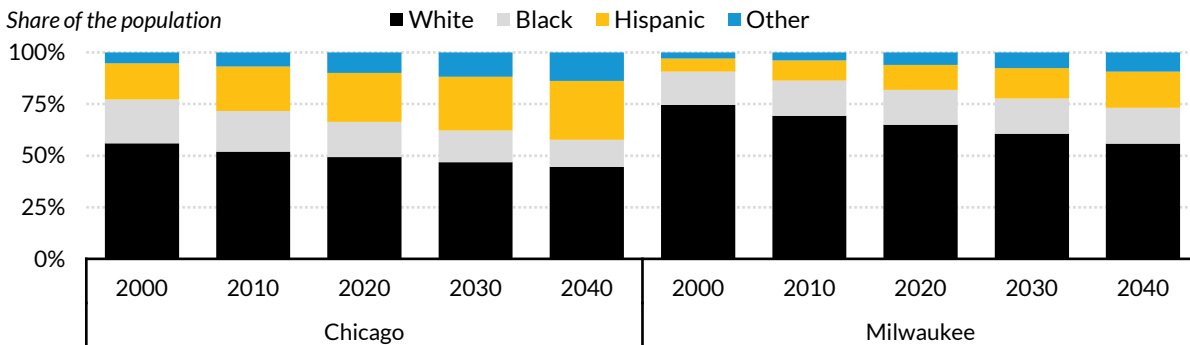
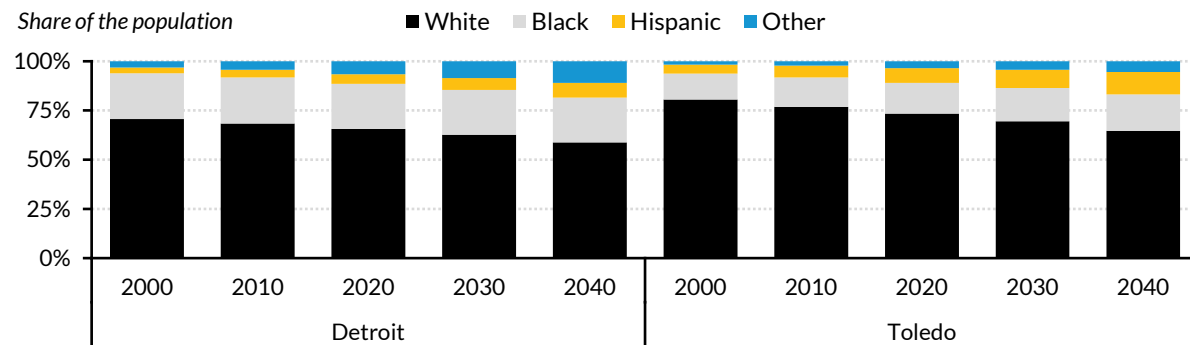


FIGURE 27C

Distribution of Racial and Ethnic Populations in Negative-Growth Metropolitan Areas, 2000–40



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Sources: Data for 2000 to 2010 come from Richelle Winkler, Kenneth M. Johnson, Cheng Cheng, Jim Beaudoin, Paul R. Voss, and Katherine J. Curtis, “Age-Specific Net Migration Estimates for US Counties, 1950–2010,” University of Wisconsin–Madison, Applied Population Laboratory, accessed January 26, 2018, <http://www.netmigration.wisc.edu/>. Data for 2010 to 2040 come from Rolf Pendall, Nan Marie Astone, Steven Martin, H. Elizabeth Peters, Austin Nichols, Kaitlin Franks Hildner, Allison Stolte, et al., “Mapping America’s Futures,” Urban Institute, accessed January 26, 2018, <http://apps.urban.org/features/mapping-americas-futures/>.

## Changes in Age Structure

Changes in age structure are not expected to vary much by metropolitan area (figure 28). In general, all seven will have an aging population, and the population ages 65 and older will increase in all of them. In negative-growth areas, the prime-working-age population will decrease.



FIGURE 28A

Population by Age Group in Fast-Growth Great Lakes Metropolitan Areas, 2000–40

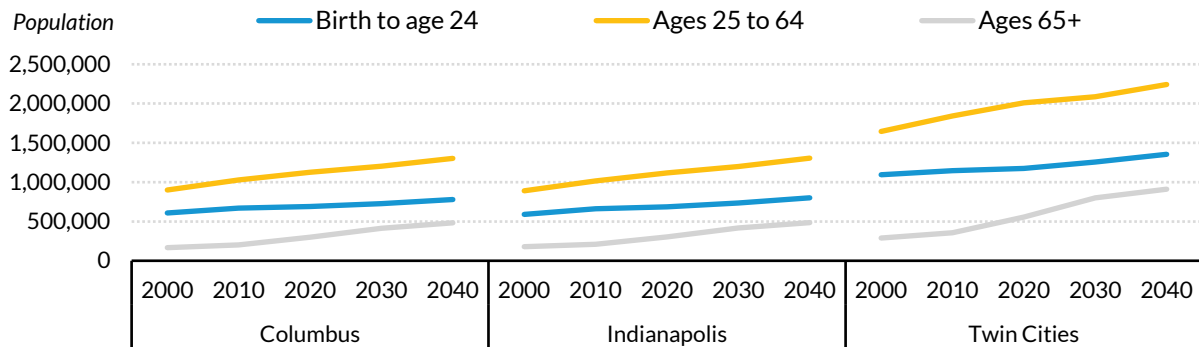


FIGURE 28B

Population by Age Group in Slow-Growth Great Lakes Metropolitan Areas, 2000–40

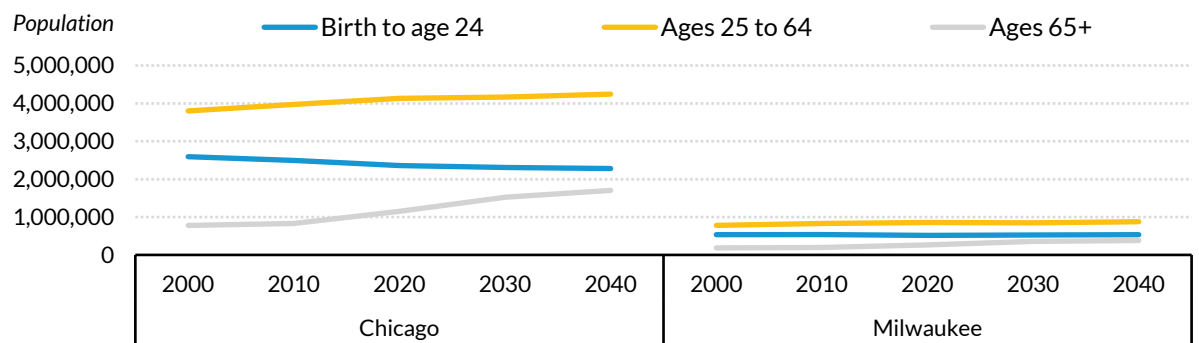
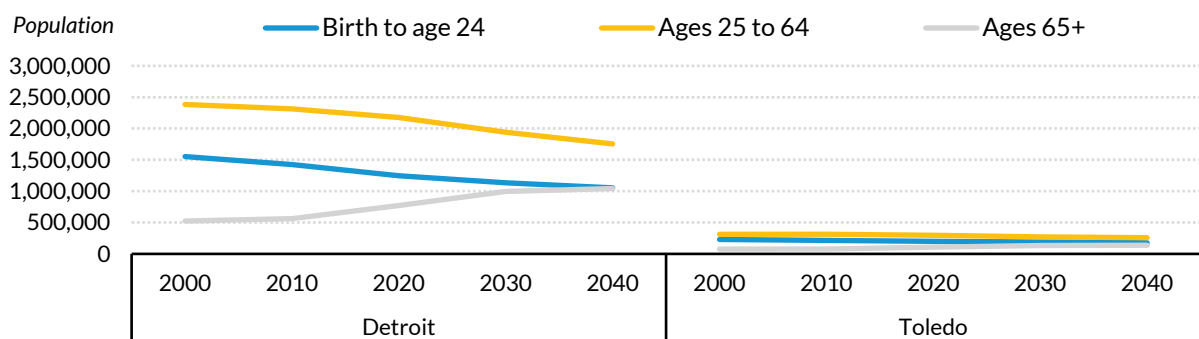


FIGURE 28C

Population by Age Group in Negative-Growth Great Lakes Metropolitan Areas, 2000–40



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Sources: Data for 2000 to 2010 come from Richelle Winkler, Kenneth M. Johnson, Cheng Cheng, Jim Beaudoin, Paul R. Voss, and Katherine J. Curtis, “Age-Specific Net Migration Estimates for US Counties, 1950–2010,” University of Wisconsin–Madison, Applied Population Laboratory, accessed January 26, 2018, <http://www.netmigration.wisc.edu/>. Data for 2010 to 2040 come from Rolf Pendall, Nan Marie Astone, Steven Martin, H. Elizabeth Peters, Austin Nichols, Kaitlin Franks Hildner, Allison Stolte, et al., “Mapping America’s Futures,” Urban Institute, accessed January 26, 2018, <http://apps.urban.org/features/mapping-americas-futures/>.

Indianapolis, Columbus, and the Twin Cities are projected to experience growth across all three age categories (figure 29). Chicago and Milwaukee are expected to see an increase in the size of the prime-working-age population (ages 25 to 64) but will experience large decreases in the size of the population younger than 25. Detroit and Toledo are projected to experience large decreases in the size of the population younger than 65 but will experience increases in the size of the population ages 65 and older.

**FIGURE 29A**

**Absolute Population Change by Age Group in Fast-Growth Great Lakes Metropolitan Areas, 2000–40**

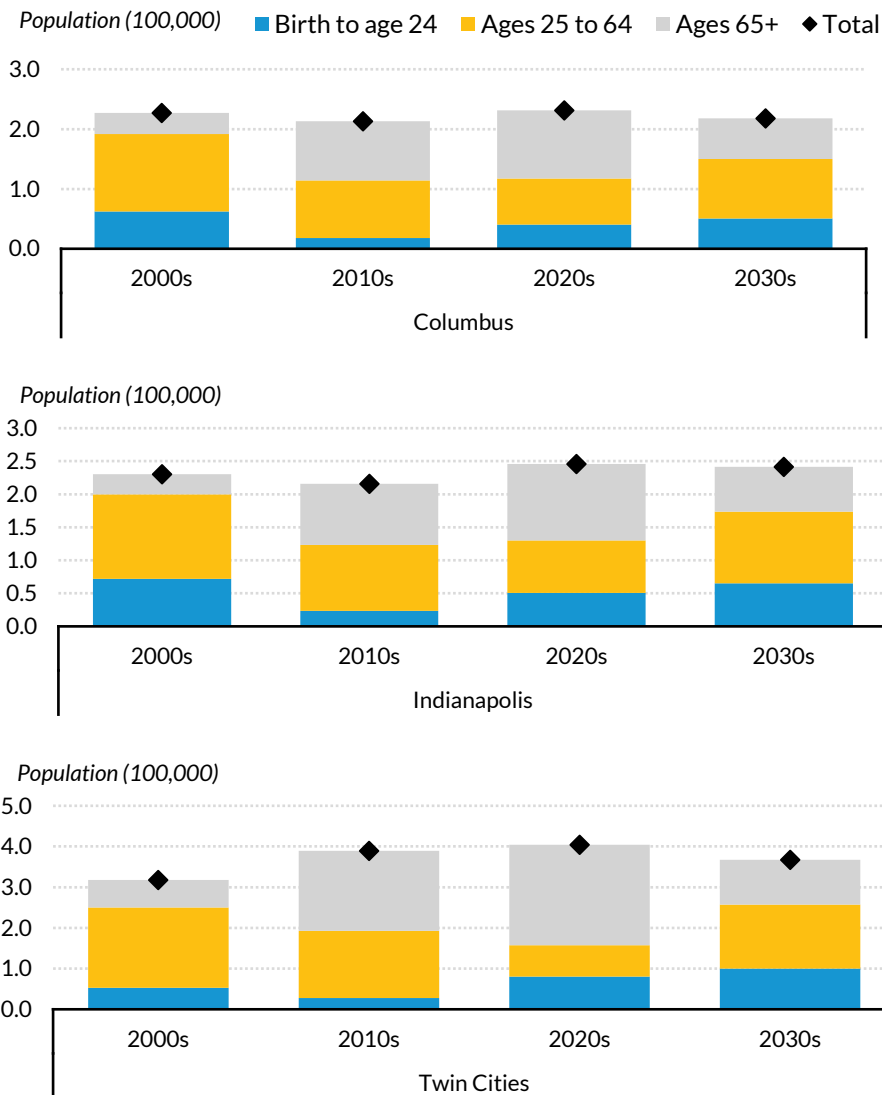


FIGURE 29B

**Absolute Population Change by Age Group in Slow-Growth Great Lakes Metropolitan Areas, 2000–40**

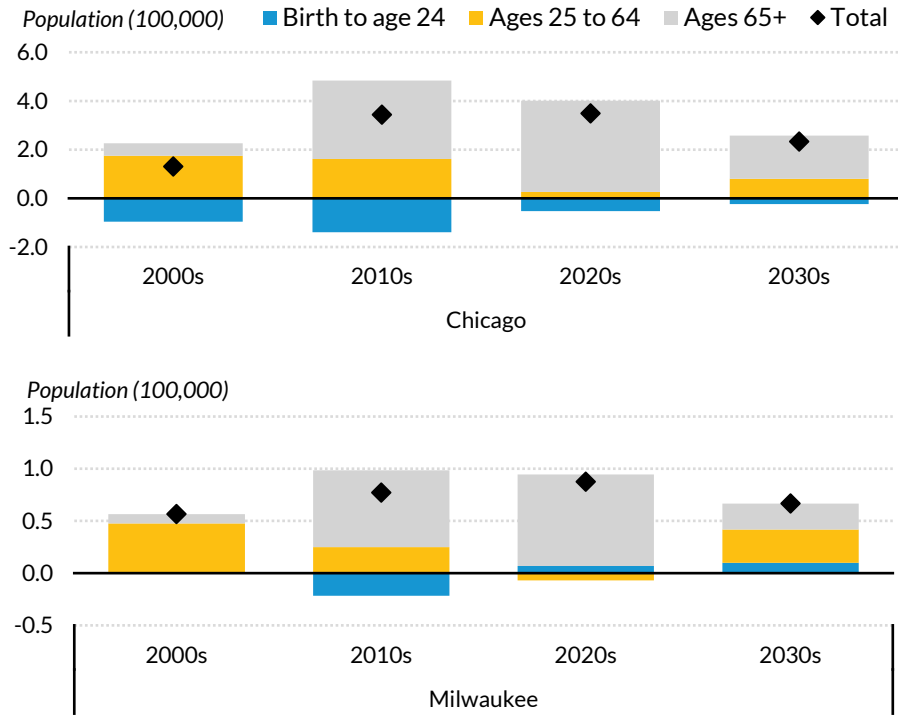
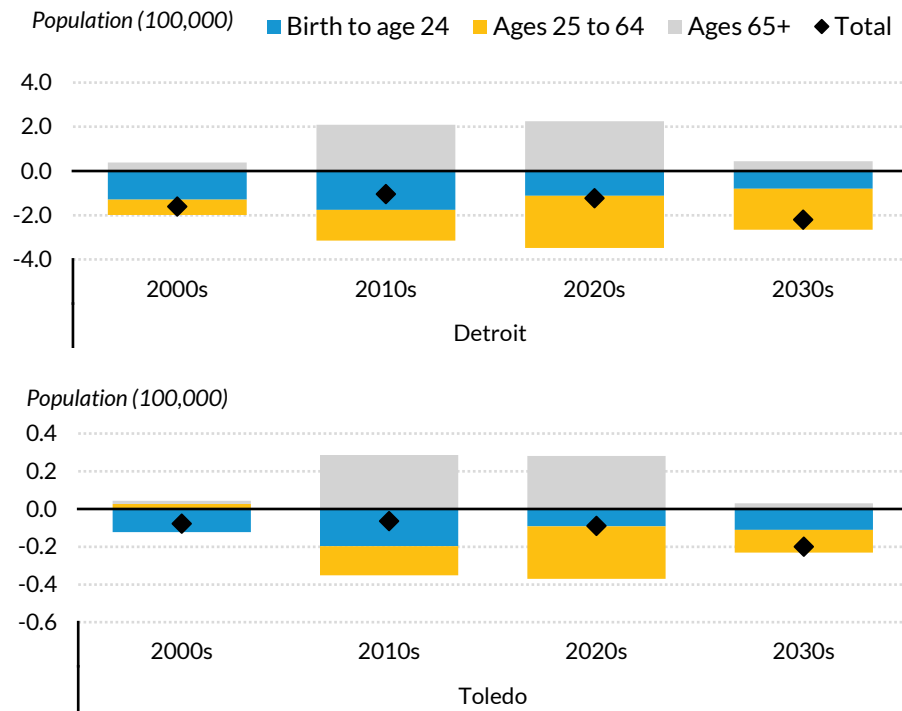


FIGURE 29C

**Absolute Population Change by Age Group in Negative-Growth Great Lakes Metropolitan Areas, 2000–40**



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**Sources:** Data for 2000 to 2010 come from Richelle Winkler, Kenneth M. Johnson, Cheng Cheng, Jim Beaudoin, Paul R. Voss, and Katherine J. Curtis, “Age-Specific Net Migration Estimates for US Counties, 1950–2010,” University of Wisconsin–Madison, Applied Population Laboratory, accessed January 26, 2018, <http://www.netmigration.wisc.edu/>. Data for 2010 to 2040 come from Rolf Pendall, Nan Marie Astone, Steven Martin, H. Elizabeth Peters, Austin Nichols, Kaitlin Franks Hildner, Allison Stolte, et al., “Mapping America’s Futures,” Urban Institute, accessed January 26, 2018, <http://apps.urban.org/features/mapping-americas-futures/>.

All seven metropolitan areas are expected to experience similar changes in the distribution of the population across the three age categories (figure 30). Between 2000 and 2040, the share of the population ages 65 and older will increase in all seven metropolitan areas (between 15.3 percentage points in Detroit and 7.9 percentage points in Indianapolis). At the same time, the share of the population ages 25 to 64 will fall in all seven (between 7.9 percentage points in Detroit and 1.4 percentage points in Chicago). The share of the population younger than 25 is also expected to decrease in all seven (between 8.4 percentage points in Chicago and 4.7 percentage points in Indianapolis).

FIGURE 30A

Population by Age Group in Fast-Growth Metropolitan Areas in the Great Lakes States, 2000–40

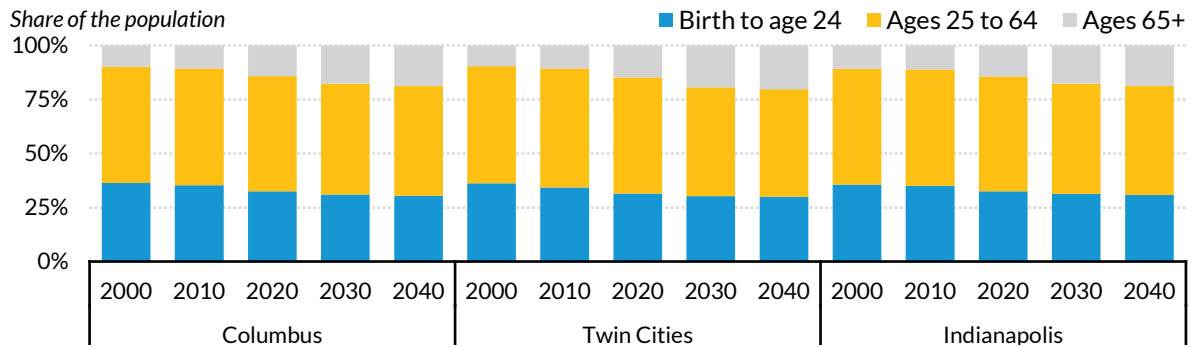


FIGURE 30B

Population by Age Group in Slow-Growth Metropolitan Areas in the Great Lakes States, 2000–40

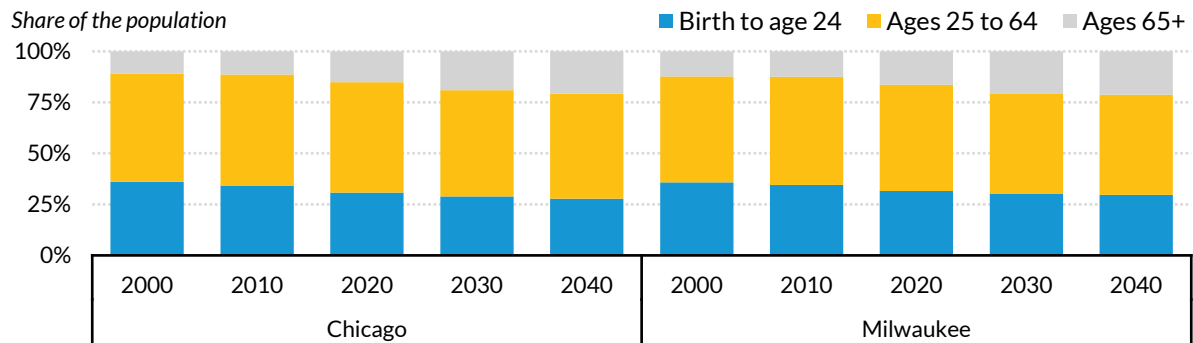
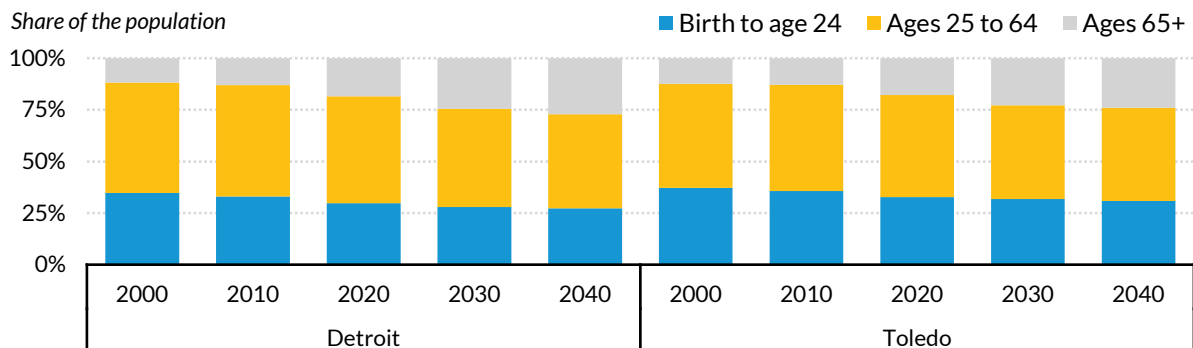


FIGURE 30C

Population by Age Group in Slow-Growth Metropolitan Areas in the Great Lakes States, 2000–40



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Sources: Data for 2000 to 2010 come from Richelle Winkler, Kenneth M. Johnson, Cheng Cheng, Jim Beaudoin, Paul R. Voss, and Katherine J. Curtis, “Age-Specific Net Migration Estimates for US Counties, 1950–2010,” University of Wisconsin–Madison, Applied Population Laboratory, accessed January 26, 2018, <http://www.netmigration.wisc.edu/>. Data for 2010 to 2040 come from Rolf Pendall, Nan Marie Astone, Steven Martin, H. Elizabeth Peters, Austin Nichols, Kaitlin Franks Hildner, Allison Stolte, et al., “Mapping America’s Futures,” Urban Institute, accessed January 26, 2018, <http://apps.urban.org/features/mapping-americas-futures/>.

## Changes in Segregation

Patterns of economic segregation within the Great Lakes region tend to follow national trends, with improvements between 1990 and 2000, followed by increasing segregation between 2000 and 2010. In 1990, economic segregation was worst in the Columbus, Milwaukee, and Chicago commuting zones (CZs). But economic segregation improved across all seven CZs between 1990 and 2000. By 2000, Detroit and Indianapolis had edged out Columbus and Milwaukee to be among the most economically segregated CZs after Chicago. By 2000, Chicago was the country's 9th-most-economically-segregated CZ. Detroit ranked 18th.

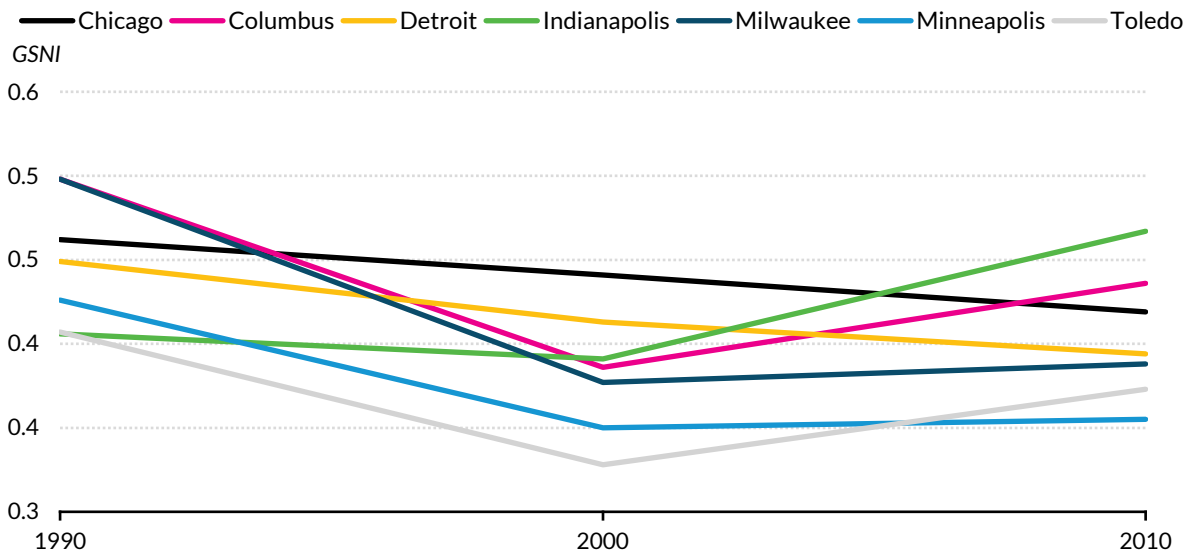
Between 2000 and 2010, economic segregation continued to improve in only Chicago and Detroit. Chicago experienced a dramatic change in its public housing stock while housing prices in Detroit's suburbs became more affordable. In both areas, a reduction in economic segregation was associated with a decrease in the population of poor people concentrated in the central city. Chicago became the country's 20th-most-economically-segregated CZ, and Detroit became 30th.

In all other CZs, economic segregation followed national patterns and worsened between 2000 and 2010, with the most dramatic shifts occurring in Indianapolis, Columbus, and Toledo. In 2000, Columbus had been the country's 26th-most-economically-segregated CZ, and Toledo ranked 52nd. By 2010, Columbus became the 33rd-most-economically-segregated CZ, and Toledo became 41st.

The shift was most dramatic in Indianapolis. In 1990, it was the least segregated CZ out of the seven in this report and ranked 53rd nationally. But by 2010, it had surpassed its level of segregation in 1990 to become the most segregated CZ in the region and the nation's 6th-most-segregated CZ. Only Indianapolis was more segregated in 2010 than it had been in 1990 (figure 31).

FIGURE 31

Economic Segregation in Great Lakes Commuting Zones, 1990–2010



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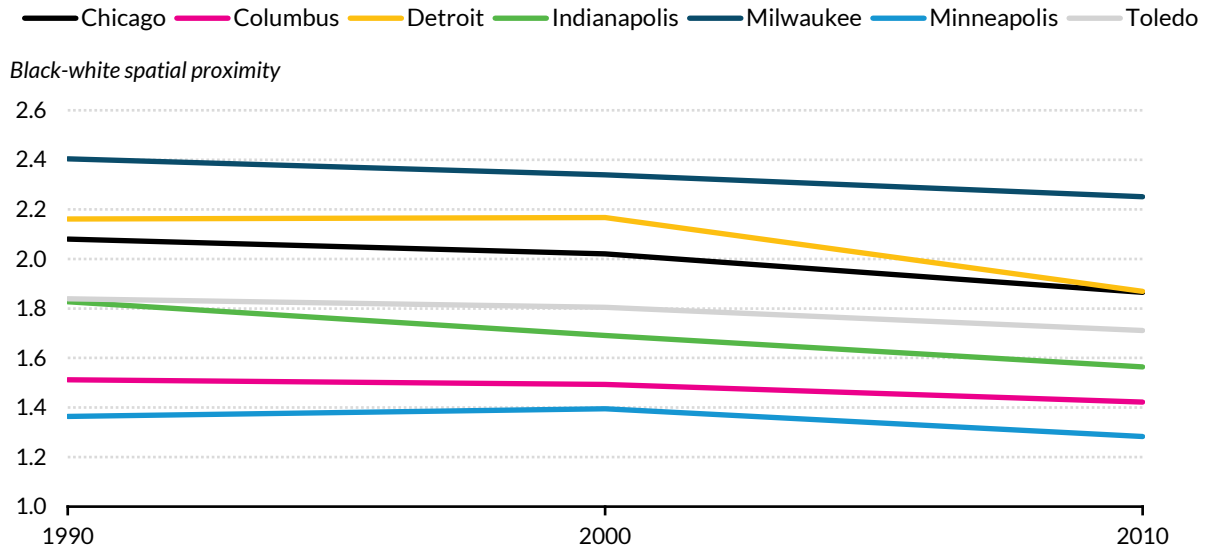
Source: Gregory Acs, Rolf Pendall, Mark Treskon, and Amy Khare, *The Cost of Segregation: National Trends and the Case of Chicago, 1990–2010* (Washington, DC: Urban Institute, 2017).

Note: The Generalized Neighborhood Sorting Index (GNSI) is a measure of the clustering of households by income ranging from 0.0 (complete integration) to 1.0 (complete segregation).

Black-white segregation in the region is among the worst in the country. Milwaukee was the most segregated CZ in the region and in the country in 1990, 2000, and 2010. Segregation in the Detroit and Chicago CZs has also been among the nation’s highest, consistently being among the country’s 10 most racially segregated CZs in 1990, 2000, and 2010. Racial segregation throughout the region has improved over the past 20 years, but the comparative amount of segregation across the CZs has not changed. The Milwaukee, Detroit, and Chicago CZs continue to have the most black-white segregation in the region, while the Toledo, Indianapolis, Columbus, and Minneapolis CZs continue to have the least (figure 32).

FIGURE 32

Black-White Segregation in Great Lakes Commuting Zones, 1990–2010



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**Source:** Gregory Acs, Rolf Pendall, Mark Treskon, and Amy Khare, *The Cost of Segregation: National Trends and the Case of Chicago, 1990–2010* (Washington, DC: Urban Institute, 2017).

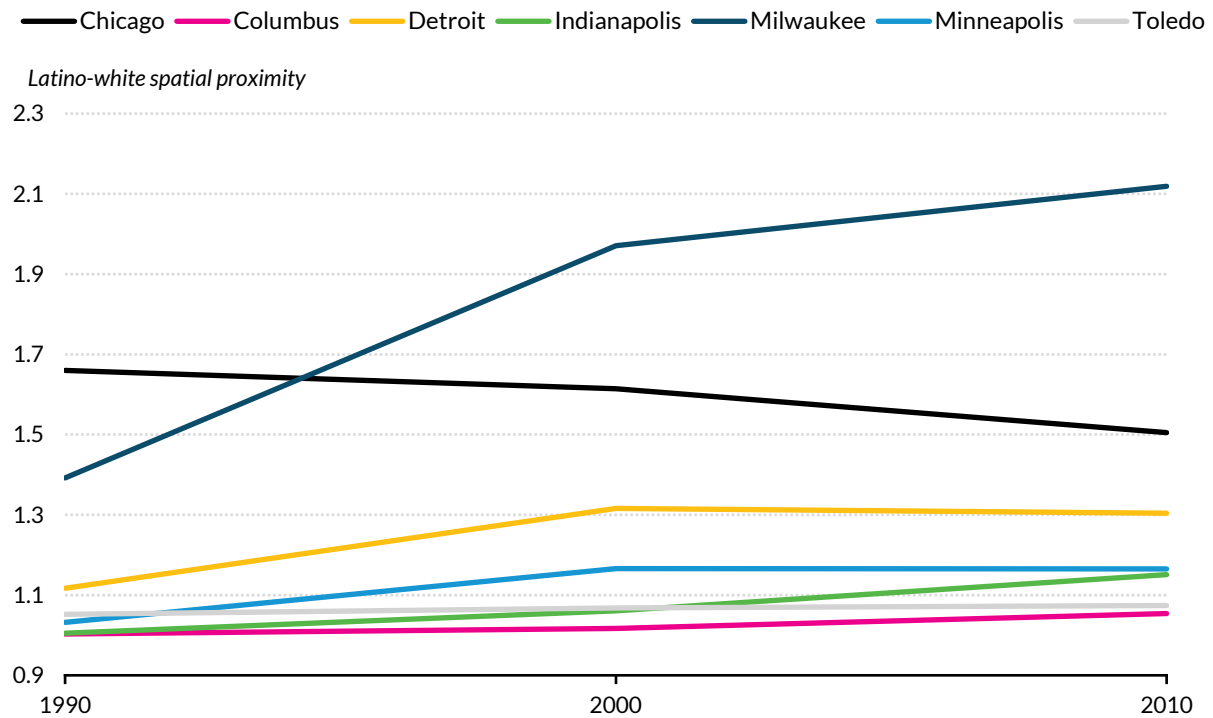
**Notes:** The spatial proximity index (SP) is a measure of the clustering of people of one race vis-à-vis people of another race with a lower bound usually about 1.0 and no theoretical upper bound. Milwaukee’s black-white SP index is the highest in the US.

The Chicago and Milwaukee CZs have consistently had some of the highest levels of Latino-white segregation in the region and in the country. In 1990, segregation within the region was the worst in Chicago (the country’s 3rd-most-segregated CZ) and Milwaukee (the country’s 11th-most-segregated CZ). Chicago and Milwaukee remained the most segregated CZs in the region in 2000 and 2010, although Milwaukee edged out Chicago to become the country’s 2nd-most-segregated CZ in 2000 and in 2010. Chicago improved slightly but remained among the 10 most Latino-white segregated cities in 2000 and 2010. Latino-white segregation was consistently lowest in the Columbus, Indianapolis, Minneapolis, and Toledo CZs (figure 33).



FIGURE 33

Latino-White Segregation in Great Lakes Commuting Zones, 1990–2010



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**Source:** Gregory Acs, Rolf Pendall, Mark Treskon, and Amy Khare, *The Cost of Segregation: National Trends and the Case of Chicago, 1990–2010* (Washington, DC: Urban Institute, 2017).

**Notes:** The spatial proximity index (SP) is a measure of the clustering of people of one race vis-à-vis people of another race with a lower bound usually about 1.0 and no theoretical upper bound. Milwaukee’s Hispanic-white SP index was the second highest in the US in 2010.

## Overall Outlook and Implications

A population’s changing demographic profile can have important consequences for the economy and for governments. This section discusses the Great Lakes region’s overall outlook and implications for policymakers.

Many characteristics of the Great Lakes population are “locked in”—in particular, the aging of the baby boomers. Some boomers will continue leaving the region upon retiring (and few will migrate in), but most will remain there. The population ages 65 and older will grow over the next 25 years, and in most parts of the Great Lakes region, the population younger than 65 will decline.

An aging population dampens economic performance. A recent forecast of the impact of aging on US economic performance suggests in states where the number of seniors is already growing, that growth is reducing overall productivity (Maestas, Mullen, and Powell 2016). Productivity has fallen not only in the aggregate but for workers of all ages—even younger ones. Maestas, Mullen, and Powell (2016) suggest that workers ages 60 to 69 experience falling productivity as seniors age because those who retire may be more productive on average than those who stay in the workforce and because growth in the number of older workers drives down wages for this age group. Younger workers might experience falling productivity because of the decline in the number of older colleagues whose experience translates into positive spillovers. The data and model suggest that older workers and younger workers are complementary to one another in local economies and that the loss of the older group has negative impacts on the younger.

The implications of demographic change for the Great Lakes region and its constituent states and metropolitan areas are discussed at length in *The Future of the Great Lakes Region* (Pendall et al. 2017). The report recommends that the region

- improve the pathway from cradle to career and among careers so that people born in or moving to the Great Lakes region can reach their full potential,
- respond to the need for programs and policies that will support successful aging, and
- improve the institutional infrastructure for evidence-based decisionmaking.

In a series of policy briefs, we lay out a portfolio of evidence-based approaches to early childhood development (Katz 2017), K-12 education (Gallagher and Chingos 2017), workforce development (Spaulding 2017), improvements in criminal justice and violence reduction (Jannetta and Okeke 2017), and safety net programs (Hahn 2017) that will support future prosperity and well-being for residents and the economy in the Great Lakes region. We also synthesize these recommendations in our “Building Ladders of Opportunity for Young People in the Great Lakes” synthesis brief (Hahn et al. 2017a) and companion executive summary (Hahn et al. 2017b).

# Appendix

We used data from the Urban Institute’s Mapping America’s Futures web-based tool to project future populations for the Great Lakes region, states, and key metropolitan areas. Nichols, Martin, and Franks (2015) provide a detailed description of the 2015 version of the Mapping America’s Futures methodology, but this appendix outlines some of the assumptions we used. The methodology for Mapping America’s Futures undergoes periodic updates, so results presented in this report could be adjusted in a future update of the tool.

For births, we assume the following:

- National birthrates will match US Census projections for future birthrates by women’s age, race, and ethnicity.
- Each county’s birthrate will maintain its current ratio to national birthrates, adjusted for women’s age, race, and ethnicity. (Each county had fewer, the same, or more births from 2000 to 2010 than one would predict from national birthrates. We calculated each county-nation ratio for 2000–10 and kept it constant to 2040.)

For deaths, we assume the following:

- National deathrates will match US Census projections for future deathrates by gender, age, race, and ethnicity.
- Each state’s deathrate will maintain its current ratio to national death rates, adjusted for gender, age, race, and ethnicity. (Given the small number of deaths in most age categories, it was impossible to generate reliable county-nation death ratios.)

For migration, we assume the following:

- Each county’s net migrants for each gender, age, and racial or ethnic category is projected to be the same as in 2000–10.
- Net out-migration from any gender, age, or race cell will not exceed 10 percent of the population in that cell per five years.

These assumptions are within bounds generally accepted by demographers, and they hold up well in tests using historical data before 2000 and in comparisons of their 2010–15 projections to published 2015 midyear population estimates from the US Census Bureau. But no assumptions will ever be spot-on. Particularly for migration, new patterns can emerge that are a sharp departure from the past. Among the Great Lakes states, recent census estimates indicate that Michigan’s high rate of out-

migration from 2000 to 2010 became smaller from 2010 to 2015, while Illinois experienced sharper out-migration rates from 2010 to 2015 than from 2000 to 2010. Accordingly, Michigan's estimated population in 2015 is about 1 percent higher than Mapping America's Futures would project, while Illinois's population is about 1 percent lower, with the other states projections closer to target so far.

# Notes

1. For this analysis, we focus on Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin. Most definitions of the Great Lakes region also include New York and Pennsylvania.
2. Natural increase refers to the difference between the number of births and number of deaths.
3. Net international migration refers to the difference between the number of people moving into and out of the US. Domestic migration cannot affect the size of the population, as it describes the movement of people from one place to another within the US.
4. Fertility rates in the Great Lakes are only lower because the share of their population that is female and of childbearing age is lower compared to the US average. Minnesota had the region's highest state-level fertility rate in 2016, with 66.1 births per 1,000 women ages 15 to 44, well above the national rate (62.0). Indiana (64.3) also exceeded the national average, as did Ohio (62.8). Michigan (60.5), Illinois (60.6), and Wisconsin (61.6) were below average. See Martin, Joyce A., Brady E. Hamilton, Michelle JK Osterman, Anne K. Driscoll, and Patrick Drake. "Births: Final data for 2016." *National Vital Statistics Reports* 67(1): January 31, 2018.
5. The birthrate is the number of births per resident in the state, which is affected by both the number of women of childbearing age and the fertility rate (i.e., the number of live births per 1,000 women ages 15 to 44).
6. Data in this section are from the American Community Survey annual 1 percent survey via the Integrated Public Use Microdata Series.
7. Puerto Ricans and residents of other US possessions total between 10,000 and 15,000 of these annual arrivals to the Great Lakes region. The American Community Survey does not have data on US residents living abroad or in Puerto Rico or data on foreign-born people who leave the US.
8. We used two methods to estimate departures from the Great Lakes region to foreign countries. First, estimates for the US as a whole suggest that annual foreign-born emigration from the US is between 15 and 20 percent of annual immigration. Bhaskar, Arenas-Germosén, and Dick (2013) suggest that about 200,000 foreign-born people emigrate from the US each year, compared with about 12.2 million who immigrate to the US. Flows of US citizens include about 200,000 more who enter the US from Puerto Rico than vice versa and a net of about zero emigrants and US citizens who return or arrive after having been born abroad to US citizens. If that relationship holds true for the Great Lakes states, between 20,000 and 25,000 foreign-born people would have left the US from the Great Lakes region annually, on average, from 2007 to 2015. If we assume that the number of Great Lakes residents who move overseas to work or study abroad or with the intention to retire, that would add another 70,000 to 75,000 native-born residents leaving the US each year from the Great Lakes region. This would yield about 95,000 to 100,000 departures from the US annually. A second estimate is based on the logic that the estimated annual change in the region should add up to natural increase (births minus deaths) plus net migration. Because we have both components of natural increase, three of the four components of net migration (domestic in- and out-migration and international in-migration), and annual population estimates, we can estimate international out-migration as the difference between net estimated change and the net of natural increase and the three known components of natural increase. This method yields an estimate averaging about 150,000 per year, exceeding the estimate yielded by applying a constant ratio to known immigration. The annual estimates of outmigration produced by this residual method suggest that a larger number of people left the US for destinations abroad from 2010 to 2012. This would be consistent with research using other sources suggesting that the number of people returning to Mexico from the US exceeded the number arriving from the US from 2009 to 2014, compared with an approximately equal exchange from 2005 to 2010. Since 2012, the annual emigration estimates produced by this residual method have come closer to the 95,000-to-100,000-person level produced by the first method of estimation.
9. In this report, "white" refers to the non-Hispanic White population, "black" refers to the non-Hispanic Black population, and "other" refers to the non-Hispanic population reporting another race or multiple races. The "multiple races" category has been an available choice since 2000.

10. Between 2000 and 2010, the Hispanic population experienced an annual growth rate of 3.76 percent, compared with only a 0.60 percent annual growth rate in the black population, a negative growth rate in the white population (-0.10 percent), and an overall annual regional growth rate of 0.33 percent.
11. We define the Chicago region as the six Illinois counties of the Chicago-Naperville-Arlington Heights metropolitan division (within the larger Chicago-Naperville, IL-IN-WI combined statistical area).
12. Alternate forecasts accounting for the Detroit region's strong recent economic performance (and that of the automotive sector, in particular) project population growth for the region. Recent projections from the Michigan Department of Transportation Planning Division, Statewide and Urban Travel Analysis Section, and the University of Michigan Institute for Research on Labor, Employment, and the Economy show the regional population growing to 5.06 million by 2040. For more discussion, see Treskon and coauthors (2017).

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