RESEARCH REPORT

The Future of the Great Lakes Region

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Executive Summary

The Great Lakes region has become a significant focal point in our national political discourse. Beyond its political influence, the region holds a critical position in debates about the future of the United States and fostering broad-based prosperity nationwide. Many of the country's social, economic, and political challenges are playing out in this region, home to 50 million people.

During the first decade of the 2000s, manufacturing employment in the six state region—Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin—fell by over one-third. Manufacturing has begun to rebound, but communities throughout the region are still dealing with the direct and ripple effects of this unprecedented blow to their economic base. Incomes fell substantially, government revenues declined, and young people moved away from the region.

A more complete recovery of employment and incomes cannot come too soon, considering the challenges the region faces. The proportion of its residents who are 65 and over is growing rapidly, portending challenges that other regions in the United States are already confronting or will soon need to confront. Rural areas and small cities have been hard hit by manufacturing job loss. In some areas of the region, rising levels of opioid addiction and overdose deaths are stressing families, community health centers, and law enforcement. In cities, too many people of color live in neighborhoods with high levels of racial segregation, poverty, and violence amid the legacy of polluted manufacturing sites from past decades. State and local governments in the Great Lakes states face growing fiscal constraints. As these challenges grow, residents need to be able to see themselves in the region's future, and leaders need an evidence-based vision for how broad-based prosperity can be achieved.

Despite these severe challenges, ample evidence suggests the Great Lakes region has a strong foundation that can sustain future economic and population growth and higher levels of prosperity. It still has a strong and diverse economic base; a population with increasing diversity by age, race, and national origin; and growing numbers of skilled workers. Further, the region has many significant assets that can be leveraged to support its future prosperity: the perennial resilience and innovation of its manufacturers, a wealth of colleges and universities, strong philanthropic and civic organizations, and natural resources such as the Great Lakes themselves. If decisionmakers in the Great Lakes build on these strengths, working intentionally to foster the productivity and well-being of everyone who lives there, the region will innovate and sustain greater prosperity in the future.

Looking Back: Manufacturing Collapse, but Steady Population and Economic Growth

- **After almost two decades of rebuilding and stability, manufacturing employment collapsed starting in 1999.** From 2000 to 2010, the region shed nearly 1.6 million manufacturing jobs, a decline of 35 percent. From 2010 to 2015, manufacturing employment rebounded in the Great Lakes by about 350,000 jobs, but this recovery still left over 1.2 million (27 percent) fewer manufacturing jobs than the region had in 2000.

- **Notwithstanding the net loss of manufacturing jobs from 2000 to 2015, the total number of jobs in the Great Lakes grew.** In all, the region added 1.2 million jobs from 2000 to 2015. Health care and social assistance added over 850,000 jobs, and broad additional gains occurred in the service sector. But the only real growth over this period occurred at the low end of the wage scale, as midwage work declined and jobs at the top stagnated.

- **In the wake of large manufacturing job losses, median incomes dropped dramatically.** From 2000 to 2010, median household income dropped more sharply in five of the six states—Minnesota being the lone exception—than in the United States as a whole. Michigan's 19.6 percent loss was the most severe of any state, sending it from a level 6 percent higher than the US median to 9 percent below.

- **Demographic forces have helped the Great Lakes continue to add population despite the manufacturing job crisis.** The region's population grew steadily from 46 to 52 million between 1990 and 2015. Population growth remained positive on average through the Great Recession (2007 to 2015) thanks to about 650,000 births annually and 820,000 arrivals from other states and foreign countries. Births and in-migration more than compensated for 450,000 or so deaths each year and about 900,000 departures to other states and foreign destinations.

- **The region reflects a national trend toward a more diverse age structure but lags behind the national level of diversification by race and nativity.** Because of the aging of the baby boomer generation, 15 percent of Great Lakes residents were 65 or older in 2015. Another 13 percent were 55 to 64, slightly more than elsewhere in the United States. From 1990 to 2015, the region's white, native-born population was stable or declined, but African American, Hispanic, and other nonwhite groups grew rapidly; the foreign-born population also grew to over 8 percent of residents. Even with this growing diversity, however, the Great Lakes population of 2015 remained less diverse by race and nativity than other states had been as of 2000.

Looking Ahead to 2040: Gradual Population Growth and Stabilization of the Labor Force

- **Population growth will continue to slow.** Gradually, the four sources of population change—births, deaths, in-migration, and out-migration—will contribute about 3.2 million residents from 2015 to 2040 (growth from 52.3 to 55.5 million). Births will outnumber deaths until about 2030. In-migrants and out-migrants will be close to parity for the foreseeable future, with potential for more growth if young adults already growing up in and moving to the Great Lakes have more reasons to stay.
- **The region's population will continue to diversify by age and race/ethnicity.** The number of seniors will grow from 8 million to over 13 million between 2015 and 2040, but younger age groups will shrink due to net out-migration and a slight drop in the number of births. People of color and the children of immigrants will lead population growth, increasing racial and ethnic diversity. Even so, it will take until 2040 for the Great Lakes to attain today's national level of diversity.
- **Labor force growth will slow to about zero as retirements increase and out-migration continues.** The retirement of older workers and out-migration of those in their thirties and forties will reduce the size of the labor force. But the total labor force will decline only slightly because young people will continue to enter the labor force.
- **Manufacturing will continue to matter.** After years of decline and restructuring, the remaining industries will still be an important source of employment and high-wage jobs in the Great Lakes.

The Enduring Challenge of Racial and Geographic Disparities

- **Educational attainment is growing, but racial disparities persist.** The number and proportion of workers with associate's and four-year college degrees will continue to increase, but the increase will be marked by disparities between African Americans and Hispanics on the one hand and whites and Asians on the other.

- **City neighborhoods and rural communities throughout the Great Lakes are distressed**. In too many Great Lakes cities, racial and economic segregation separates vulnerable and low-income people from opportunity and exposes them to high levels of toxic pollution and crime. Demographic change and economic stress have also reduced the vitality of rural, suburban, and urban county seats, straining the ability of their local governments, nonprofits, churches, and schools to keep up with the critical functions required by distressed neighborhoods and communities.

Implications for the Region: Toward Future Prosperity

We highlight two overarching goals for improving the quality of life and economic mobility of residents of the Great Lakes region and highlight potential strategies to support them.

Invest in People to Ensure Broad-Based Prosperity and a High Quality of Life

- Build ladders of opportunity and economic mobility for young people, especially young people of color.
- Welcome and integrate immigrants and their children so that they move to the region, stay there, and become economically productive.
- Support the health, economic security, and public engagement of older adults.
- Address the stressors facing distressed communities in the region, including not only the most populous cities long associated with these issues, but also the suburban, smaller city, and rural communities increasingly under stress.

Reform and Align Civic and Budgetary Efforts to Support Future Growth and Prosperity

- Invest in children and young adults even as demands increase to support the health and welfare of older adults.
- Focus on economic development policies that create jobs instead of just moving jobs around.

- Undertake structural budget reforms to address the impact of an aging population on public revenue streams and expenditures, especially unfunded obligations as pensions.
- Implement new systems for civic engagement and decisionmaking at the state and local levels.
- Create mechanisms for state and local governments to support the current and future capital costs of vital infrastructure, including water and energy utilities.

Looking Back, and Looking Forward

The first section of this report presents background on recent and future trends in the Great Lakes region's population, economy, and environment, relying on an array of background sources and the Urban Institute's own projections and models. The second section uses additional background and policy research to point toward policy changes that could be considered as potential responses to past and future challenges.

Manufacturing Collapse of 1999–2009

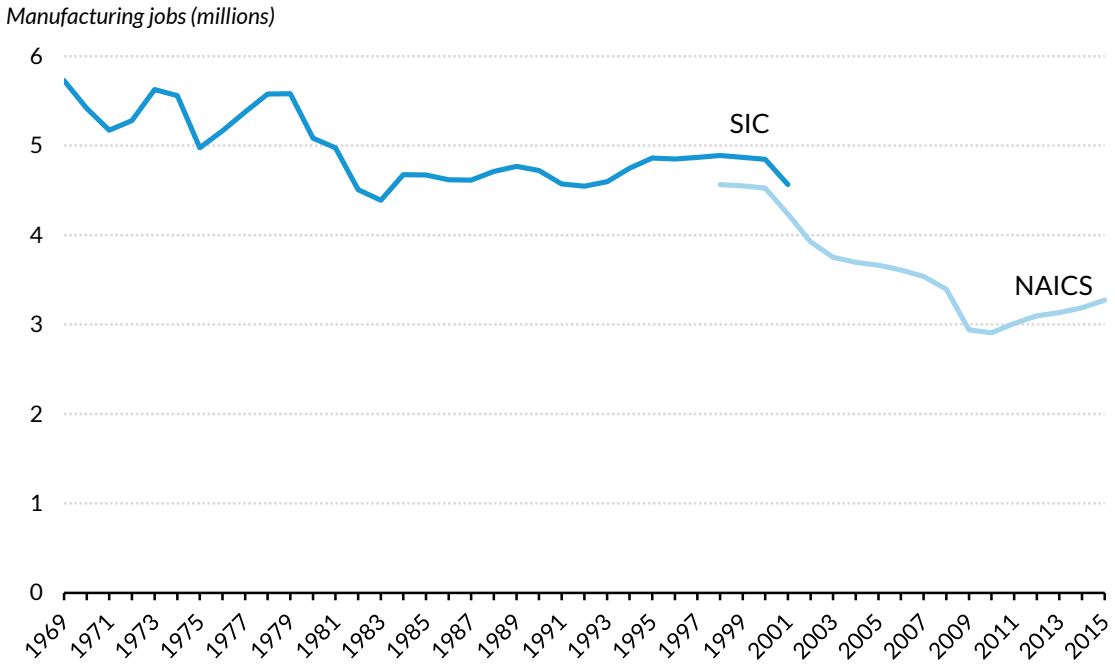
After almost two decades of rebuilding and stability, manufacturing employment collapsed from 1999 to 2009. Manufacturing drives the Great Lakes economy, and when manufacturing is in trouble nationally, the Great Lakes feels it more viscerally than most other large regions. About 10.5 percent of Great Lakes jobs in 2015 were in manufacturing, compared with just 6.9 percent nationally; all six Great Lakes states (Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin) have higher proportions of workers in manufacturing than the national average, led by Indiana at 14 percent. Moreover, manufacturing accounted for 18 percent of the gross regional product (GRP) of the Great Lakes states in 2014, compared with just 11 percent of the US gross domestic product.[1] Great Lakes manufacturers specialize in a range of durable and nondurable goods production, from motor vehicles and transportation in Michigan, Indiana, and Ohio to wood and paper in Minnesota and Wisconsin.

In the 1970s, the Great Lakes suffered successive shocks from foreign competition, inflation, oil price increases, and movement of manufacturing to southern states. After a turbulent decade manufacturing employment stabilized, and by 1999 the region had reached higher employment levels than at any time since 1980 (figure 1).

However, a much deeper manufacturing employment crisis swept the entire US economy starting in 1999. From 2000 to 2010, the region shed nearly 1.6 million manufacturing jobs, a decline of 35 percent (figure 1). Michigan was especially hard hit, losing 45 percent of its manufacturing jobs from 1998 to 2010: a decline from 912,000 to 499,000. Ohio, Illinois, and Indiana lost 38, 34, and 32 percent of their manufacturing jobs, respectively.

FIGURE 1

After Two Decades of Stability, Great Lakes Manufacturing Jobs Plummeted from 1999 to 2009



Source: US Department of Commerce Bureau of Economic Analysis Regional Economic Accounts, series CA25 and CA25N.
Note: In the late 1990s, the United States reclassified all its economic activity from the Standard Industrial Classification (SIC) system to the North American Industrial Classification System (NAICS), resulting in the shifting of some manufacturing activities to other sectors. These data show both full- and part-time jobs.

These job losses were part of a nationwide plunge in manufacturing employment precipitated most directly by the Asian financial crisis of 1997, which caused the value of the US dollar to rise. Consequently, US exports were less attractive in Asia, and Asian imports were more appealing to American consumers between 1997 and 2002 (Scott 2015). Just two years later, the dot-com bubble burst, directly affecting high-technology manufacturing in Illinois and Minnesota. The indirect impact of the dot-com crash was also important, because it began a longer period (to which the 9/11/2001 attacks also contributed) of dampened demand for durable manufactured goods.

The centrality of motor vehicle manufacturing in Michigan, Indiana, and Ohio exacerbated the stresses resulting from manufacturing losses in these states as the global auto industry automated and outsourced employment, particularly to Mexico, in the face of long-term overcapacity in car manufacturing and fast-rising oil prices from 2001 to 2008. Rising oil prices depressed demand for new

cars, especially the fuel-hungry sport utility vehicles from which US vehicle manufacturers profited in the 1990s.

Manufacturing jobs rebounded after the recession, increasing 12 percent overall from 2009 to 2014, but even so, 22 percent fewer manufacturing jobs remained in the region in 2014 than in 2000. The resurgence centered mainly in the auto sector in Michigan and Indiana, where manufacturing jobs grew by 23 and 16 percent, respectively.[2] Manufacturing in Illinois, by contrast, grew only 4 percent from 2009 to 2014, with 9 percent growth in Wisconsin and Minnesota and 11 percent growth in Ohio rounding out the picture of an uneven manufacturing recovery.

The manufacturing crisis hit higher-wage jobs in the Great Lakes region especially hard, and the recovery has mostly been restricted to the lowest-wage jobs. From 2000 to 2010, according to US Census population surveys, the number of people working in manufacturing establishments fell by 31 percent, but the number earning less than $11.09 hourly (the lowest wage quartile nationally for all workers, averaged over the 2000 to 2015 period) fell by only 17 percent.[3] Meanwhile, employment declined by about one-third in each of the three highest quartiles. From 2010 to 2015, the manufacturing workforce rebounded by about 146,000 (4.2 percent), a recovery that was concentrated in the lower half of the wage distribution: the lowest quartile grew by 15 percent, and the second-lowest ($11.09 to $17.82 per hour) by 10 percent. The second-highest quartile, with earnings up to $28.52 hourly, continued to lose workers (a drop of about 3 percent), and the highest quartile grew by only 1 percent. As a consequence of these unequal losses and gains, between 2000 and 2015 the lowest-quartile workers grew from 12.6 to 16.5 percent of all Great Lakes manufacturing workers while the second-highest quartile workers fell from 32.5 to 28.9 percent and the highest quartile workers decreased from 29.7 to 28.6 percent. The weakening of the top-wage quartile in Great Lakes manufacturing contrasts with changes in other states, where the top quartile grew from 26.4 to 31.1 percent of manufacturing workers from 2000 to 2015.

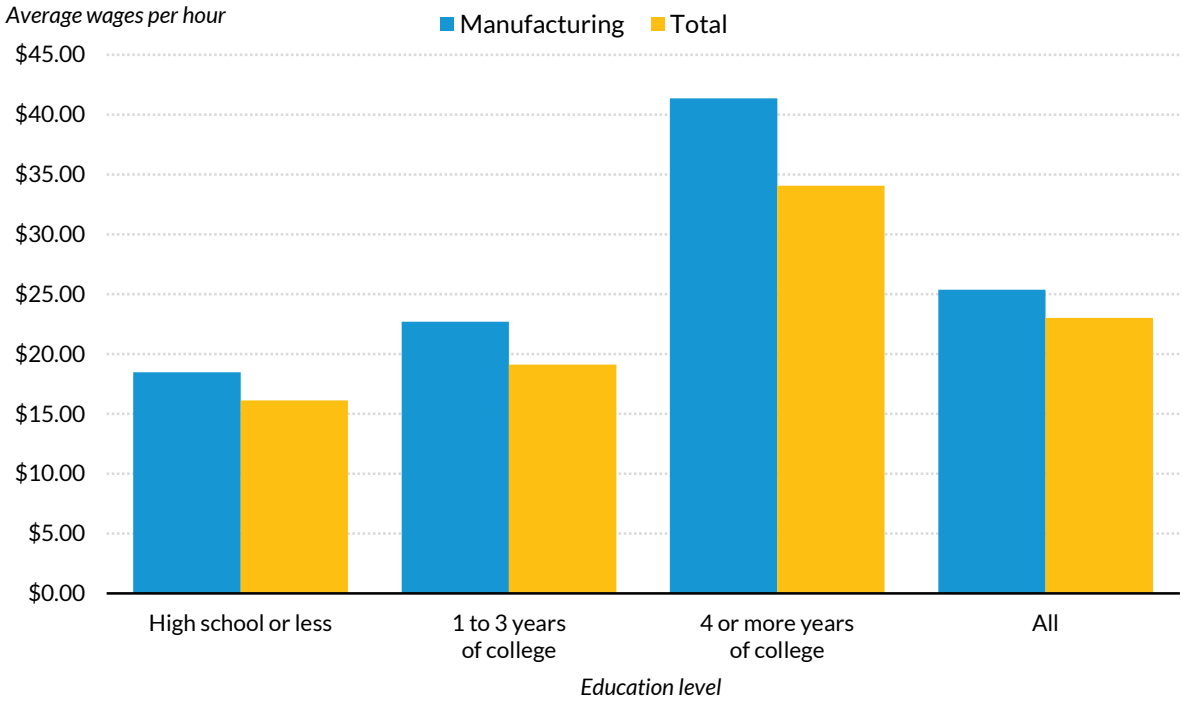
Aside from the shift toward lower-wage work, the most pronounced shift for the manufacturing workforce has been in its age structure. From 2000 to 2015, the number of manufacturing workers under age 45 dropped from 3.15 to 1.84 million, a 42 percent decline; the number of workers ages 45 to 64 years old dropped from 1.83 to 1.69 million (an 8 percent decline). People between 45 and 64 years accounted for 36 percent of manufacturing workers in 2000, but in 2015 they constituted 46 percent. Even with this level of job loss, manufacturing made a steady contribution to GRP in the six-state region, accounting for 18.1 percent of GRP in both 1997 and 2014. (At its lowest point, in 2010, manufacturing accounted for 17.4 percent of GRP.) Income per job in manufacturing—about $78,000 in 2015, measured in 2015 US dollars—significantly exceeded the average income per job overall in the Great

Lakes ($55,400) and was about 6.4 percent higher in real terms than average income per job in 2001. Even though the average wage for manufacturing workers has declined since 2000, it remains higher than the hourly wage in other sectors for workers at all levels of formal education (figure 2).

FIGURE 2

Average wages for Manufacturing Workers Exceed the Average, Regardless of Education Level

Estimated wages per hour, Great Lakes manufacturing workers, 2015



Sources: 2000 US Census 5 percent sample and 2015 American Community Survey 1 percent sample, extracted by Urban Institute from Steven Ruggles, Katie Genadek, Ronald Goeken, Josiah Grover, and Matthew Sobek, *Integrated Public Use Microdata Series: Version 6.0* [Machine-readable database] (Minneapolis: University of Minnesota, 2015).
Notes: Self-reported data are estimates by household respondents for all members of their households. To avoid extreme outliers and protect against respondent errors, estimates were restricted to respondents who reported working at least 11 hours per week and at least 14 weeks in the previous year and to workers with computed wages over $1 and under $1,000 per hour.

Employment Gains since 2000 came Entirely in Low-Wage Jobs, Resulting in Sharp Income Declines

Notwithstanding the net loss of manufacturing jobs from 2000 to 2015, jobs in the Great Lakes grew. In 2000, there were about 30.2 million full- and part-time jobs in the Great Lakes; by 2015, that number

had grown to 31.3 million (3.7 percent higher) (table 1). Although manufacturing jobs declined by over 1.2 million, other sectors combined to compensate. Health care and social assistance led the way, with job growth over 850,000, followed by accommodation and food service (319,000). Private-sector educational services; professional, scientific, and technical services; and administrative services also contributed between 250,000 and 300,000 each to the region's job growth.

TABLE 1

Job Growth and Decline in the Great Lakes by Major Sector, 2000–15 (thousands)

Sector	Change in jobs
Job change in growing sectors	**3,171**
Health care and social assistance	851
Real estate	362
Accommodation and food services	319
Educational services	283
Professional, scientific, and technical services	268
Administrative services	262
Other growing sectors[a]	827
Job change in declining sectors	**-1,969**
Manufacturing	-1,243
Retail trade	-309
Construction	-152
Information	-122
Other declining sectors[b]	-144
Total job change	**1,202**

Source: US Department of Commerce Bureau of Economic Analysis Regional Economic Accounts, series SA25N.
[a] Other growing sectors include other services; transportation and warehousing; finance and insurance; arts, entertainment, and recreation; mining; state government; and wholesale trade.
[b] Other declining sectors include federal civilian and local government, military, and utilities.

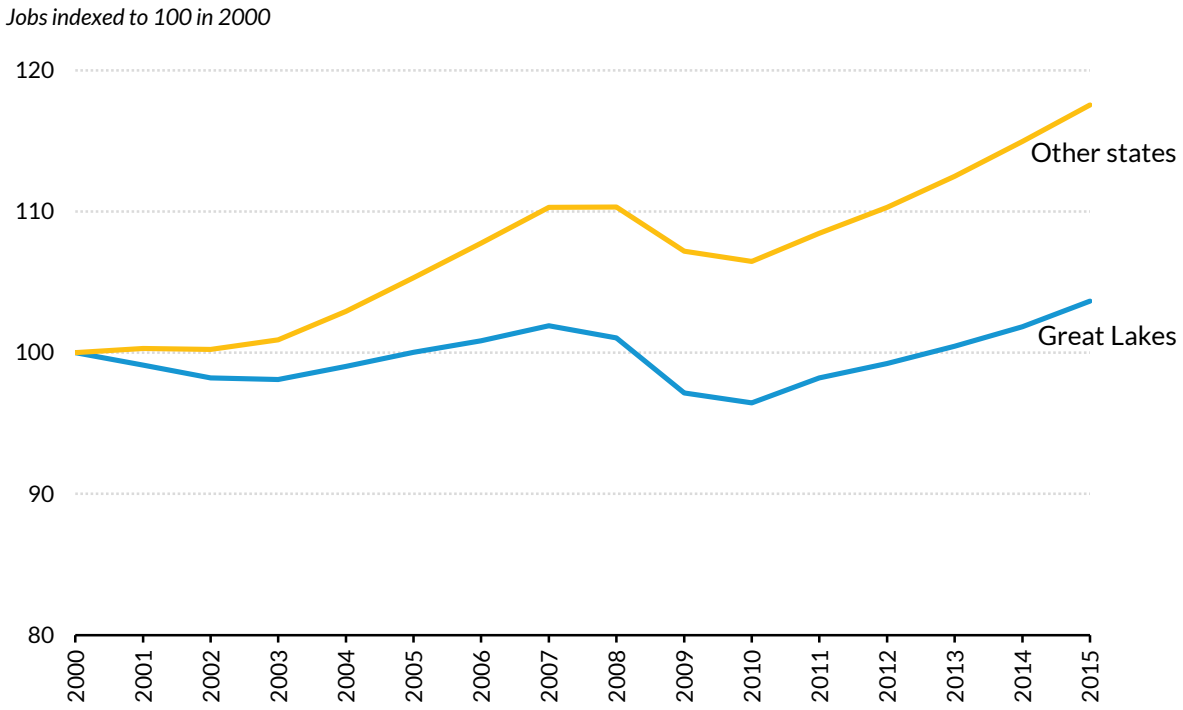
These growing sectors made up for losses in sectors beyond manufacturing. Retail trade shed 309,000 jobs (a 9 percent loss) from 2000 to 2015, construction jobs declined by 152,000 (14 percent), and information-sector jobs (mainly in software development and publishing) dropped by 122,000 (over 21 percent). A combination of federal civilian, local government, and military jobs and jobs in utilities accounted for another 144,000 net lost jobs from 2000 to 2015.

Other states exceeded the Great Lakes on most of these changes in percentage terms, having 17.5 percent more jobs in 2015 than in 2000 (figure 3). Although jobs in the Great Lakes were less than 1 percent higher in 2006 than in 2000, other states had grown by 7.8 percent. Between 2006 and 2010, employment declined in the Great Lakes by 4.4 percent as compared to 1.2 percent in the other states.

Between 2011 and 2015, jobs in the Great Lakes grew by only 5.5 percent, but in the other states they grew by 8.4 percent.

FIGURE 3

Great Lakes Jobs Have Recovered since the Recession, but Not to the Extent of Other States



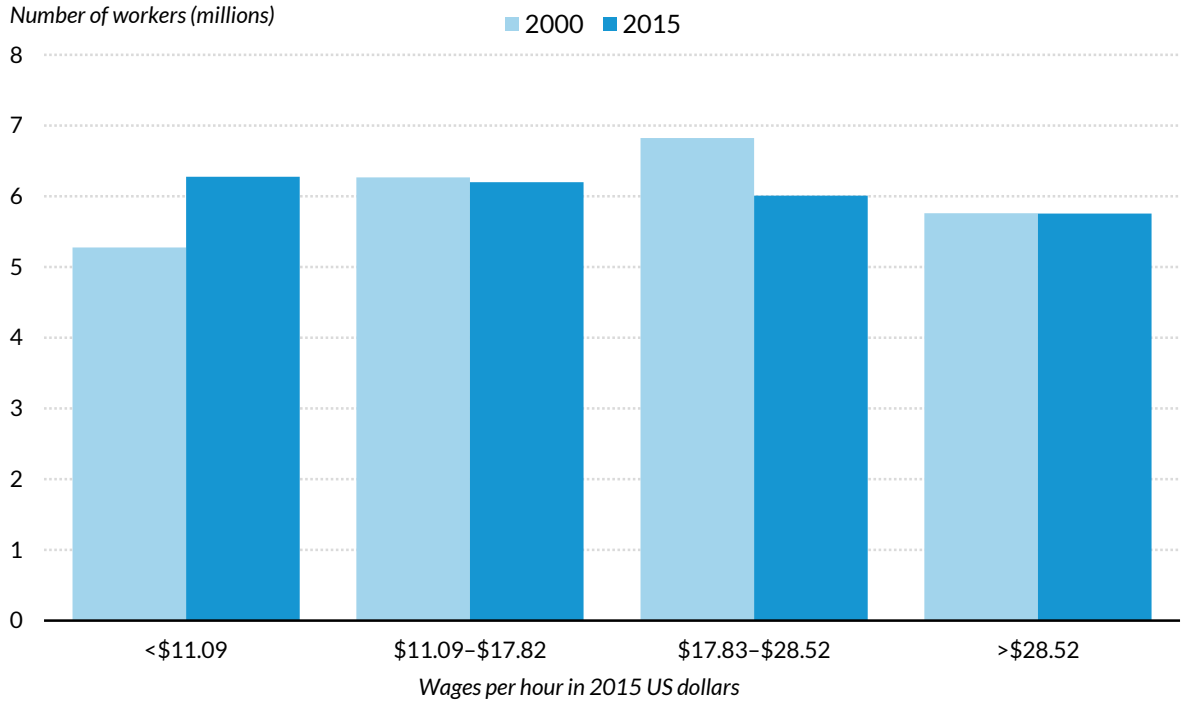
Source: US Department of Commerce Bureau of Economic Analysis Regional Economic Accounts, series SA25N.

This superficial lack of change obscures a major restructuring of the region's distribution of wages, as the only job growth in the past 15 years was in low-wage jobs (figure 4). Among workers reporting at least 11 hours of work per week and at least 14 weeks working in the previous year, workers in the lowest-wage quartile (those earning less than $11.09 per hour in 2015 dollars) grew steadily from 5.3 to 6.3 million from 2000 to 2015.[4] The second-lowest quartile (paying $11.09 to $17.82 per hour) declined from 6.3 to 5.6 million from 2000 to 2010 but rebounded to 6.2 million by 2015. Workers with third-quartile earnings ($17.83 to $28.52 per hour) fell by about 800,000 from 2000 to 2010, having started as the largest single quartile at 6.8 million, and remained flat from 2000 to 2015 (the second-smallest quartile). Workers earning more than $28.52 hourly, finally, remained about as numerous as in 2000 (5.8 million), having grown during the 2000–06 recovery, fallen during the recession, and rebounded again from 2010 to 2015.

FIGURE 4

Employment Growth from 2000 to 2015 Was Entirely Attributable to Low-Wage Work

Workers by wage quartile, Great Lakes states



Source: 2000 US decennial census 5 percent sample and 2015 one-year American Community Survey sample (1 percent of national population), extracted by Urban Institute from Steven Ruggles, Katie Genadek, Ronald Goeken, Josiah Grover, and Matthew Sobek, *Integrated Public Use Microdata Series: Version 6.0* [Machine-readable database] (Minneapolis: University of Minnesota, 2015).

Note: Self-reported data are estimates by household respondents for all members of their households. To avoid extreme outliers and protect against respondent errors, estimates were restricted to respondents who reported working at least 11 hours per week and at least 14 weeks in the previous year and to workers with computed wages over $1 and under $1,000 per hour.

Men in the Great Lakes experienced a greater setback in their wages than women from 2000 to 2015. The number of men working declined overall by about 140,000, with a decline of about 900,000 in jobs in the top half of the wage distribution not quite compensated by growth in the lower half of the wage distribution (especially the lowest quartile). The number of women working grew by 260,000, with growth of about 400,000 in the lowest quartile and 335,000 in the top quartile more than compensating for a decline of about 480,000 in the two middle quartiles.

In sum, then, the economy of the Great Lakes suffered a dramatic adjustment from 2000 to 2015, but not one of its own making. Rather, the sectors that declined, most notably manufacturing, were also among those that declined or grew slowly in the United States as a whole. The sectors that contributed the most job growth in the Great Lakes also accounted for most of the growth in other states. The

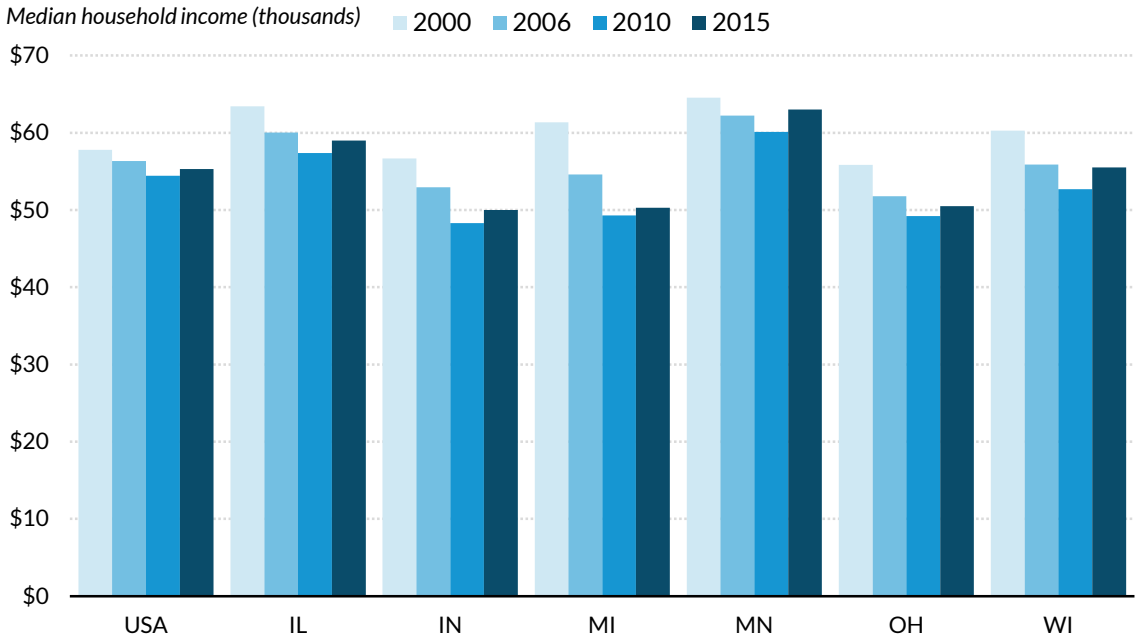
challenge for the Great Lakes has been one of composition: manufacturing dominates the economy, and the entire US manufacturing sector experienced a series of seismic shocks from 1999 to 2010 whose epicenters included the Great Lakes.[5] Likewise, the reduction in midwage work, especially for men, reflected a trend seen throughout the national economy over the past 15 years. The region can expect profound change to continue in the national and global economies. Although the nature of that change is difficult to predict, the region's demographic future—to which we turn next—is clearer, and it offers partial answers to the question of how best to prepare for economic turbulence.

The transformation of the region's wage structure caused household income to drop precipitously. Median household income dropped from 2000 to 2010 more sharply in five of the six states—Minnesota being the lone exception—than in the United States as a whole (figure 5). Michigan's 19.6 percent loss was the most severe of any state, sending it from a level 6 percent higher than the US median to 9 percent below. Median household income in Indiana, Ohio, and Wisconsin fell 14.7, 11.9, and 12.6 percent, respectively.

FIGURE 5

Median Incomes Fell Most Sharply in the Most Manufacturing-Dependent States between 2000 and 2010

In real 2015 dollars



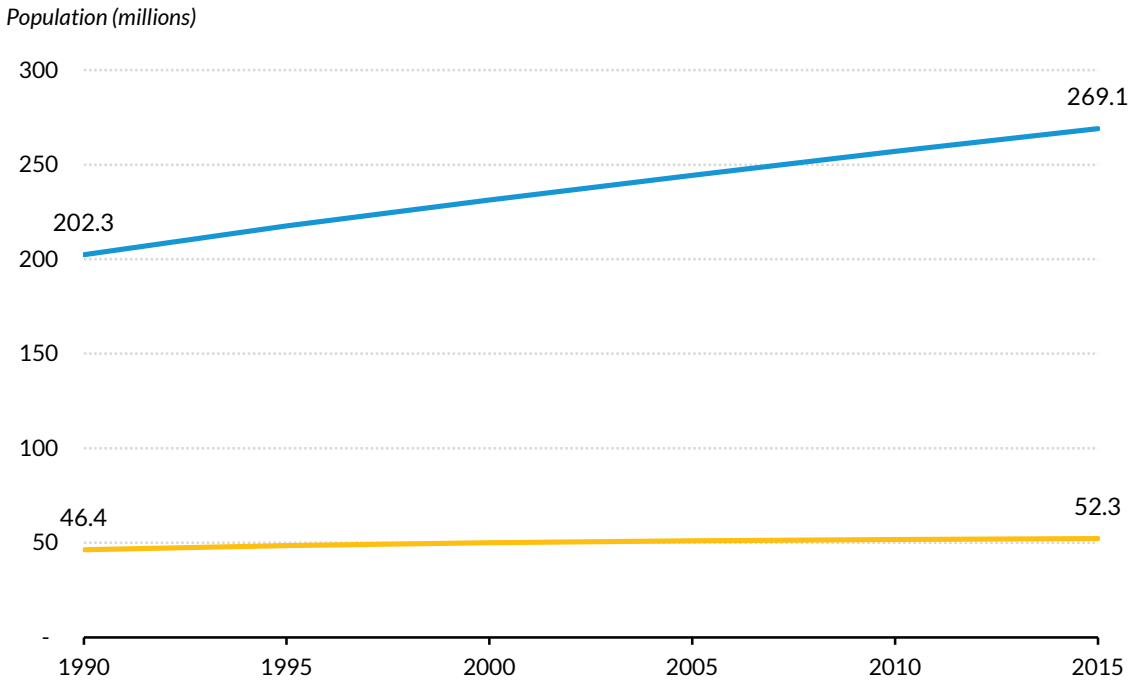
Sources: 2000 US Census 5 percent sample and 2006, 2010, and 2015 American Community Survey 1 percent samples, extracted by Urban Institute from Steven Ruggles, Katie Genadek, Ronald Goeken, Josiah Grover, and Matthew Sobek, *Integrated Public Use Microdata Series: Version 6.0* [Machine-readable database] (Minneapolis: University of Minnesota, 2015).

Population Stability amid Economic Turbulence

The population of the Great Lakes grew steadily from 46 to 52 million between 1990 and 2015 (figure 6 and figure 7). Its growth has lagged that of other states, however, because all the forces that lead to demographic change—births, deaths, domestic migration, and international migration—have favored stronger growth elsewhere in the United States and dampened growth in the Great Lakes.

FIGURE 6

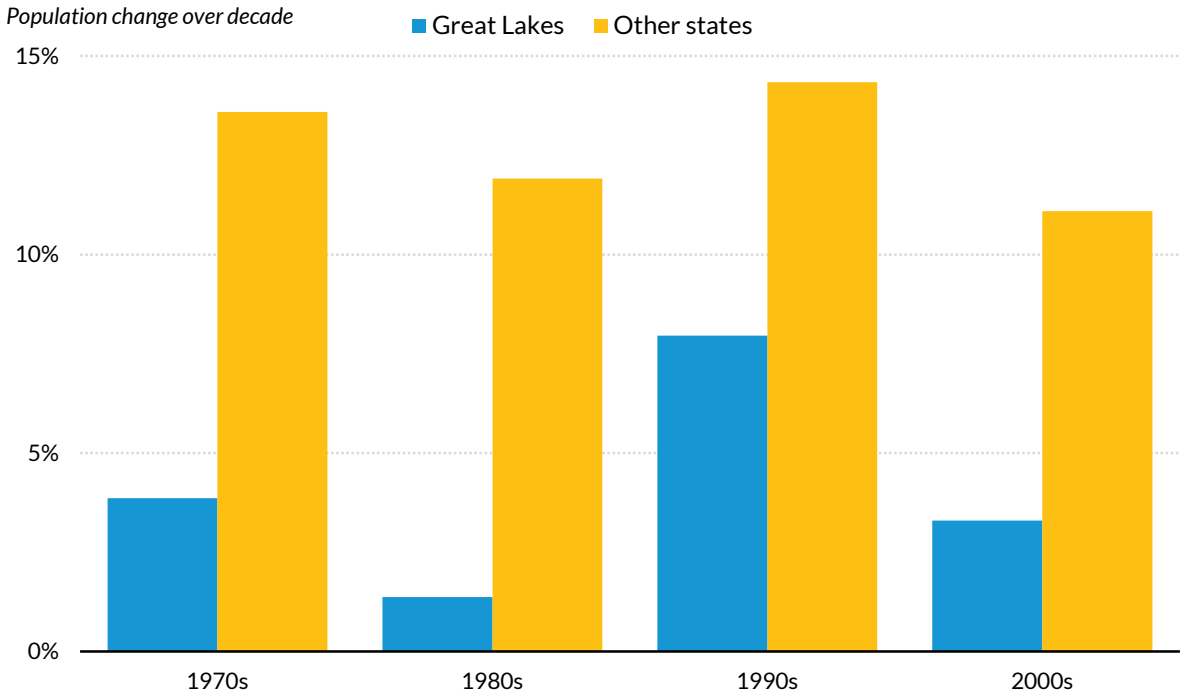
Great Lakes Lagged Other States in Population Growth, 1990–2015



Sources: 1990, 2000, and 2010 from Decennial Census SF1 files; 1995 from 1990–2000 intercensal estimates, reconciled to April 1, 1990, Census; 2005 from 2000–10 intercensal estimates, reconciled to April 1, 2000, Census. 2015 data from 2015 American Community Survey, extracted by Urban Institute from Steven Ruggles, Katie Genadek, Ronald Goeken, Josiah Grover, and Matthew Sobek, *Integrated Public Use Microdata Series: Version 6.0* [Machine-readable database] (Minneapolis: University of Minnesota, 2015).

FIGURE 7

Growth Slowed in the 2000s, but the 1980s Remain the Slowest-Growth Recent Decade



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

It may appear puzzling that the Great Lakes population did not register a more pronounced impact from such a profound shock to its economy. But just as economic forces helped the Great Lakes labor force to continue to expand despite the manufacturing collapse, demographic forces helped the Great Lakes continue to add population.

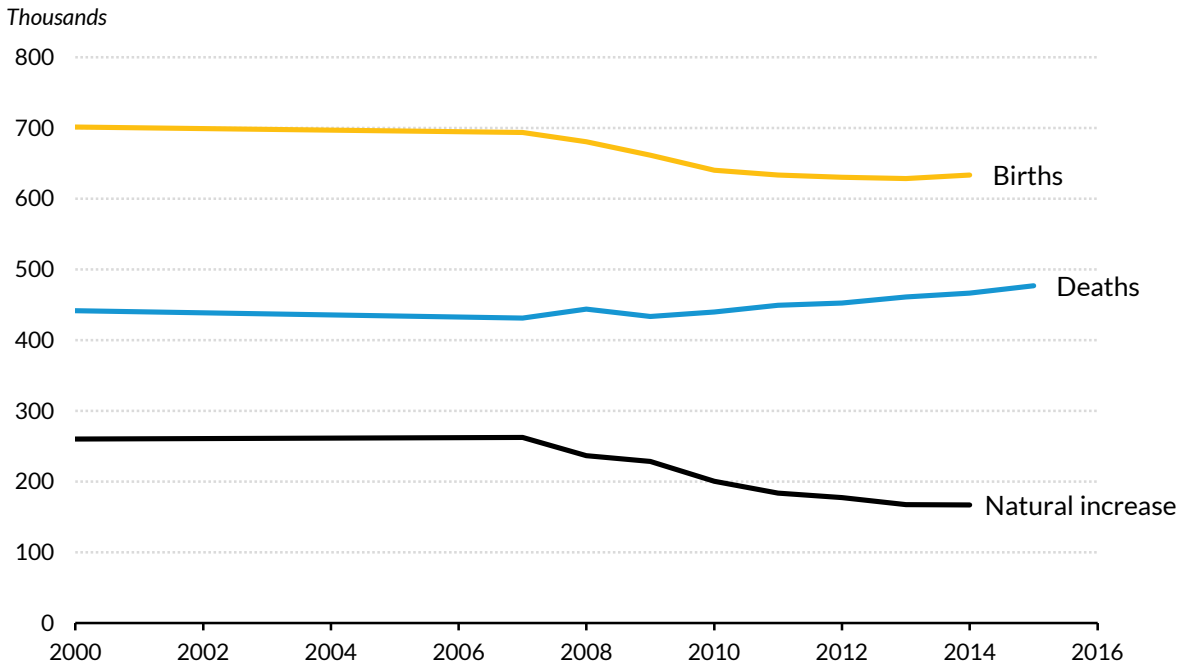
Natural increase yielded growth of about 165,000 per year in the Great Lakes population, but births fell and deaths increased. The number of children born in the Great Lakes fell from more than 700,000 in 2000 to about 630,000 in 2014 (figure 8), but as the millennial generation reaches prime childbearing years in the next 5 to 10 years the number of births may stabilize or rise.

The number of deaths in the Great Lakes remained stable during the 2000s as the relatively small Depression-era generation replaced a larger generation born before 1930. But from 2009 to 2015, as baby boomers began entering their late sixties, the number of deaths increased, a trend that will continue for the next 15 years in the Great Lakes and beyond. About 465,000 people died in the Great Lakes states in 2014, nearly 30,000 more than died just four years earlier. At present, natural increase

adds about 165,000 people to the Great Lakes population each year, but births and deaths are likely to equalize around 2030.

FIGURE 8

With Falling Births and Rising Deaths, Natural Increase Declined in the Great Lakes, 2000–2014



Sources: US Department of Health and Human Services, Centers for Disease Control and Prevention (CDC), National Center for Health Statistics, Division of Vital Statistics, Natality public-use data 2007–14, on CDC WONDER Online Database, February 2016, accessed December 27, 2016, http://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, on the one hand, and a general decline in the number of births per woman, on the other). 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;[6] furthermore, Great Lakes states have low to average proportions of women of childbearing age in their populations compared to other states. Combined, these two factors add up to below-average birth rates in the Great Lakes as a whole.[7] Michigan, Wisconsin, and Ohio all fell below the national average birth rate of 12.5 births per 1,000 residents in 2015, ranging from 11.5 (41st in the nation) in Michigan to 12.0 (36th in the nation) in Wisconsin. Illinois was just below average (12.3 births per 1,000 residents), and Indiana

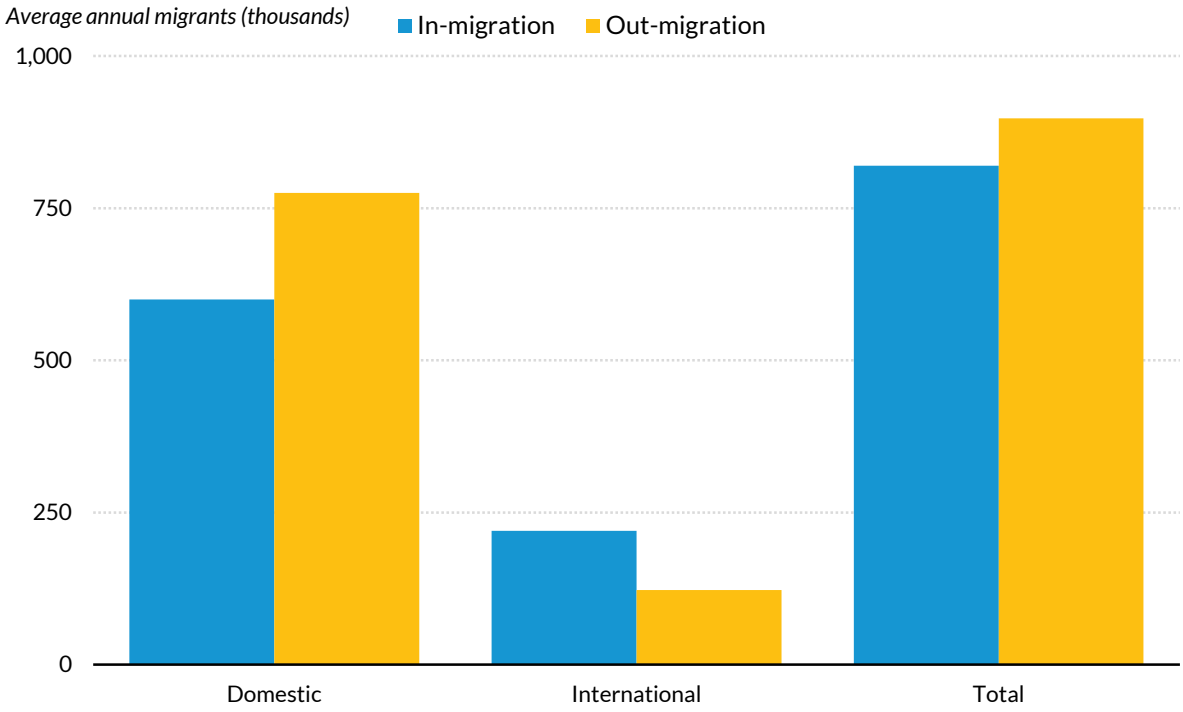
and Minnesota were above average (21st and 19th highest, respectively, both with birth rates rounding to 12.8 per 1,000).

Even after accounting for age, Ohio's and Indiana's mortality rates have climbed to levels well above the US average. In 2000 and 2007, both states had age-adjusted mortality rates between 5 and 7 percent above the US average.[8] In 2015, however, Indiana's age-adjusted mortality had risen to 14 percentage points above the US average, and Ohio's to 13 percentage points higher. This increase made their age-adjusted mortality rates the 10th and 11th highest in the United States in 2015, exceeded only by states in the deep South and Appalachia that have historically had the nation's highest death rates. Part of the increase is likely due to the ongoing opioid epidemic: Ohio had the nation's fourth-highest rate of drug overdose deaths (29.9 per 100,000 persons), and Michigan and Indiana also had elevated rates (20.4 and 19.5 deaths per 100,000 persons, respectively). Wisconsin's age-adjusted mortality also rose over this period relative to the US average, but it still remains slightly below the US average. Illinois, Michigan, and Minnesota have had fairly steady mortality rates compared with the United States.

About 80,000 more people move out of the Great Lakes states annually than move in (figure 9). Estimates of migration are, however, complicated and suffer from data availability problems. We are more confident about estimates of movements within the United States than we are about estimates of arrivals from overseas; we have no direct estimates of people who leave the United States annually, but we know there are some departures. Migration also has fluctuated substantially since the onset of the Great Recession, making it even more difficult to identify a true "normal" level of migration based on those recent data.

FIGURE 9

About 80,000 More People Left the Great Lakes than Arrived Annually from 2007 to 2015



Sources: 2007, 2008, 2009, 2010, 2011, 2012, 2013, and 2015 one-year American Community Survey samples (1 percent of national population), extracted by Urban Institute from Steven Ruggles, Katie Genadek, Ronald Goeken, Josiah Grover, and Matthew Sobek, *Integrated Public Use Microdata Series: Version 6.0* [Machine-readable database] (Minneapolis: University of Minnesota, 2015), except international out-migration, which is an average of two estimates (95,000 and 150,000) produced by two estimates by the Urban Institute. See text and note 9.
Notes: If international out-migration is at the lower of these two estimates, then net domestic and international out-migration would be closer to 50,000. If it is closer to the higher estimate, then 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 clearly lose more people to other states every year than they gain from other states.[9] From 2007 to 2015, on average, about 600,000 people from other states moved into the Great Lakes 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 9). The American Community Survey provides fairly reliable estimates of arrivals from abroad, Puerto Rico, and US possessions, which added an average of about 218,000 new residents for the Great Lakes states each year.[10] About 73,000 of these were born in the United States 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

small number of people born abroad to US citizen parents). The final component of change is Great Lakes residents who left the United States. We lack direct data on annual departures, but we estimate them at between about 95,000 and 150,000 departures per year, including both foreign nationals and US-born individuals departing to live overseas for at least a year.[11] 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 somewhat after the end of the Great Recession.

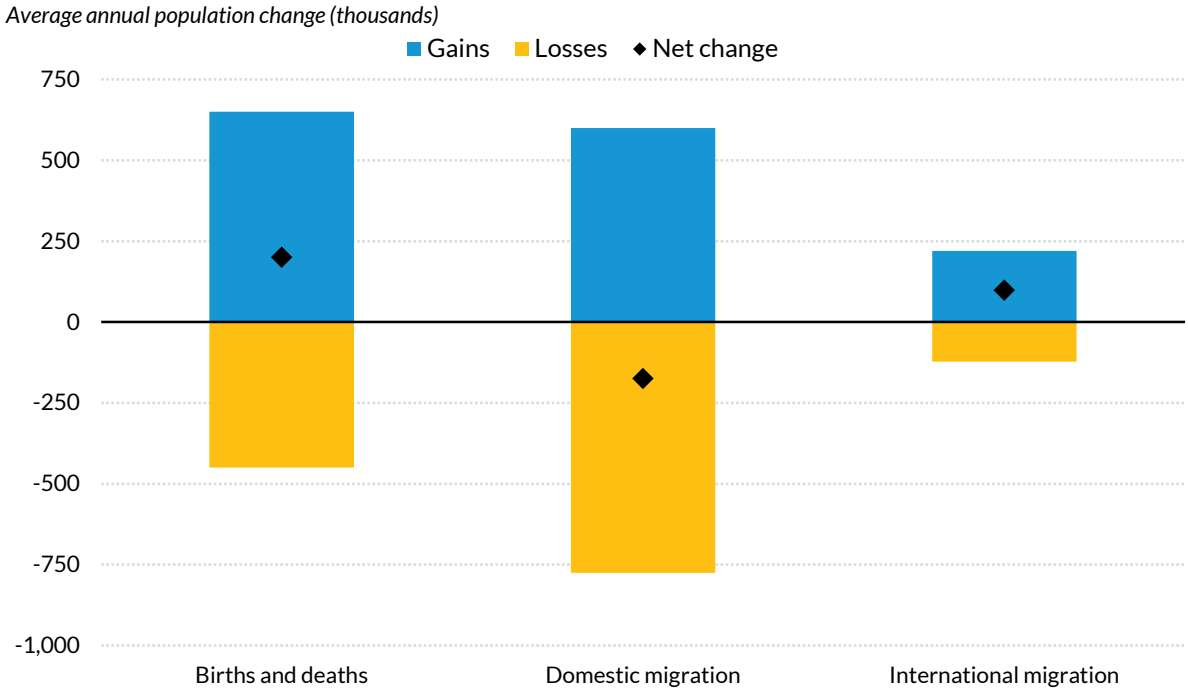
Elected officials and the general public sometimes think first about attracting migrants from other states when they consider how to boost growth. Columbus, for example, made national news in 2015 when it launched a campaign pitching itself as a great relocation destination for young adults in high-cost East Coast cities.[12] But the potential of in-migration from other states is limited. Americans are moving across state lines less often than at any time in the past 20 years: migration is about one-half the level of the 1980s (Molloy, Smith, and Wozniak 2011). Additionally, people are more likely to move because they can no longer bear the costs of staying in their current location than because they are looking for better options elsewhere (Clark and Dieleman 1996). Few people who consider moving will specifically choose the Great Lakes over locations with warmer weather and stronger economies.

Given recent low rates of in-migration from other states, Great Lakes policymakers and planners who want to support a growing regional population should be attuned to the other sources of population change that—as we have shown, and as figure 10 summarizes—have contributed to slow growth in the past 25 years and will continue to contribute to steady, small population increases. A range of policy options that supports families with young children could help sustain the population at higher levels than we project here, with assumptions based on no change in the policy status quo. Such policies could encourage more young adults to feel ready to have children, which would raise the fertility rate.[13] Affordable access to primary and preventive care not only reduces mortality across the age spectrum but also can reinforce young adults' confidence that they will be able to have more than one child (Harknett, Billari, and Medalia 2014). Family-friendly policies, programs, and workplace cultures might also provide young adults with more reasons not to move out and thus lead to more children being born and growing up in the Great Lakes. The indirect result of all these supports for young families could be stronger economies with greater prospects of not only attracting people from outside the Great Lakes but also retaining them once they arrive.

FIGURE 10

Natural Increase and International Migration Currently Compensate for Domestic Outmigration from the Great Lakes

2007–15



Sources: Natural increase (2007–14): US Department of Health and Human Services, Centers for Disease Control and Prevention (CDC), National Center for Health Statistics, Division of Vital Statistics, Natality public-use data 2007–14, on CDC WONDER Online Database, February 2016. See "About Natality, 2007–2014," Centers for Disease Control and Prevention, CDC WONDER, accessed December 27, 2016, https://wonder.cdc.gov/natality-current.html. Domestic migration and international in-migration: American Community Survey annual 1 percent survey via IPUMS. International out-migration: average of Urban Institute estimates; for methods, see note 11.

Diversity: Age, Race and Ethnicity, and Nativity

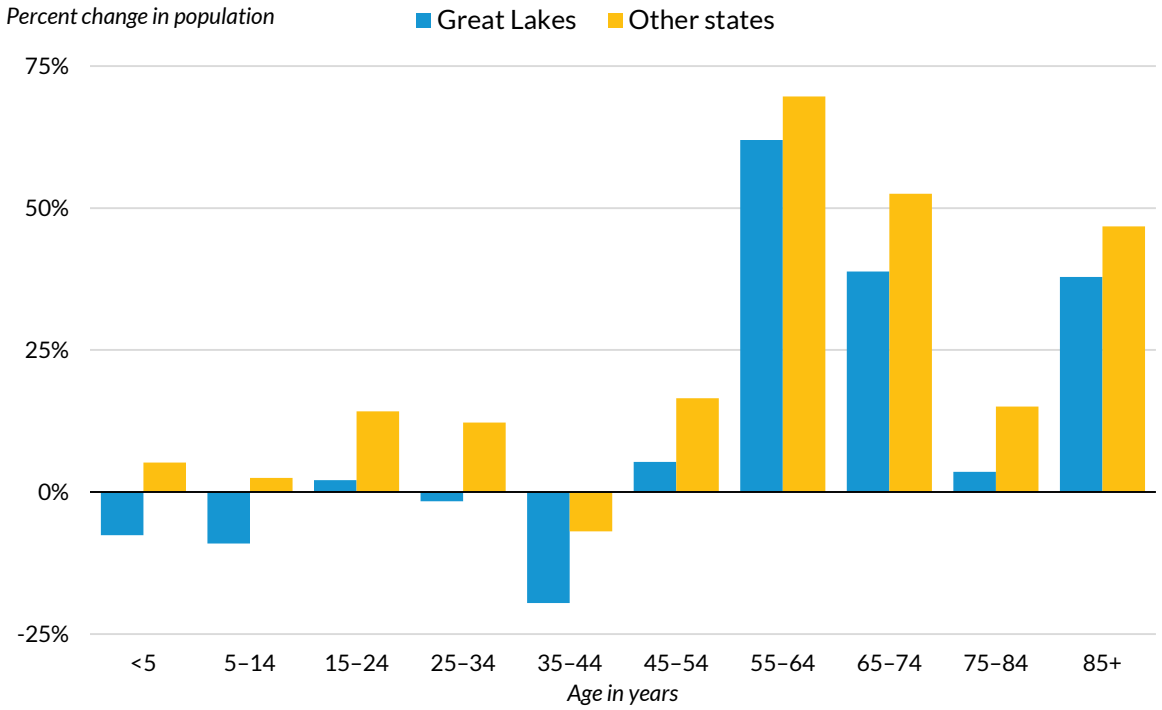
The Great Lakes region has become more diverse by age, race, and nativity over the past 25 years, reflecting national trends. Although aging has affected the Great Lakes in ways similar to other states, it is less racially diverse and has lower shares of immigrants than other places.

Up to 2000, the age profile of the Great Lakes very closely resembled that of other states on average. (States in the northern Great Plains and New England are older than the Great Lakes; Sunbelt states are generally younger.) From 2000 to 2015, however, the Great Lakes had a more pronounced

decline in people in their late thirties and early forties than the rest of the United States (figure 11). This trend results from the replacement in this age group of the numerous baby boomers with the smaller generation X. Just as critically, the Great Lakes lost people in their late twenties and early thirties even as the rest of the United States gained because of the replacement of generation X (born 1966–80) with the millennials (born 1981–95). With the loss of people in prime childbearing years came a consequent loss in children under age 15, again contradicting the increases seen in other states. Meanwhile, the older age groups all grew, though always less rapidly than in other states. After its slow growth and substantial net outmigration of young adults, its share of young adults (25 to 44) is substantially lower than in other states and that of middle-aged adults (45 to 64) is correspondingly higher (Figure 12). The age profile of the Great Lakes resembles that of other states in the age groups under 25 and 65 and older, however, implying the possibility for some recovery in 25- to 44-year-olds if more of the children who grow up in the region stay there.

FIGURE 11

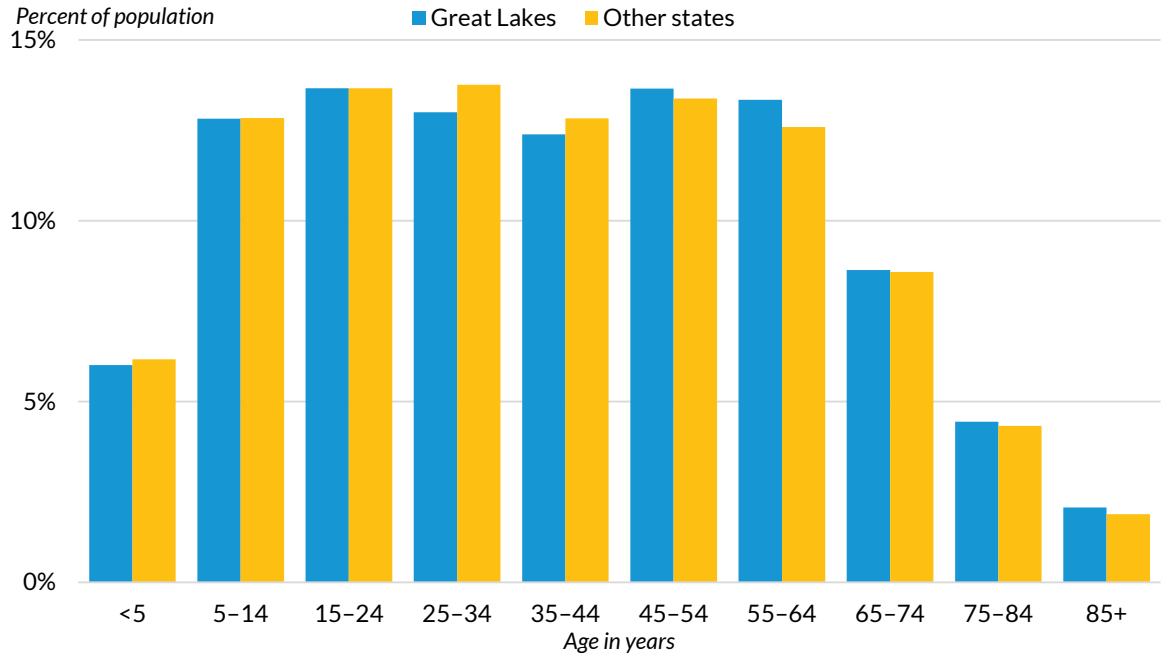
Declines in Young People, Slow Growth in Older Groups Combine for Slow Overall Growth from 2000 to 2015 in the Great Lakes vs Other States



Sources: 2000 US decennial census 5 percent sample and 2015 one-year American Community Survey sample (1 percent of national population), extracted by Urban Institute from Steven Ruggles, Katie Genadek, Ronald Goeken, Josiah Grover, and Matthew Sobek, *Integrated Public Use Microdata Series: Version 6.0* [Machine-readable database] (Minneapolis: University of Minnesota, 2015).

FIGURE 12

After 15 Years of Slow Growth, Great Lakes States are Older than Others, but Differences Remain Modest in 2015



Source: 2015 one-year American Community Survey sample (1 percent of national population), extracted by Urban Institute from Steven Ruggles, Katie Genadek, Ronald Goeken, Josiah Grover, and Matthew Sobek, *Integrated Public Use Microdata Series: Version 6.0* [Machine-readable database] (Minneapolis: University of Minnesota, 2015).

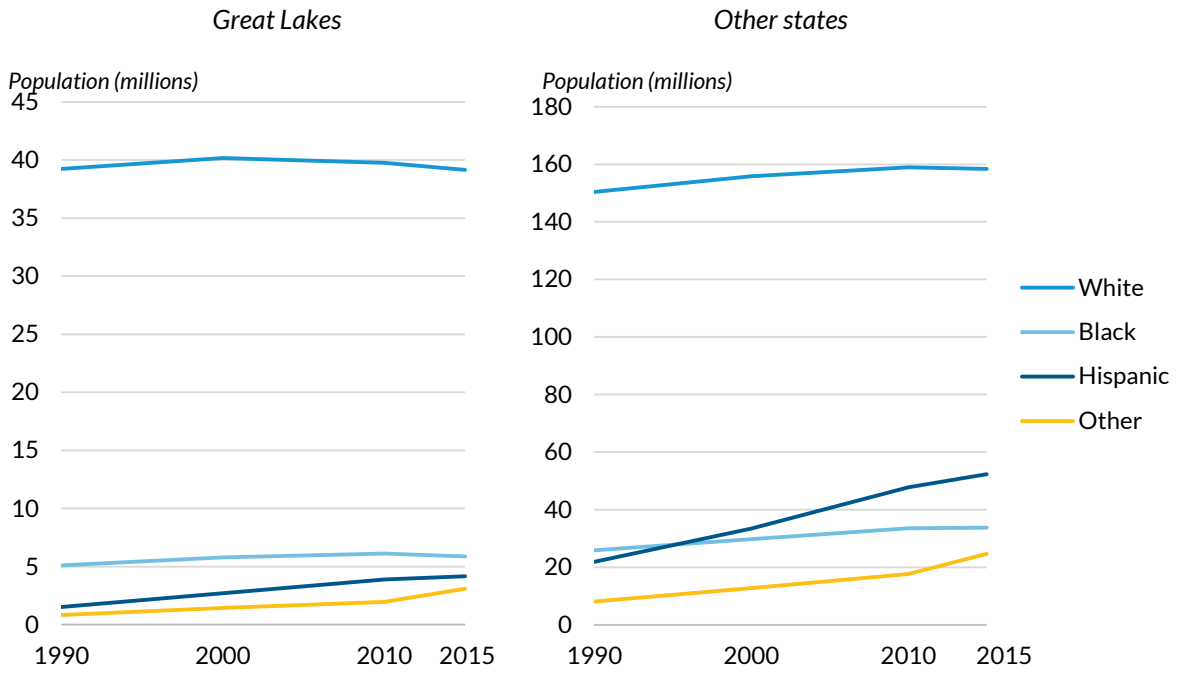
Racial and ethnic diversity has increased in the Great Lakes, but not as fast as elsewhere in the United States. The Great Lakes has been less diverse than other states for many years. In 1990, 84 percent of the population was white and non-Hispanic, compared with 73 percent for the other states (figure 13). Non-Hispanics who were black or African American made up 11 percent of the population compared with 13 percent for other states; Hispanics were only 3 percent of the population, compared with 11 percent in other states. People of other races (including Asian, American Indian, unclassified, and, starting in 2000, multiple races) made up the remaining 2 percent in the Great Lakes and 4 percent in other states.

By 2015, the white non-Hispanic population of the Great Lakes had peaked and receded to nearly exactly the level of 1990, while the African American population stood 15 percent higher than in 1990 (though down by about 250,000 from 2010); the Hispanic population had more than doubled, from 1.5 million to 4.2 million, and non-Hispanic people of other races had more than tripled from about 800,000 to 3.1 million. Even with this rapid growth, however, the Great Lakes in 2015 remained less diverse than

the rest of the nation had been in 1990. Whites still account for 75 percent of its residents, African Americans 11 percent, Hispanics 8 percent, and non-Hispanic people of other races 6 percent.

FIGURE 13

All Recent Population Growth Is Accounted for by Hispanics, African Americans, and Other Nonwhites



Sources: 1990 and 2000 US Census 5 percent sample and 2010 and 2015 American Community Survey 1 percent samples, extracted by Urban Institute from Steven Ruggles, Katie Genadek, Ronald Goeken, Josiah Grover, and Matthew Sobek, *Integrated Public Use Microdata Series: Version 6.0* [Machine-readable database] (Minneapolis: University of Minnesota, 2015).

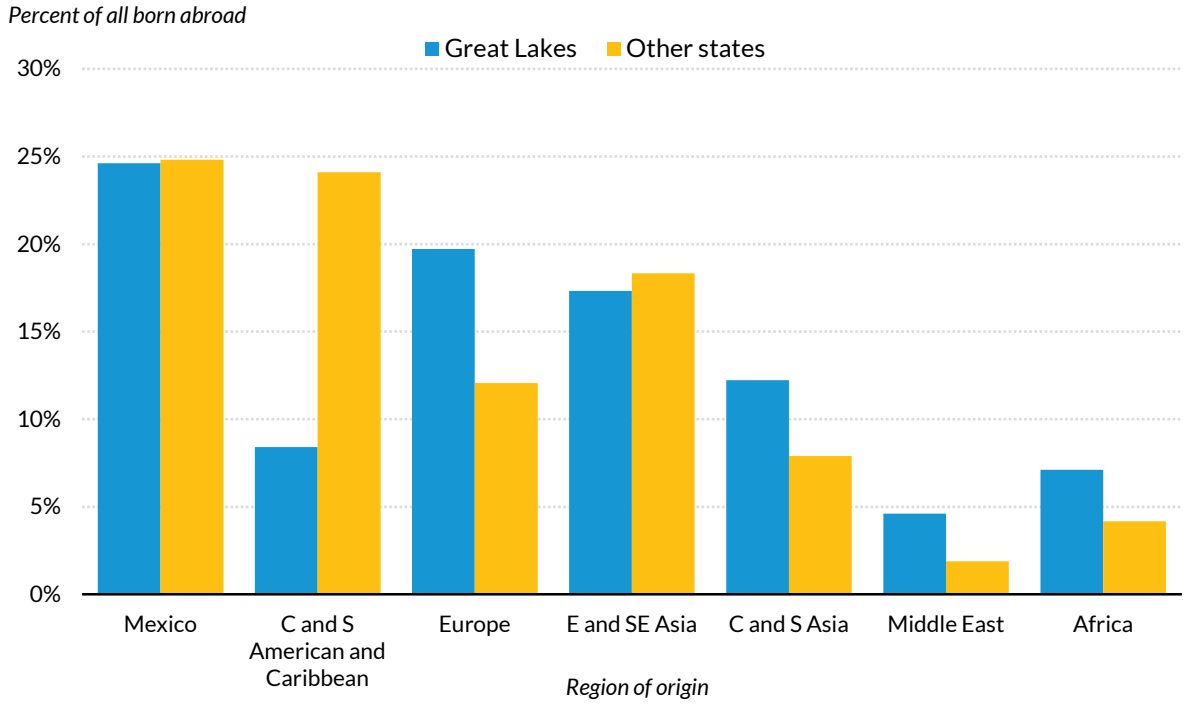
Great Lakes states have a smaller share of foreign-born people than the rest of the United States. In all, just over 4.4 million residents (8.5 percent of the total population) living in the Great Lakes in 2015 were born abroad. This figure compares with 16.2 percent of foreign-born residents elsewhere in the United States. From 2007 to 2015, the population of foreign-born people in the Great Lakes states grew from just under 4 million to over 4.4 million, a gain of 11.8 percent, while the foreign-born population elsewhere in the United States grew by 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 immigrants in the rest of the United States, and markedly fewer are 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 a quarter and 17 percent, respectively—as elsewhere in the United States

(figure 14). 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 14

Great Lakes Foreign-Born Residents have Diverse Origins, with More from Europe, Central and South Asia, the Middle East, and Africa than Other States

2015



Source: 2015 American Community Survey 1 percent samples, extracted by Urban Institute from Steven Ruggles, Katie Genadek, Ronald Goeken, Josiah Grover, and Matthew Sobek, *Integrated Public Use Microdata Series: Version 6.0* [Machine-readable database] (Minneapolis: University of Minnesota, 2015).
Note: Totals include 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 4.0 and 3.0 percent of the totals, respectively).

Looking Ahead: Population and Employment, 2015–40

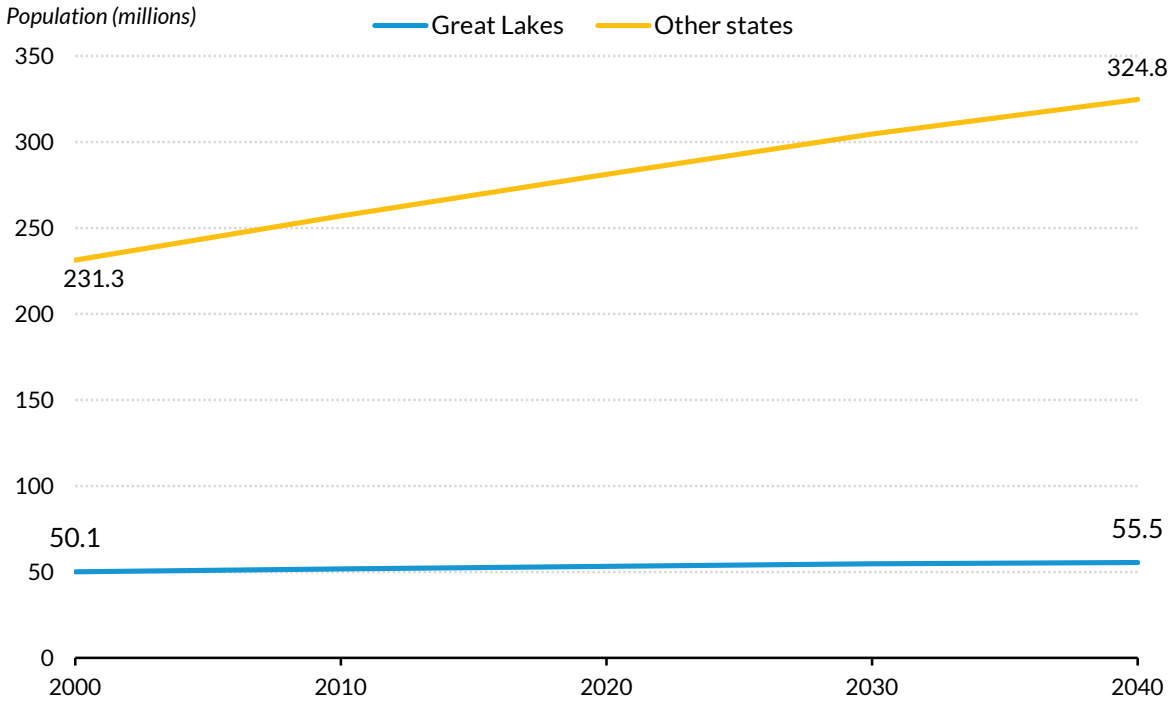
Demographic momentum is aging the region's population and slowing its growth. On the whole, demographic change in the Great Lakes will generally follow historical patterns and is projected to be gradual rather than abrupt.

Great Lakes Population Will Continue to Grow Slowly from 2015 to 2040

Although Urban Institute projections show growth in other states of about 58.6 million people (22.0 percent) from 2015 to 2040, we expect the Great Lakes to grow by about 3.2 million, or 6.1 percent (figure 15). The growth of the Great Lakes will slow considerably from 2030 to 2040 and under some scenarios could turn negative.

FIGURE 15

The Great Lakes Will Add Population Increasingly Slowly from 2015 to 2040



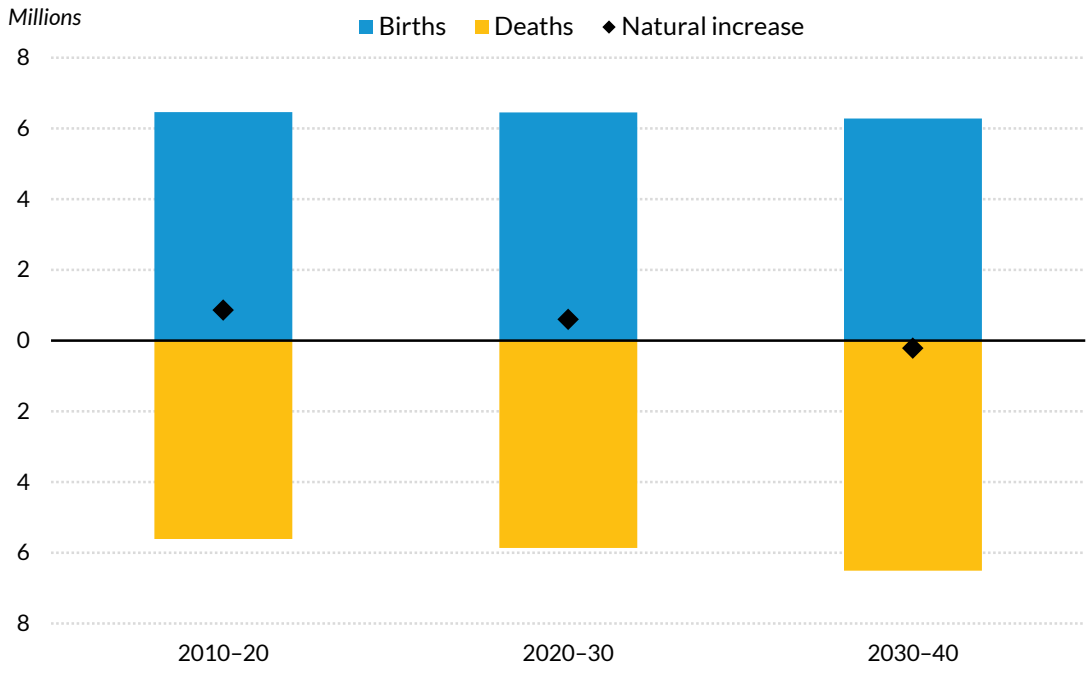
Sources: 2000 and 2010 from Decennial Census SF1 files. Projections for 2020–40, average birth, death, and migration scenarios from Rolf Pendall, Nan Marie Astone, Steven Martin, H. Elizabeth Peters, Austin Nichols, Kaitlin Franks, Hildner, Allison Stolte, and Pam Blumenthal, "Mapping America's Futures," Urban Institute, August 2015, http://apps.urban.org/features/mapping-americas-futures/#map.

New births will sustain the Great Lakes population through at least 2030. A steady stream of new births will add between 6.3 and 6.5 million people per decade to the region's population (figure 16). Maximizing their potential is intrinsically important, but the urgency of investing in young people has only sharpened in light of expected increases in the number of deaths—from 4.4 million in the 2000s to 6.5 million in the 2030s—that will accompany the growth in seniors. Growing baby boomer mortality will reduce natural increase below zero in the 2030s.

FIGURE 16

New Births Will Provide Net Population Growth until at Least 2030, when Growing Baby Boomer Mortality Will Reduce Natural Increase below Zero

Change in population (millions)



Source: Urban Institute projections using Rolf Pendall, Nan Marie Astone, Steven Martin, H. Elizabeth Peters, Austin Nichols, Kaitlin Franks Hildner, Allison Stolte, and Pam Blumenthal, "Mapping America's Futures," August 2015, http://apps.urban.org/features/mapping-americas-futures/#map, assuming average birth, death, and migration rates.

Population will also be sustained if the region can retain people who already live in the Great Lakes and who arrive from abroad. As the discussion above shows, about 775,000 people moved from the Great Lakes to other states every year from 2007 to 2015, and about 600,000 moved in from other states. About 150,000 foreign-born people moved to the Great Lakes from abroad each year. If these levels remained the same indefinitely, then the region would not meet the Urban Institute's average growth projections, in which assumptions are embedded that the region attracts more migrants from elsewhere than it sends; by the late 2020s the region would be losing more people to death and out-migration than it would gain from births and in-migration, and the 2040 population would be lower than that in 2030.

Even so, the projection for continued increase through the 2030s is plausible. Foreign arrivals to the Great Lakes will increase if the Census Bureau's most recent projections of modest annual growth in

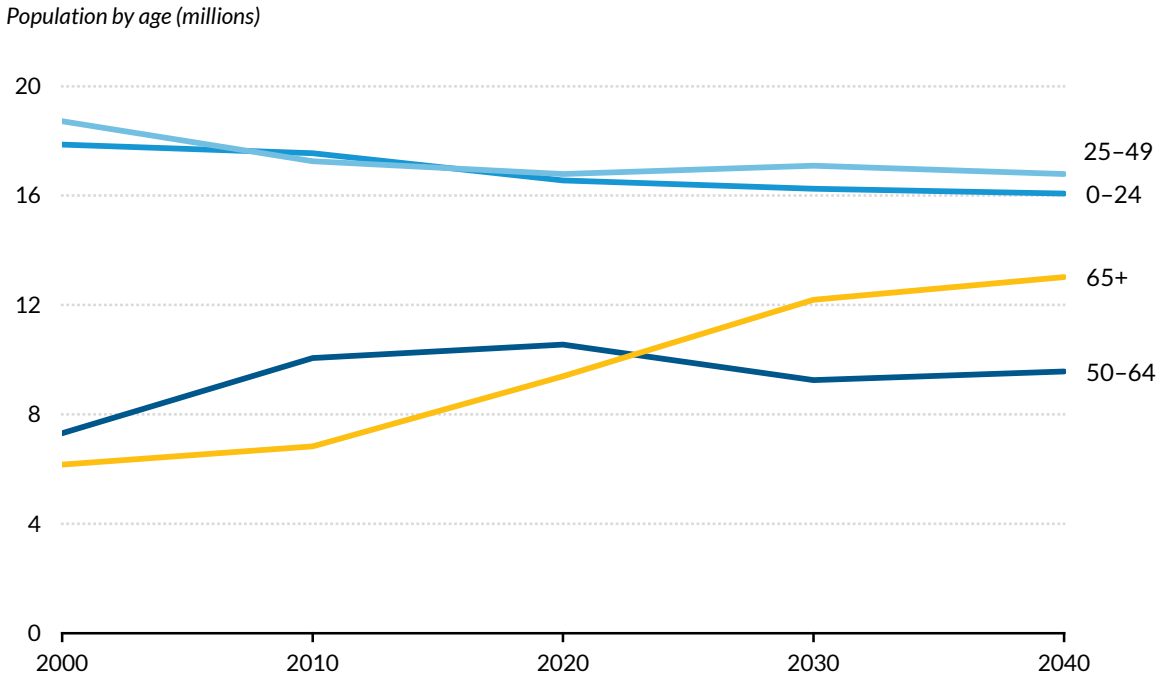
foreign immigration are realized, because the Great Lakes can be expected to continue to claim a share of that increased flow. Furthermore, as the economic recovery takes hold and the Great Lakes continues to add jobs—which, as we discuss below, will occur against the backdrop of increasing retirements—it is reasonable to assume that out-migration (both to other states and to international destinations) will slow, and domestic in-migration could also increase somewhat. We return in a later section to a discussion of the measures the Great Lakes can take to boost retention of the people who are already born and grow up in the region and who move there from overseas.

The Region's Population Will Continue to Diversify by Age and Race and Ethnicity

The number of seniors will grow from 8 million to over 13 million between 2015 and 2040 as baby boomers and members of generation X move into retirement age (figure 17). Meanwhile, younger age groups will shrink due to net out-migration and a slight drop in the number of births, ultimately resulting in an aging of the region. This rapid growth in seniors will present many challenges and opportunities for the Great Lakes states. Instead of working, many residents will be engaged in retirement activities. Retirement plans and accumulated assets will replace wages and salaries as the main source of income for a large proportion of households. Demands on the health care system will increase. The population active in local and state government could shift even more markedly toward people over 65. Transportation trends will change, and so will housing demand.

FIGURE 17

Future Growth in Seniors Will Transform the Age Demographic of the Great Lakes Region

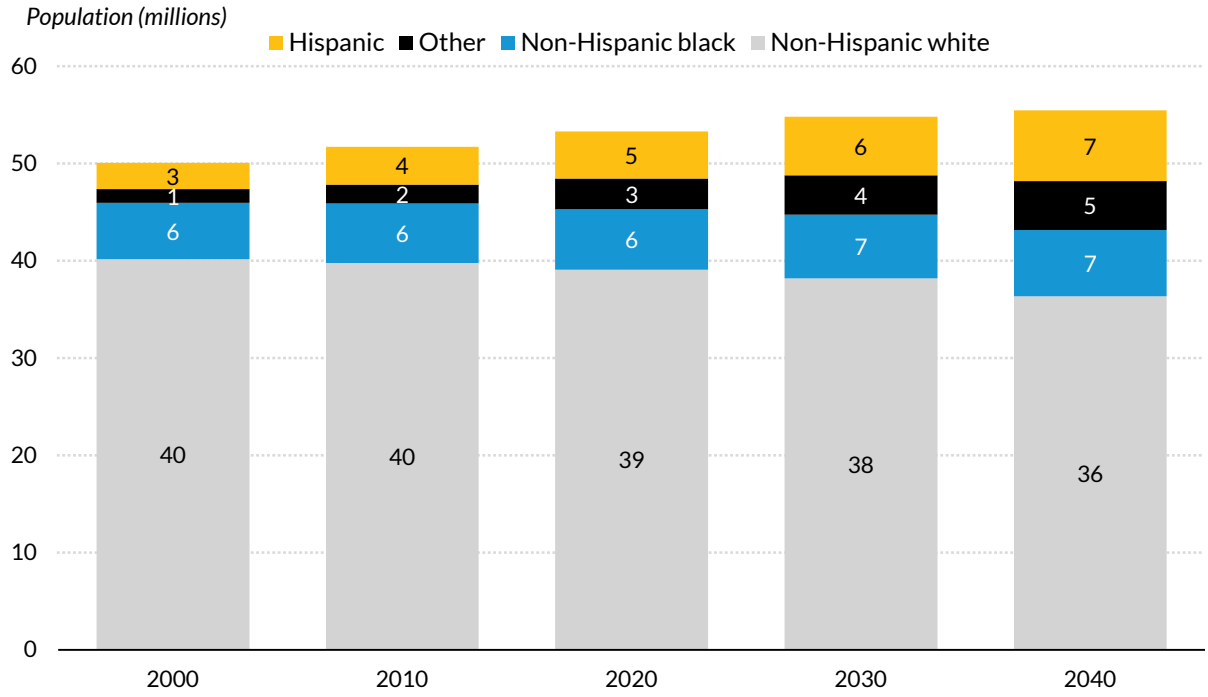


Sources: For 2000–10, Richelle Winkler, Kenneth M. Johnson, Cheng Cheng, Jim Beaudoin, Paul R. Voss, and Katherine J. Curtis, "Age-Specific Net Migration Estimates for US Counties, 1950–2010," (Madison, WI: University of Wisconsin–Madison, Applied Population Laboratory, 2013), http://www.netmigration.wisc.edu/; for 2020–40, Urban Institute projections using Rolf Pendall, Nan Marie Astone, Steven Martin, H. Elizabeth Peters, Austin Nichols, Kaitlin Franks Hildner, Allison Stolte, and Pam Blumenthal, "Mapping America's Futures," August 2015, http://apps.urban.org/features/mapping-americas-futures/#map, assuming average birth, death, and migration rates.

Population growth will continue to be led by people of color. Between 2015 and 2040, we project that the non-Hispanic white population in the Great Lakes region will decline from 39 to 36 million. Meanwhile, the number of people of all other races and ethnicities will grow from 13 to 19 million (figure 18). People of color will also become more diverse over time, with the Hispanic population rising from 2.6 to 7.3 million, non-Hispanic people of other races growing from 3.2 to 5.0 million, and the non-Hispanic black population growing, albeit more slowly, from 6.2 to 6.8 million.

FIGURE 18

People of Color Are Leading Great Lakes Population Growth



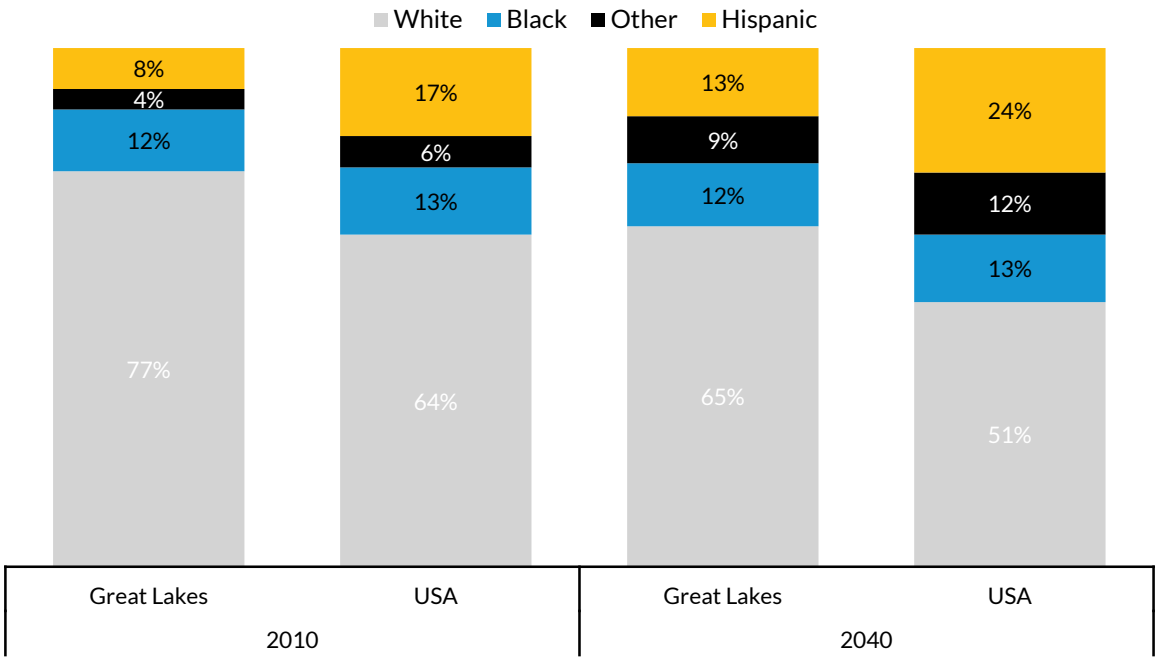
Sources: For 2000–10, Richelle Winkler, Kenneth M. Johnson, Cheng Cheng, Jim Beaudoin, Paul R. Voss, and Katherine J. Curtis, "Age-Specific Net Migration Estimates for US Counties, 1950–2010," (Madison, WI: University of Wisconsin–Madison, Applied Population Laboratory, 2013), http://www.netmigration.wisc.edu/; for 2020–40, Urban Institute projections using Rolf Pendall, Nan Marie Astone, Steven Martin, H. Elizabeth Peters, Austin Nichols, Kaitlin Franks Hildner, Allison Stolte, and Pam Blumenthal, "Mapping America's Futures," August 2015, http://apps.urban.org/features/mapping-americas-futures/#map, assuming average birth, death, and migration rates.
Notes: "Other" includes non-Hispanic Asians, Native Americans and Alaska Natives, Native Hawaiians and Pacific Islanders, and people of multiple races. Hispanic persons can be of any race.

Notwithstanding the increase in racial diversity, the region will remain majority white. Over the next 25 years, the Great Lakes will become more racially and ethnically diverse, but the region will continue to lag behind the nation and will only attain today's national level of diversity in 2040 (figure 19). Two-thirds of Great Lakes residents in 2040 will still be white and non-Hispanic. With 65 percent of the total population and 68 percent of people over 20, white non-Hispanics are likely to continue accounting for the majority of voters in all six Great Lakes states. Although 56 percent of the population over age 20 in Illinois is projected to be white, all five of the other states are projected to be between 70 and 75 percent white.

FIGURE 19

By 2040, Whites Will Still Make Up Nearly Two-Thirds of Great Lakes Residents

The Great Lakes region lags behind the rest of the country in racial diversification



Sources: For 2010, 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," (Madison, WI: University of Wisconsin–Madison, Applied Population Laboratory, 2013), http://www.netmigration.wisc.edu/; for 2020–40, Urban Institute projections using Rolf Pendall, Nan Marie Astone, Steven Martin, H. Elizabeth Peters, Austin Nichols, Kaitlin Franks Hildner, Allison Stolte, and Pam Blumenthal, "Mapping America's Futures," August 2015, http://apps.urban.org/features/mapping-americas-futures/#map, assuming average birth, death, and migration rates.

Notes: "Other" includes non-Hispanic Asians, Native Americans/Alaska Natives, Native Hawaiians and Pacific Islanders, and people of multiple races. Hispanic persons can be of any race. White refers to non-Hispanic white and black refers to non-Hispanic black.

Labor Force Growth Will Slow as Retirements Increase

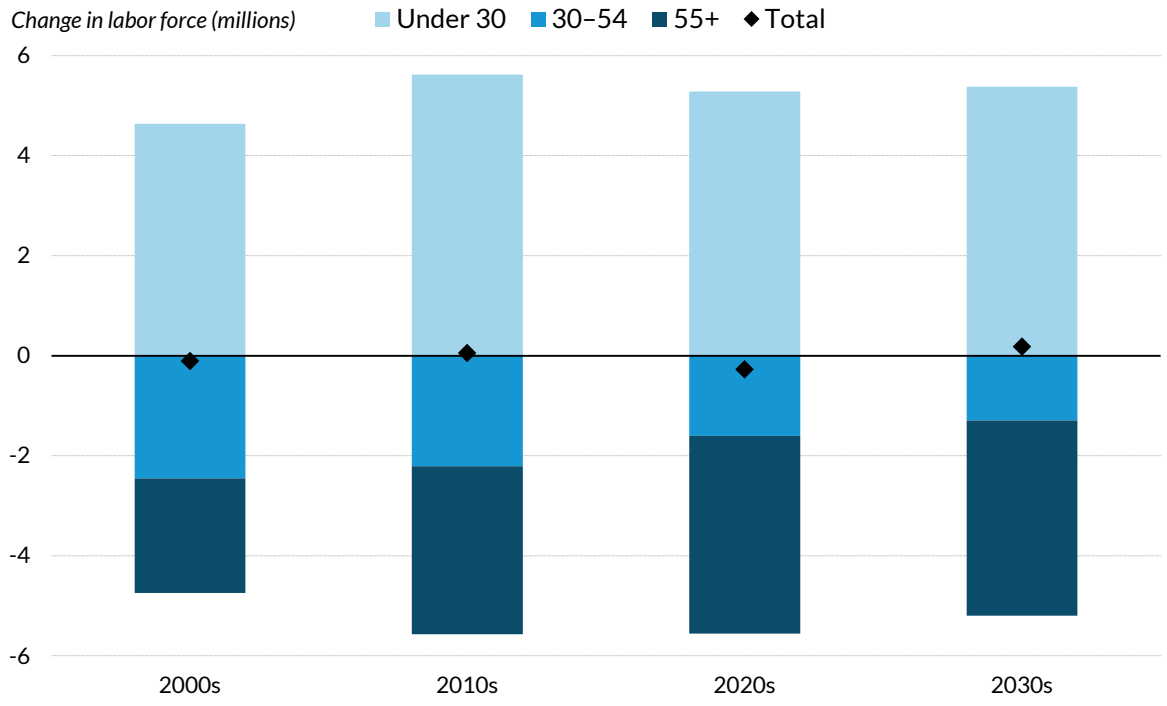
A surge in retirement by baby boomers and continued out-migration of those in their thirties and forties will keep the growth of the labor force to almost zero.[14] It is likely that 330,000 workers in their late sixties and older will retire annually from the labor force between 2010 and 2020, increasing to about 390,000 annually in the 2020s and 2030s (figure 20). Net out-migration and early retirement of workers currently in their thirties, forties, and early fifties are also likely to shrink the region's labor force if past trends continue, though in declining numbers as the size of those cohorts contracts with

the replacement of baby boomers with members of the smaller generation X. The entry of millennials into the labor force from 2010 to 2020 is providing a countervailing labor force boost in the 2010s, but labor shortages may become more acute in the 2020s, when growth in the millennial slows and baby boomer retirements increase. The increased demand for labor could, however, slow out-migration and increase labor force participation so that our projections would turn out to be pessimistic in retrospect.

FIGURE 20

Millennials Will Replenish a Labor Supply Depleted by Baby Boomer Retirements

Changes in Great Lakes Workforce by Age, 2000–30



Sources: Urban Institute projections based on 1999-2015 Local Area Unemployment Statistics data (US Department of Labor, Bureau of Labor Statistics); Rolf Pendall, Nan Marie Astone, Steven Martin, H. Elizabeth Peters, Austin Nichols, Kaitlin Franks Hildner, Allison Stolte, and Pam Blumenthal, "Mapping America's Futures," August 2015, http://apps.urban.org/features/mapping-americas-futures/#map, all average scenarios.
Note: Age defined by age at beginning of decade.

The near-term prospect for keeping up with employers' demand for workers is challenging. Many jobs that need more workers now are in low-skill sectors including food preparation, transportation and material moving, and building and grounds cleaning and maintenance [see, for example, Business Leaders for Michigan (2016)], but these jobs offer wages too low to raise labor force participation. Meanwhile, some employers are not creating jobs that they might otherwise be able to. According to

one recent estimate, from 2015 to 2025 nearly 3.5 million manufacturing jobs need to be filled in the United States, with highest demand in engineering, skilled trades, and production. As many as 2 million of these jobs might not be created at all, however, because of a combination of gaps in skills and training, technological advances that reduce the number of jobs (sometimes as a response to high wages or unavailable skilled labor), and ongoing options to shift work to less expensive locations (part of which can be a consequence of wage premiums in areas of labor shortage) (Giffe et al. 2015). Opinions differ over how much of the mid- to high-skill gap results from a shortage of workers with the requisite skills, how much is attributable to employers' unwillingness or inability to train recent hires, and how much is simply a consequence of low wages.[15]

Entries of young adults into the labor force will nearly balance the retirement and out-migration of other workers, likely resulting in slow growth of the labor force overall. It is thus urgent to ensure that children and young adults are well equipped to enter the workforce ready to contribute their full potential to the region's economy and, once in the workforce, gain additional skills so they can continue to enjoy income gains. With the steady addition of population by births and net international immigration, the labor force should continue to add about 550,000 workers in their twenties and thirties per year on average from now until 2040. A collective private and public effort that anticipates and meets future demand for labor in the wake of baby boomer retirements will be likely to raise the incomes of these workers. Such an effort could also reduce domestic out-migration and increase in-migration so that the number of young workers entering the labor force increases beyond 550,000 annually. It is especially important to meet demand for new workers in skilled professions (e.g., advanced manufacturing, STEM, and business and professional services) as these jobs tend to garner higher wages for workers and the incomes generated by these sectors create demand for workers in other sectors of the state and local economy. To meet demand for workers in those other sectors, employers will probably need to offer higher wages than those available today.

Manufacturing is likely to continue as an important source of employment and payroll in the Great Lakes. The United States has faced long-standing declines in the manufacturing sector and long-standing increases in health services, with these trends especially pronounced in the Great Lakes. However, the post-2010 uptick in manufacturing employment may be a harbinger of stability in that sector after decades of employment losses (figure 21). It is critical to note that manufacturing jobs are central to the story of employment in the Great Lakes, and we project them to remain so in the future. Although the number of manufacturing jobs is likely to decline in future decades, the remaining jobs will continue to pay relatively high wages because of the high level of skill required, provided workforce

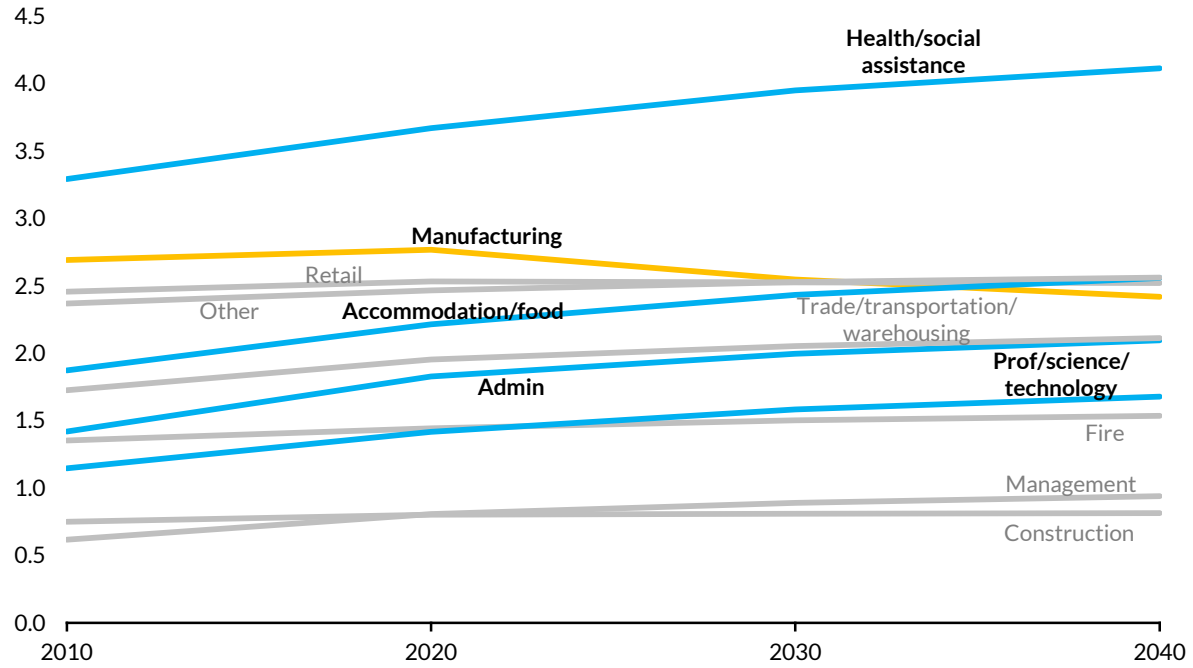
development systems preparing people for those jobs are in place and remain responsive to industry needs.

Other industries that employ fewer workers also provide higher wages and therefore have the potential to create a large economic multiplier. These industries include finance, insurance, and real estate; professional, scientific, and technology; and management. Other sectors, such as accommodation, food, administrative support, and health and social assistance, promise robust job growth but are likely to continue providing lower wages. Their growth depends on both the circulation of wages from high-wage jobs and on the increasing contribution of retirement benefits to overall regional income. Growing employment in these sectors could require higher wages, but wage pressure could also encourage employers to embrace technology to support or replace low-skilled workers.

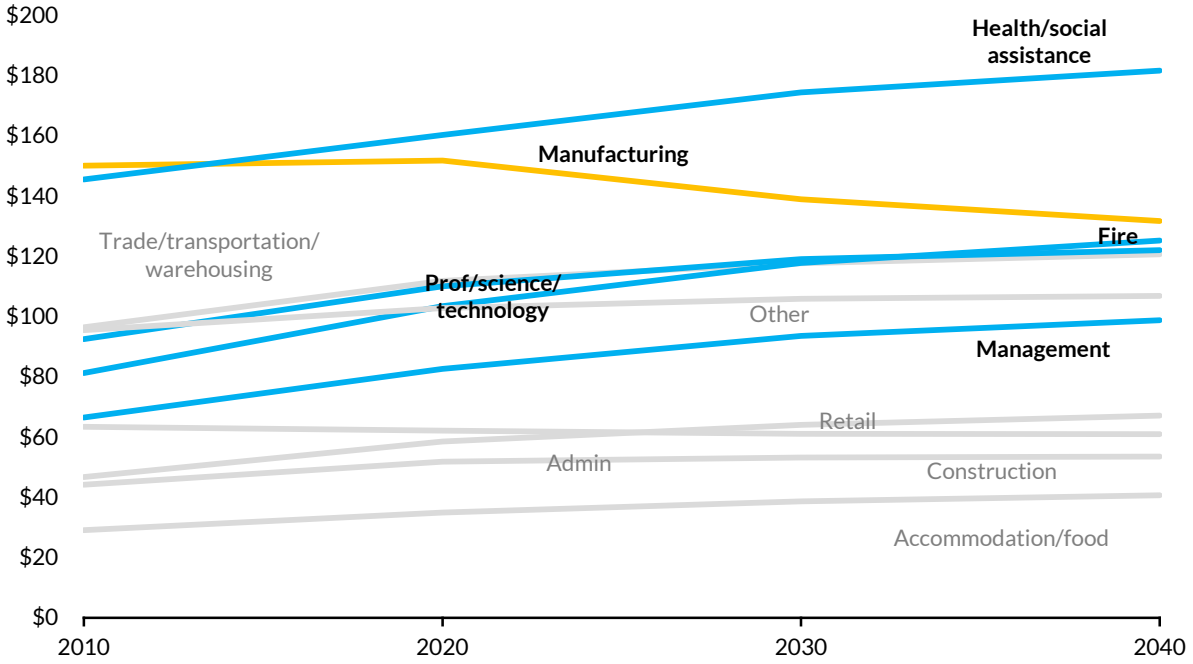
FIGURE 21

Manufacturing Will Remain Important in Employment and Payroll

Employment by industry, 2010–40 (millions)



Payroll by industry, 2010–40 (billions of 2014 dollars)



Source: Urban Institute projections based on Local Area Unemployment Statistics data (US Department of Labor, Bureau of Labor Statistics).

The Enduring Challenge of Racial and Geographic Disparities

The Great Lakes region's economic development and demographic change has created many important assets and benefits, but neither these benefits nor the costs of growth have been evenly shared. In particular, historic disparities between non-Hispanic whites and African Americans and Hispanics are an enduring feature of the region's history. Racial disparities in wealth, income, and education remain acute and by some measures have grown in the past 25 years. Additionally, the region has a long history of geographic disparity between older and newer neighborhoods and communities. Though racial disparity has historically mapped onto this geographic disparity, distress has recently grown in predominantly African American and Hispanic neighborhoods and in small to medium-sized cities.

To take an example of persistent racial disparities, consider education. Since 1990, the proportion of young people in the Great Lakes who have attended college and attained degrees has grown markedly (figure 22). Notwithstanding the momentum, disparities in educational attainment among racial and ethnic groups still represent a challenge. Only 44 percent of Hispanics ages 25 to 34 as of 2014 had attended any college. African Americans also continue to have lower rates of college attendance than whites and people of other races (58 percent compared with 72 percent of whites and 78 percent of people of other races). Hispanics and African Americans also lag behind whites and others in college completion. Only 15 percent of Hispanics and 22 percent of African Americans between the ages of 35 and 49 had completed a bachelor's degree or more in 2014 compared with 38 percent of whites and 49 percent of people of other races.

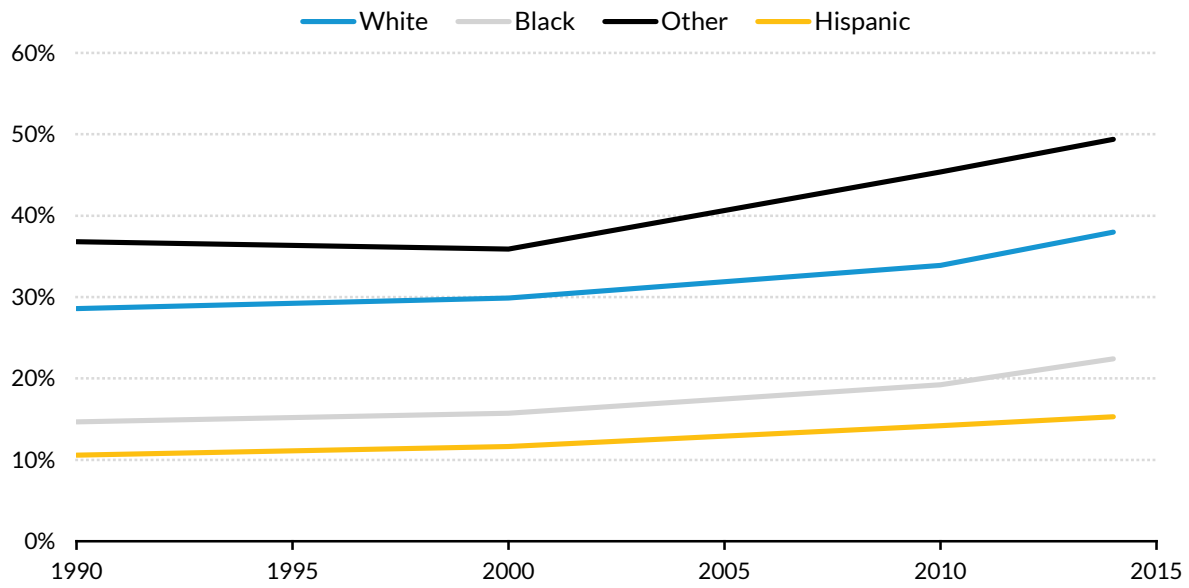
It is critical for the region to speed college access and attainment for young people of color because, as shown in the previous section, they account for an important share of the region's future labor force growth. As young people enter the labor force with higher levels of education, they also command higher wages and salaries, helping sustain payroll growth in the region even as labor force growth dwindles. The 1990s and 2000s offer reasons to think that the region could gain further momentum in educational access for African Americans and Hispanics. African Americans in their late twenties and early thirties now have completed at least some college at about the level of white non-Hispanics in 1990, having increased their likelihood of having completed some college by 12 percentage points since then despite a severe increase in mass incarceration. Hispanics in this age group also have gained in completion of some college since 2000, partly because recent immigrants make up a smaller proportion of all Hispanics. This recent momentum offers encouragement for further initiatives to improve the

quality of high school education, make community college accessible, and encourage completion of four-year and graduate degrees.

FIGURE 22

Racial Disparities in Educational Attainment Persist

35- to 49-year-olds with bachelor's degree or higher



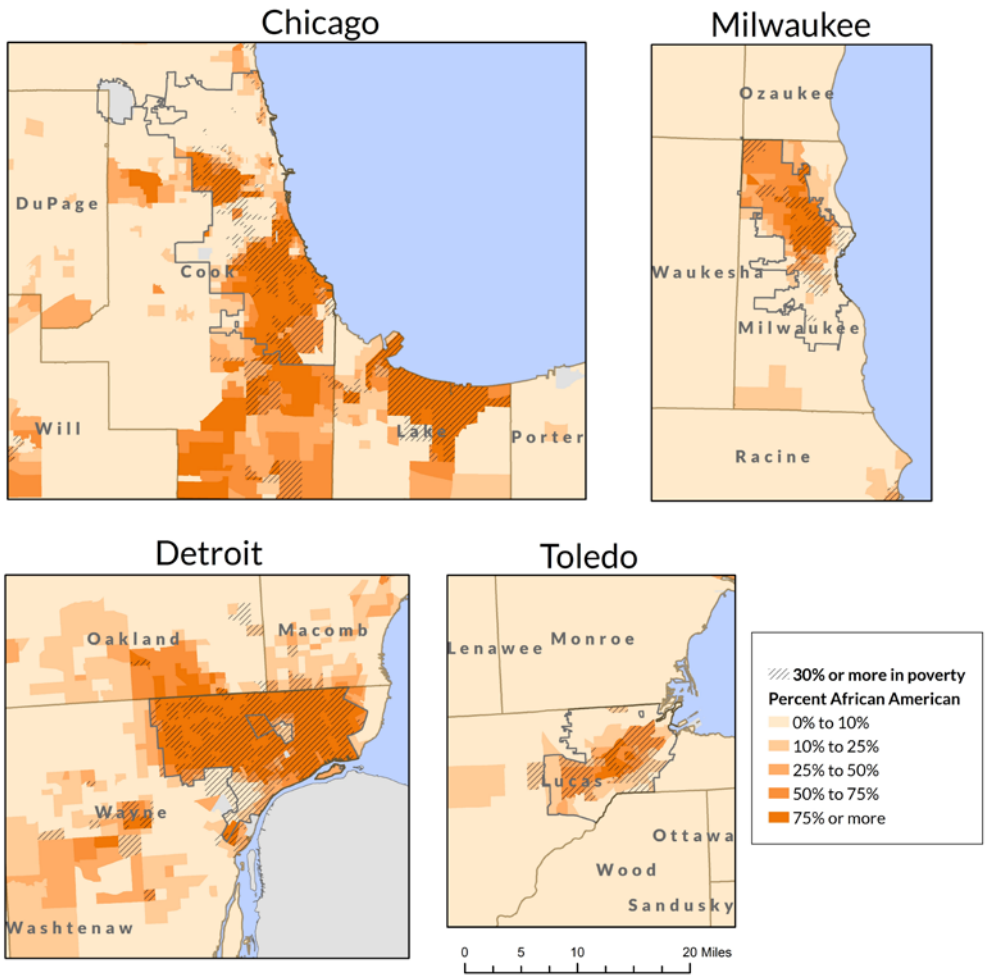
Sources: 1990 US decennial census 5 percent State Sample, 2000 US decennial census 5 percent sample, 2008–12 American Community Survey five-year sample (5 percent of national population), and 2014 one-year American Community Survey sample (1 percent of national population), extracted by Urban Institute from Steven Ruggles, Katie Genadek, Ronald Goeken, Josiah Grover, and Matthew Sobek, *Integrated Public Use Microdata Series: Version 6.0* [Machine-readable database] (Minneapolis: University of Minnesota, 2015).
Note: Sampling error for 2014 is larger than for previous years; interpret with caution.

A related facet of disparity in the region is the degree to which city neighborhoods and rural communities throughout the Great Lakes are distressed. In too many Great Lakes cities, racial and economic segregation separates vulnerable and low-income people from opportunity and exposes them to high levels of toxic pollution and crime. The continued dominance of white non-Hispanics in the Great Lakes population, coupled with its slow growth rates and generally declining rates of residential mobility, will challenge the region to reduce its extremely high level of segregation between whites and nonwhites. Segregation is evident at multiple geographic scales. Nonmetropolitan areas and suburban counties are predominantly white, and within the region's major metropolitan areas, whites, African Americans, Hispanics, and non-Hispanics of other races seldom share the same political jurisdiction or neighborhood.

Segregation between African Americans and others is especially acute. Chicago, Milwaukee, Detroit, and Cleveland are among the highest-ranking metropolitan areas for segregation between African Americans and whites, and African Americans in several Great Lakes cities are concentrated in high-poverty neighborhoods (figure 23). More than three-quarters of the black or white residents in these metropolitan areas would have to move into neighborhoods where they are underrepresented to result in an even distribution of white and black residents across all neighborhoods. By contrast, only 53 percent of residents in Minneapolis-St. Paul and 62 percent of residents in Columbus would need to move for the racial composition of all neighborhoods to be equally distributed.

FIGURE 23

Extensive Areas of Major Cities Are Segregated and Have High Poverty Rates



Sources: Racial demographic data from 2010 US Census SF1; economic demographic data from the 2008–12 five-year American Community Survey estimates, Minnesota Population Center; National Historical Geographic Information System: Version 11.0 [Database] (Minneapolis: University of Minnesota, 2016), http://doi.org/10.18128/D050.V11.0.

Racial segregation is widely accepted as a fundamental independent contributor to racial disparities in health outcomes. Segregation blocks educational and work opportunities for African Americans and exposes them to conditions that are "inimical to health in the social and physical environment," including poor-quality housing, deteriorating infrastructure, high levels of violence, low-quality and high-cost food, and easy availability of legal and illegal addictive drugs (Williams and Collins 2001). The durability of the region's older housing stock—built with now-prohibited materials and in varying states of decay—presents an additional challenge for the often poorer residents residing in them. Racial segregation also exposes low-income and minority residents to pollutants from nearby industrial facilities and public works infrastructure.

Residents of high-poverty, segregated neighborhoods also are much more likely to suffer from violent crime. Since 2000 violent crime rates (including homicide rates) have dropped, but there has been an uptick in recent years. Improving the safety of communities is a critical precondition to the region's growth and prosperity. People with long histories of vulnerability from structural inequities and victimization are also often those with histories of criminal justice system involvement. High levels of poverty and health, employment, and educational disparities create conditions (e.g., social isolation, unemployment, depression, substance abuse, illicit economic involvement, and exposure to violence and trauma) that contribute to both victimization and offending. Although structural inequities can lead to justice involvement, at the same time, justice involvement can lead to or exacerbate these inequities.

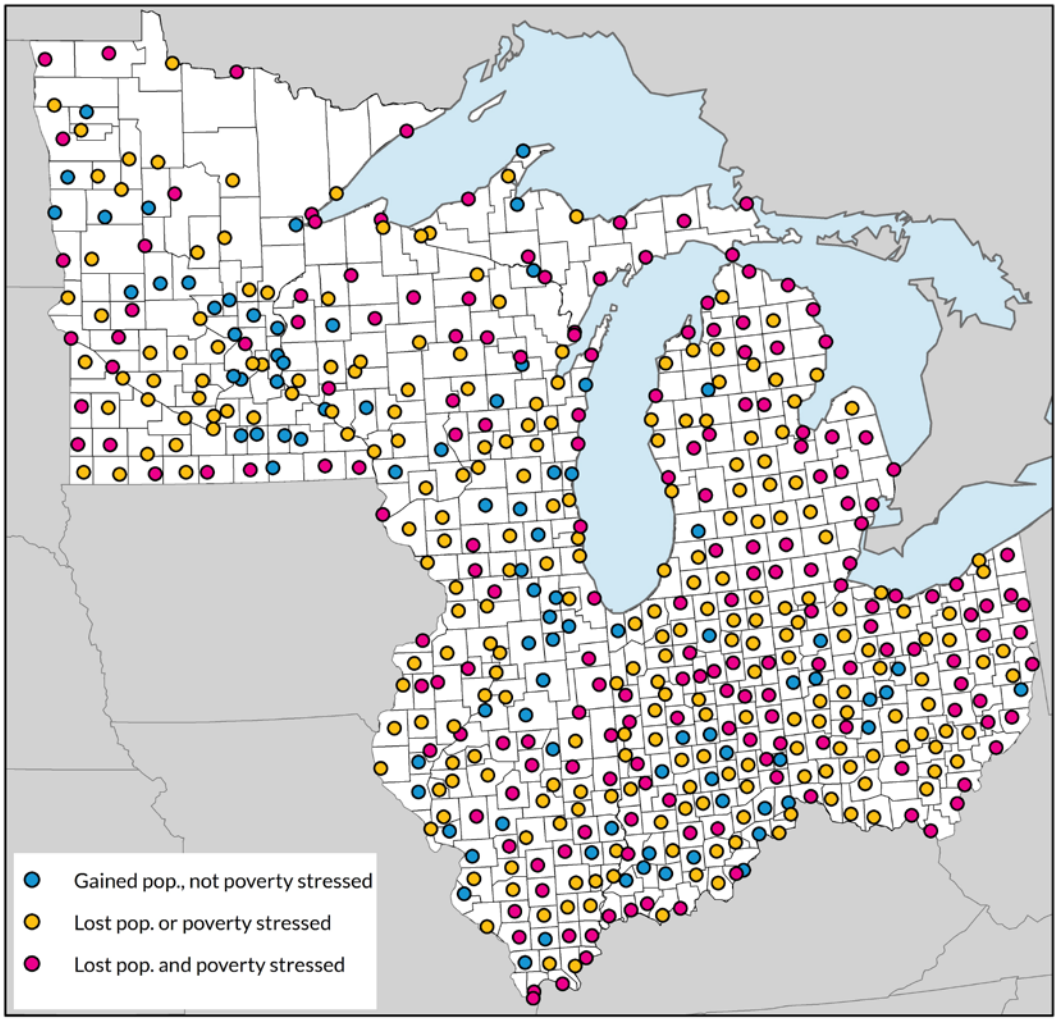
City neighborhoods are not alone, however, in facing the challenge of decline and disinvestment. All 524 Great Lakes counties have a county seat: a central place that hosts important civic, government, and economic functions for people who live and work in more dispersed locations. County seats also often provide access to services and host higher-density housing, including affordable rental housing for seniors and disabled people. Many of these places are very small: about 200 of them have fewer than 5,000 people, and about 200 more have between 5,000 and 25,000 residents. Only 24 had more than 100,000 residents, and only Chicago, Detroit, Indianapolis, Columbus, and Milwaukee have a half million or more.

The demographic changes and economic stress that have affected the Great Lakes since 2000 keenly affect many of these communities, reducing their vitality and straining the ability of their local governments, nonprofits, churches, and schools to keep up with functions that serve not only their own residents but people throughout their county. About half of county seats lost population between 2000 and 2013 (figure 24). Almost 70 percent of these places are "income stressed," meaning they either had poverty rates over 20 percent in 2013 or had experienced at least a 5 percentage point rise in poverty from 2000 to 2013. About 35 percent of county seats both lost population and are income-stressed,

including about a third of county seats with fewer than 25,000 people and 40 percent of those with at least 25,000.

FIGURE 24

Great Lakes County Seats Are under Stress



Sources: Population for 2000 from US Census SF1; poverty and population 2013 is an estimate from the 2011-2015 five-year American Community Survey estimates, Minnesota Population Center; National Historical Geographic Information System: Version 11.0 [Database] (Minneapolis: University of Minnesota, 2016), http://doi.org/10.18128/D050.V11.0.
Note: Poverty-stressed county seats either have more than 20 percent of residents below poverty on average from 2011 to 2015 or experienced at least a five percentage point increase in poverty from 2000 to 2011–15.

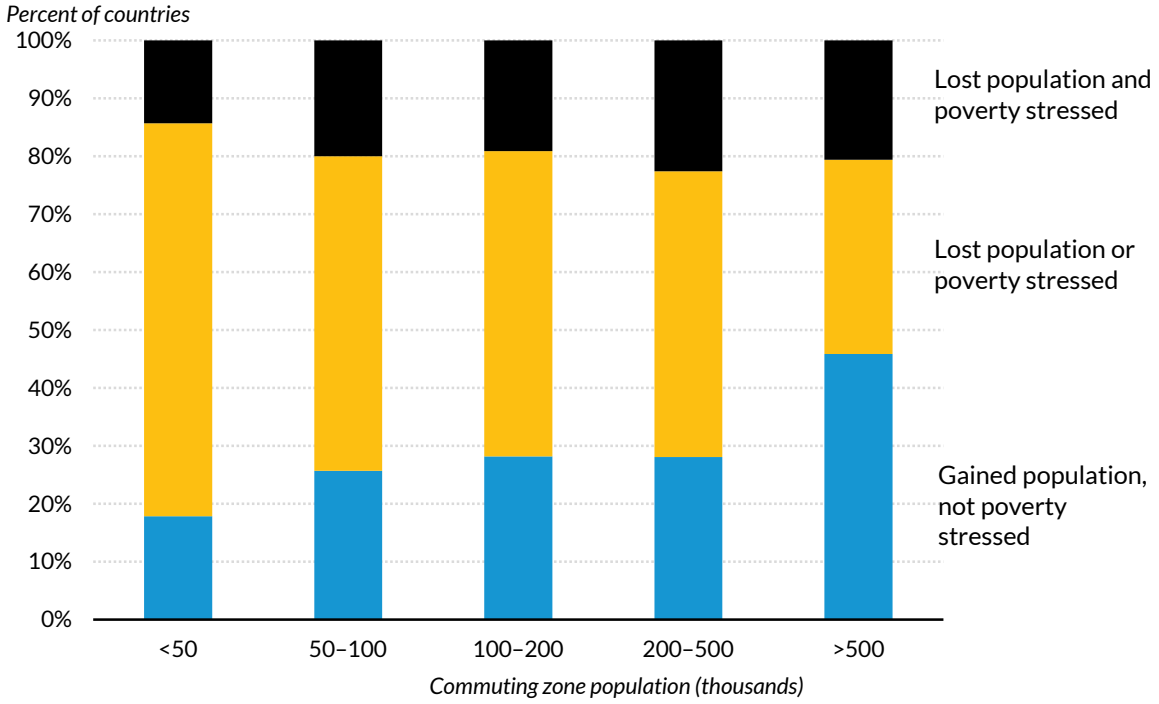
Distress in county seats sometimes reflects and reinforces stresses in surrounding areas. Since 2000, counties in rural areas and smaller metropolitan areas have faced higher levels of population or

poverty stress than counties in the largest metropolitan areas. Twenty-three of the 28 counties (82 percent) in the most rural commuting zones[16] (populations of 50,000 or less) had at least one of these signs of stress (figure 25). In contrast, this level of stress was true of only 54 percent of the 170 counties in the most populous commuting zones. However, counties in the most rural commuting zones were less likely than others to have both poverty stress and population loss. The most serious incidence of both of these challenges at once occurred in medium-sized commuting zones like Muncie, Indiana, where five of the six counties lost population and experienced poverty stress, and Findlay, Ohio, where four out of five counties had both signs of stress.

FIGURE 25

Rural Areas Are More Likely to Show Signs of Community Stress

2010



Sources: Population for 2000 from US Census SF1; poverty and population 2013 is an estimate from the 2011-2015 five-year American Community Survey estimates, Minnesota Population Center; National Historical Geographic Information System: Version 11.0 [Database] (Minneapolis: University of Minnesota, 2016), http://doi.org/10.18128/D050.V11.0.
Note: Poverty-stressed county seats either have more than 20 percent of residents below poverty on average from 2011 to 2015 or experienced at least a five percentage point increase in poverty from 2000 to 2011–15.

In the face of slow growth, the region can attain greater overall prosperity by accelerating educational attainment, income and wealth growth for African Americans and Hispanics, and reinvestment in its older communities.

With an aging and diversifying population, the region needs these legacy communities because they provide many qualities that facilitate in-person interactions, including density, mix of uses, established infrastructure, and historic fabric. Public reinvestment in these places will induce more residents and businesses to move in and stay there rather than dispersing across a landscape where they will eventually need new roads, schools, and public buildings that themselves will require ongoing maintenance and reinvestment. With an aging, stable population, the region can no more afford to overlook the potential of these legacy places than to accommodate racial disparities that, if closed, could make the region more prosperous.

Supporting the Great Lakes Region's Future Prosperity

A variety of policy and philanthropic strategies can help the Great Lakes region mitigate the challenges of the major demographic and economic transitions it faces and effectively leverage its assets to put it on the path to growth. Below, we consider two overarching goals that would support inclusive growth and long-term prosperity within the region.

Invest in People to Ensure Broad-Based Prosperity and High Quality of Life

Policies and investments that bolster the people currently living in the Great Lakes will be critical to ensuring the future productivity, stability, and prosperity of the region. These investments and supports will not only pay dividends for those who grow up in the region, they will also encourage more of those born there to remain and will attract more people from elsewhere to move in. We highlight four major implications to inform efforts to improve the quality of life and economic mobility of Great Lakes residents.

Build ladders of opportunity and economic mobility for young people, especially young people of color. Important economic development efforts under way internationally, nationally, and at the state and local levels to restore job growth need to be complemented with concerted efforts to build the strength of the rising labor force. As natural increase declines, investments in young people are preconditions to future regional prosperity. The biggest impact of such investments could come from closing the persistent disparities between non-Hispanic whites and young people of color, who increasingly include children of immigrants. Investing in **early education** can pay dividends for social and economic mobility, especially for young people of color. Universal prekindergarten is also an attractive benefit for all young families and is likely to incentivize them to raise their families in the region, which would contribute to population growth. **Workforce** attachment at a young age is important for skills development. Summer youth employment opportunities or apprenticeships that connect to career ladders for youth of color are important strategies. At the same time, the evidence is strong that Hispanics tend to leave school at higher rates in order to contribute to their family's income.[17] Finding strategies to balance school and work for immigrant youth will be important. **Work**

support policies that support young families, especially reliable and affordable child care, not only support higher levels of labor force participation but are also associated in international studies with higher total fertility (Castles 2003). And a wide array of efforts are needed to ensure that workers have **diverse post–high school learning opportunities** including associate's degrees, certificates, four-year degrees, and graduate and professional school as well as employer-provided training.

Beyond these efforts to help children and young adults get ahead, interventions are needed to reduce harms that fall most heavily on some of the most vulnerable and disempowered people in the United States. Abating and remediating **environmental hazards** such as lead and Superfund sites—which disproportionately afflict low-income and minority neighborhoods—can help prevent future impairments in cognitive development that block economic opportunity. Overcoming **public safety challenges** is also critically important for economic mobility. When there are no safe routes to school, children stay home; when neighborhoods are violent, children are traumatized and experience toxic stress that impairs healthy development; when a city targets people of color with fines and fees for minor violations, it is difficult to save; and when a juvenile is incarcerated, his or her long-term earnings potential is diminished. After more than a decade of decline in gun violence, levels have risen alarmingly again in the past three to five years in distressed neighborhoods and communities throughout the region.

Elevated rates of premature mortality in some Great Lakes states underscore the urgency of policies that support residents' health and well-being over their entire life course. In some states, **opioid overdoses** now claim more lives than automobile accidents, leading the US Centers for Disease Control to implement "a multifaceted, collaborative public health and law enforcement approach to the opioid epidemic, including implementing the CDC *Guideline for Prescribing Opioids for Chronic Pain*; improving access to and use of prescription drug monitoring programs; expanding naloxone distribution; enhancing opioid use disorder treatment capacity and linkage into treatment, including medication-assisted treatment; implementing harm reduction approaches, such as syringe services program; and supporting law enforcement strategies to reduce the illicit opioid supply" (Rudd et al. 2016). Premature mortality is also related to social isolation and economic insecurity, which are among the primary factors that contribute to the incidence of depression and suicide. Suicides represent the greatest share of **gun deaths** in the United States. Prevention of many causes of premature death also can be influenced by access to health care. For example, Massachusetts experienced a statistically significant decline in mortality after it expanded **health insurance coverage** in 2006, with the largest gains in low-income counties with low pre-reform insurance coverage rates (Sommers, Long, and Baicker 2014).

Welcome and integrate immigrants and their children so that they move to the region, stay there, and become economically productive members of their communities. Year after year and generation after generation, immigrants and their children integrate, become increasingly productive, and participate more in civic life. Regardless of any changes to national immigration policy, state and local policies, organizations, and services can facilitate the attractiveness of the region to new immigrants and hasten the integration process. Integration policies in the states and cities that do the most in this regard include increasing English as a second language programs in schools, aligning education and certification requirements when possible between countries of origin and state requirements, providing vocational training alongside language instruction, ensuring access to child care and early childhood education in immigrant neighborhoods, and providing options for immigrants to obtain driver's licenses and health insurance. More broadly, given the potential importance to the Great Lakes of either stricter or more accommodating national immigration policies, philanthropies interested in the health and future of the region would benefit from attending to developments in this arena.

Support the health, economic security, and public engagement of older adults. Beyond initiatives that support health across the life course and improve employment prospects and conditions for working adults, policies and innovations are needed to ensure that growing longevity allows people to enjoy a good quality of life in their seventies, eighties, and beyond. Savings vehicles, including efforts to use home equity to support financial security, are important for providing sufficient resources for older adults after they retire. Policies that support greater social engagement, including congregate and shared living, local government engagement, and arts and culture opportunities for older adults are important mechanisms for ensuring seniors age successfully.

As the number of Great Lakes residents over 75 increases, the region needs a rapid evolution in how older adults receive care. Many seniors rely on family members to care for them, but such unpaid caregiving reduces the availability of working-age adults to work for pay. However, people who work as paid caregivers currently often earn low wages with few benefits, making adult care an important target for innovations in labor practices, certifications and training, and provision for benefits like sick days and family leave. Protections that prevent wage theft and ensure household employers are following the law are important complements to such innovation. Such improvements in adult care have the potential to pay off in the longevity, health, and satisfaction of older adults and in greater confidence among family members that their older relatives are well-cared for.

Address the stressors facing distressed communities in the region, including not only the most populous cities long associated with these issues, but also the suburban, smaller city, and rural communities increasingly under stress. Racial and economic segregation in the Great Lakes has long

been identified as a distinguishing feature of many of its largest cities, especially Chicago, Cleveland, Detroit, and Milwaukee. Segregation limits opportunities available to vulnerable and low-income people, who live far away from good schools, employment centers, and healthy food but close to unacceptably high levels of gun violence, deteriorating housing and infrastructure, and pollutants. The consequences of segregation are a host of deleterious health, educational, and employment outcomes for people living in these communities. Addressing segregation in slow-growth environments is a particularly challenging task, because lowering segregation would require existing residents to move around a region more than encouraging new residents to live in diverse communities.

Although social and economic distress are most prominently associated with decaying central cities, in some ways these cities have advantages because their developed social service networks, active philanthropic investment, and other attributes improve local capacity to address challenges. Suburban municipalities and smaller population centers in the region are also indicating increasing signs of distress, but they often lack the resources or networks to effectively respond to the increasing needs of their communities. Resources and responses will be marshalled more effectively if state and county governments are also centrally involved in coordinating efforts to improve conditions in these smaller communities.

Addressing place requires a multifaceted approach: not only providing residents of distressed places opportunities where they live, but also giving people an opportunity to more effectively seek opportunities in higher-opportunity neighborhoods and communities. Promoting mixed-income communities could help address challenges faced in highly segregated regions and, in the longer term, provide residents with the ability to live in their communities throughout their lives. Policies, programs, and changes in the tax code at the federal, state, and local levels could be aligned to promote renovation of homes, commercial buildings, and community facilities. Initiatives designed to increase access to effective educational and employment opportunities will also assist residents facing barriers, and efforts to build diverse communities should be undertaken not only by encouraging higher-income residents to move into lower-income communities, but also by providing lower-income residents the opportunity to move to neighborhoods that better meet their needs. Finally, the violent crime and deleterious environmental stressors endured by some communities cannot be ignored if the Great Lakes region is to improve its long-term outlook for sustained prosperity.

Reform and Align Civic and Budgetary Efforts to Support the Region's Future Growth and Prosperity

The long-term prosperity of the Great Lakes region hinges upon its states and municipalities having the fiscal and civic capacity to implement the kinds of policies and investments outlined above. To lay the foundation for future prosperity in the Great Lakes region, stakeholders and decisionmakers should consider the following factors.

Undertake structural budget reforms to address the impact of an aging population on public revenue streams and expenditures, especially underfunded pension obligations. The growing number of people retiring and the shrinking of the working-age and child populations have implications for state revenues and expenditures. An aging population reduces tax revenues while putting greater pressure on spending programs (Francis and Sammartino 2015). Demographic changes may affect state and local tax bases, potentially resulting in fewer resources for public services. A growing senior population may result in a shallower tax base due to declining revenues from personal income, sales, and property taxes. A growing senior population also has implications for state expenditures. One of the largest burdens on state budgets is Medicaid, which represented 16 percent of state-financed spending in fiscal year 2015 (Francis, Gault, and Zhang 2016). The growing cost of health care is one of the greatest fiscal challenges facing the federal and state governments, given the rising per capita costs of health care and the growing numbers of seniors. Health care costs are expected to continue growing faster than the economy. Since the implementation of the Affordable Care Act, federal and state Medicaid spending has slowed but is still projected to grow almost 6 percent annually from 2014 to 2019 (Francis, Gault, and Zhang 2016). Some observers might see the declines in the number of children as an opportunity to reduce the funding of public education, but such a rollback could threaten regional prosperity. Sustained educational expenditures will be necessary for young people to have the knowledge and skills necessary to contribute to the fast-changing demands of the workplace and to encourage young families to remain in or move to the area.

As more baby boomers retire, states' public pension obligations may become an increasingly significant area of policy debate. Although some Great Lakes states have well-funded pension systems, the pension system in Illinois is the most underfunded in the United States (Barkley 2012).These obligations may result in trade-offs in other public spending. Pension obligations in many states and cities will also continue to put pressure on public investments in school improvement, family supports (e.g., child care), employment services, and public safety. Given the demographic landscape of the Great Lakes, there is the potential for prolonged debates in state capitals that will lead to underinvestment in

the cities that have the greatest potential for increases in regional productivity. Underlying these debates are racial, age, and geographic tensions: black versus white, young versus old, rural versus urban. We are seeing these tensions play out in our national politics, but they are also playing out in the Great Lakes region, specifically with the Detroit bankruptcy and the dynamics in Chicago and Illinois reaching a breaking point as well.

Focus on economic development policies that create jobs instead of just moving jobs around. States and municipalities have long engaged in a range of tax incentives designed to encourage businesses to enter, grow, or remain in their boundaries. This approach has several drawbacks. Jurisdictions offering tax breaks need to make up for lost revenue through other taxes or spending cuts. In small communities, a tax incentive can foster heavy reliance on a single employer that may not be committed to the community's long-term welfare. And although tax incentives can affect the location of firms within a region, competition between jurisdictions—or between states—tends to reduce any local competitive advantage over time (Francis 2016). States could discourage this sort of counterproductive competition (Kenyon, Langley, and Paquin 2012) by putting additional resources into workforce development policies that build skills transferable to multiple potential employers rather than being reliant on one particular employer (Cafcas and LeRoy 2016).

Implement new systems for civic engagement and decisionmaking at the state and local level. To arrive at mutually beneficial policies and public budgets that address the diverse needs of constituents within the region, new forms of civic engagement, such as participatory budgeting, should be explored. More broadly, Great Lakes decisionmakers should adopt an evidence-based approach to policymaking that considers the costs and benefits of different strategies and their potential return on investment in terms of supporting the long-term economic mobility for residents and the resiliency of the region.

Ensure racial minorities and immigrants have a stronger voice in political processes. It will be important to create multiracial coalitions to overcome the exclusionary and discriminatory policies that have affected racial minorities and first- and second-generation immigrants. Creating and sustaining greater participation by underrepresented residents in the political process may include reforms in voting (same-day registration, nonpartisan primaries) and districting (nonpartisan commissions). In addition, specific organizing efforts or leadership programs in these communities to strengthen their knowledge of and participation in the US political system will be beneficial.

Create mechanisms for state and local governments to support the current and future capital costs of vital infrastructure, including water and energy utilities. State investment in infrastructure has languished, particularly for roads but also for buildings and other structures (Boyd and Dadayan

2015; Francis, Gault, and Zhang 2016). Investment in infrastructure will continue to be a challenge in light of the other tax and expenditure pressures resulting from demographic changes. The fiscal health of the Great Lakes states will affect their ability to secure funding to support capital projects, including their capacity to leverage bond markets, which serve as critical sources of finance for such projects. States will need to learn and improve on the best practices for public financing of all forms of existing infrastructure as well as expected new civil and capital works. Failure to make such investments will undermine any economic development and social service efforts.

These objectives and policy suggestions only scratch the surface of the many opportunities to improve outcomes for people and places throughout the Great Lakes. More in-depth analysis of trends and policy options will shed light on what needs to be done and what decisionmakers can do to promote equitable prosperity and sustain the region's quality of life for coming generations.

Notes

1. US Bureau of Economic Analysis, Regional Economic Accounts. Employment figures are from series SA25N. Gross domestic product figures are from series Real GDP by state. See "Regional Economic Accounts: Download," Bureau of Economic Analysis, accessed December 14, 2016, http://www.bea.gov/regional/downloadzip.cfm. A state's gross state product is equivalent to the value-added produced by that state and equals its gross output (sales or receipts and other operating income, commodity taxes, and inventory change) less the value of its intermediate inputs (consumption of goods and services purchased from other US industries or imported). For more documentation on measurement of the gross domestic product by state, see Bureau of Economic Analysis (2006).

2. The 2009 rescuing and restructuring of GM and Chrysler likely helped prevent further erosion of auto manufacturing employment in the Great Lakes and set the stage for the turnaround. See Goolsbee and Krueger (2015).

3. Data are from the 2000 Census of Population, long form, and the 2006, 2010, and 2015 1 percent American Community Survey. These self-reported data are estimates by household respondents for all members of their households and can be unreliable. One common respondent error is to report only 8 hours per week because of the assumption that the question is for the number of hours per day worked. We therefore restrict this analysis to respondents who reported working at least 11 hours per week and at least 14 weeks in the previous year. We also confined our analysis to workers whose 2015 adjusted wages were over $1 per hour and under $1,000 per hour to avoid the impact of extreme outliers and protect against values resulting from respondent errors. Because such errors remain possible in these data, they must be treated with necessary caution, but the questions remained broadly the same from 2000 (US Census long form) to 2015 (American Community Survey). Thus we still consider the data reliable enough to paint a broad picture of what happened at the heart of the labor market over this 15-year period. We set the breaks between quartiles at a constant national level for all four years of analysis, using the quartile breaks for the wages per hour for all states, for all workers earning over $1 and under $1,000 per hour among workers reporting 11 or more hours of work per week and working at least 14 weeks per year.

4. See note 3 for details and caveats on sources.

5. Manufacturing areas in the Southeast were at least as badly affected by the decline in the manufacturing sector as the Great Lakes.

6. Minnesota had the highest state-level fertility rate in the region in 2014 (66.4 births per 1,000 women ages 15 to 44 years old), well above the national rate (63.0); Indiana (64.9) also exceeded the national average. Ohio (63.1) about matched the national average, but Michigan, Illinois, and Wisconsin were well below average (60.6, 61.1, and 61.8, respectively) (US Department of Health and Human Services,, Centers for Disease Control and Prevention (CDC), National Center for Health Statistics, Division of Vital Statistics, Natality public-use data 200714, on CDC WONDER Online Database, February 2016. See "About Natality, 2007–2014," Centers for Disease Control and Prevention, CDC WONDER, accessed December 27, 2016, https://wonder.cdc.gov/natality-current.html.

7. The birth rate 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 years old).

8. Data from US Department of Health and Human Services, Centers for Disease Control and Prevention (CDC), National Center for Health Statistics, Division of Vital Statistics, Natality public-use data 2007–14, on CDC WONDER Online Database, February 2016. See "About Natality, 2007–2014," Centers for Disease Control and Prevention, CDC WONDER, accessed December 27, 2016, https://wonder.cdc.gov/natality-current.html.

9. Data in this section are from the American Community Survey annual 1 percent survey via IPUMS.

10. Puerto Ricans and residents of other US possessions total between 10,000 and 15,000 of these annual arrivals to the Great Lakes. The American Community Survey does not have data on US residents living abroad or in Puerto Rico or on foreign-born people who leave the United States.

11. We used two methods to estimate departures from the Great Lakes to foreign countries. First, estimates for the United States as a whole suggest that annual foreign-born emigration from the United States is between 15 and 20 percent of annual immigration. Bhaskar and coauthors (2013) suggest that about 200,000 foreign-born people emigrate from the United States each year, compared with about 12.2 million who immigrate to the United States. Flows of US citizens include about 200,000 more who enter the United States 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 parents. If that same relationship holds true for the Great Lakes, then between 20,000 and 25,000 foreign-born people would have left the United States from the Great Lakes annually on average from 2007 to 2015. If we assume a proportional number of Great Lakes residents 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 United States each year from the Great Lakes. This estimate yields a total of about 95,000 to 100,000 departures from the United States 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, substantially exceeding the estimate yielded by applying a constant ratio to known immigration. The annual estimates of out-migration produced by this residual method suggest that a much larger number of people left the United States for destinations abroad from 2010 to 2012. This estimate would be consistent with research using other sources suggesting that the number of people returning to Mexico from the United States exceeded the number arriving from the United States 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.

12. Sam Brodey, "Forget Brooklyn. Could Columbus Be the Next Hot Millennial Enclave?" *Mother Jones*, June 1, 2015, http://www.motherjones.com/media/2015/05/columbus-ohio-millennials-brooklyn.

13. This effect has been observed across nations; fertility rates in Spain and Italy are low in part because national policy makes it hard for mothers of young children to work, whereas the reverse is true in France and the Nordic countries (Castles 2003). Women are also likelier to have more than one child, thereby increasing overall fertility, when they are satisfied with government and with the education and health care systems (Harknett, Billari, and Medalia 2014).

14. We compute the project labor force size by projecting forward labor force participation rates by age and state found in the Local Area Unemployment Statistics data from the Bureau of Labor Statistics, coupled with projected population estimates found in Rolf Pendall, Nan Marie Astone, Steven Martin, H. Elizabeth Peters, Austin Nichols, Kaitlin Franks, Hildner, Allison Stolte, and Pam Blumenthal, "Mapping America's Futures," Urban Institute, August 2015, http://apps.urban.org/features/mapping-americas-futures/#map. We used linear estimation to project forward existing trends in labor force participation rates by age and state between 2000 and 2014 for those 25 or older. For those 24 or younger we projected participation rates forward based on the 2009–14 period, since the long-standing decline in labor force participation rates for those ages had stabilized. To account for future uncertainty, we ratchet down the size of the projected rate change between 2025 and 2028, and hold rates by age and state constant between 2028 and 2040. We estimate the projected labor force size by age and state by linking these participation rates to population estimates by age in Mapping America's Futures.

15. Cait Murphy, "Is There Really a Skills Gap?" *Inc.*, April 2014, http://www.inc.com/magazine/201404/cait-murphy/skills-gap-in-the-labor-force.html.

16. Commuting zones are economically connected groups of counties that include both rural and metropolitan areas.
17. Molly M. Scott, "Dropping Out and Clocking In," *Urban Wire* (blog), Urban Institute, April 15, 2015, http://www.urban.org/urban-wire/dropping-out-and-clocking.

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