



# Michigan's Path to a Prosperous Future: Economic, Workforce, and Talent Challenges and Opportunities

Paper 2 in a Five-Part Series

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## About the Series

Altarum and the Citizens Research Council of Michigan have joined forces to present a realistic, data-informed vision of Michigan's future based on current trends and trajectories across multiple dimensions – economic, demographic, workforce, infrastructure, environment, and public services. The papers are available on both organizations' websites.

Research for this project was conducted in two phases. Phase I involved a landscape scan of existing resources and expert knowledge of trends and challenges. For each domain, published and grey literature were reviewed and interviews with stakeholders were conducted to answer questions such as:

- Where is Michigan now – strengths, weaknesses, major challenges?
- What data is available to characterize the current situation and to track progress? Are there existing forecasts, either descriptive or data-driven?
- How does Michigan compare to other states, especially in the Midwest?
- What path are we on currently, and where are opportunities to shift the path through policies and investment?

Phase 2, as represented in an Executive Summary and a series of five papers, built on Phase 1 to include data and context.

Altarum ([altarum.org](http://altarum.org)) is a nonprofit organization focused on improving the health of individuals with fewer financial resources and populations disenfranchised by the health care system.

The Citizens Research Council ([crcmich.org](http://crcmich.org)) works to improve government in Michigan by providing factual, unbiased, independent information concerning significant issues of state and local government organization, policy, and finance.

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# Report Highlights

This report assesses the current status of Michigan's economy, workforce, and talent and evaluates key opportunities and threats to the state over the coming decades. Key findings of the report include:

- **Michigan is relatively poor when compared to the average state.** In 2021, the state ranked 34<sup>th</sup> among the states in both real per capita personal income and real median household income. Further, Michigan's economic prosperity has trended down for many decades; in 1950, Michigan ranked 11<sup>th</sup> among the states in per capita personal income. Declines in traditionally high-wage manufacturing jobs along with sluggish wage growth in that sector contributed to long-run decline in per capita income.
- **Incomes are especially low for Black households and those that reside in principal cities around the state.** The poverty rate for Black households in Michigan (26.2 percent) is 4.4 percentage points above the national rate. Similarly, households that live in principal cities within Michigan's 15 large metropolitan statistical areas have a 20.6 percent poverty rate as compared to only 16 percent nationally for such households.
- **Michigan's automotive legacy is still an asset to the state.** Michigan still has a very high concentration of high-wage, high-skill employment among engineers; a concentration that significantly exceeds its Midwest neighbors. The state also continues to be a leader among Midwest states in new business development and entrepreneurship, which is a critical element of new job creation. Still, the state also falls well below national averages in terms of female and minority business ownership.
- **Michigan lags behind the nation in college degree attainment.** Michigan ranked 34<sup>th</sup> nationally in the percentages of its 25-and-older population that held at least an associate's degree and that held at least a bachelor's degree. It also ranked behind most of its Midwest neighbors. Data demonstrate that college degree attainment is a key factor in determining a state's economic prosperity.
- **Michigan's school-age youth are not fully prepared for college and high-paying careers.** Michigan's 4<sup>th</sup>-grade and 8<sup>th</sup>-grade students scored well below the national average on standardized proficiency tests for reading and math in 2022. Following a nationwide trend, those scores also dipped significantly following the COVID-19 pandemic. Further, most Michigan high school graduates are not meeting college readiness proficiency standards; and those results vary dramatically by race and geography.

## Introduction

The first paper in this series, *Michigan's Path to a Prosperous Future: Population and Demographic Challenges and Opportunities* ([www.crcmich.org/publications/prosperous-future](http://www.crcmich.org/publications/prosperous-future)), described Michigan's stagnant population growth. Michigan's population is growing slower than the national average. Internal growth is hampered by Michigan's aging population and more people are moving to other states than are moving to Michigan. Although the state is becoming more diverse, a disproportionately high segment of this population has suffered from poorer health, poorer educational outcomes, and less access to wealth-generating investment opportunities, pointing to the importance of focused efforts to help reduce these disparities.

Michigan's economy, workforce, and talent have contributed to this stagnant growth and have felt the effects of it. Michigan's tie to the manufacturing sector and the severe effects of past recessions have hindered growth. To begin to grow at a faster pace, there must be job opportunities and Michigan must be an attractive market to keep young residents from moving away and to attract people to the state.

For much of the twentieth century, Michigan's economic vitality was fueled by the birth of the automotive industry. Henry Ford's innovative assembly line manufacturing process helped make automobiles less expensive. While automobiles were initially affordable only to the very affluent, these production efficiencies soon made them accessible to a much wider swath of the population. At the same time, the manufacturing process made workers incredibly productive, allowing assembly line workers to earn higher wages. The result was a thriving middle class; workers with little formal education were able to gain employment paying a healthy wage sufficient to support a family and a comfortable living standard. Michigan became one of the most prosperous states in the country and, in fact, among the most prosperous places in the world.

The assembly line process and other production innovations were quickly adopted by other manufacturers, driving a massive increase in the country's capacity to produce affordable manufactured goods and in wages for manufacturing workers. Living standards increased at an unprecedented rate.

However, new challenges arose in the latter half of the twentieth century that strained Michigan's economic vitality. The globalization of the world economy – driven by the same technological innovations that helped bring Michigan's prosperity – allowed manufacturers access to cheaper labor forces both in other regions of the United States and in other countries of the world. Advanced automation continued the trend of reducing production costs of goods, but it also replaced the need for workers in the factory. As the world "caught up" to Michigan, these factors put downward pressure on the wages and employment levels of manufacturing workers in the state. Further, advanced technology created the need for a more highly-skilled and educated workforce; high-paying jobs are now increasingly reserved to those with higher skills, making the path to a middle-class lifestyle more difficult for workers with only a high-school education.

Still, while its economic footprint has shrunk, the automotive industry continues to drive Michigan's economy. Today, however, recognition of the long-term threats of global climate change is bringing another major challenge to that footprint. Auto manufacturers are in the early stages of a massive transition from traditional gasoline-powered vehicles to electric vehicles. This transition will further reduce the need for manufacturing workers within the automotive industry as electric-powered vehicles have fewer parts and require less labor-intensive assembly. Further, the revamped manufacturing process will require new and/or converted manufacturing sites; Michigan could potentially lose some of its historical foothold in this important industry. Michigan's navigation of this transition will have a huge impact on Michigan's long-term economic prospects.

Michigan's economic challenges will be further exacerbated by a decline in the population of traditional working age adults in the state.<sup>1</sup> Between 2020 and 2040, Michigan's working age population (aged 18 to 64) is expected to shrink by one percent. In contrast, the population over age 65 will grow by over 30 percent. This shift will make it more difficult for Michigan employers to find workers to fill key positions, particularly in areas like health care where an aging population will increase demand for services. Further, Michigan's labor force participation rate – the percentage of the civilian population that is either employed or looking for work – is in the bottom ten across all states, and long-term forecasts suggest it will not improve over the coming decades.

This report reflects on these challenges and assesses the current state of the Michigan economy and highlights Michigan's current strengths and weaknesses in terms of economic development and workforce talent as the state prepares for the next few critical decades that will shape its economic future. It documents that Michigan has fallen below national averages in key measures of economic prosperity and workforce talent; yet its automotive legacy also leaves the state with high concentrations of talent in important high-skilled occupations. Finally, it also shows that prosperity and economic opportunity are not equally accessible to all Michiganders.

While Michigan was the birthplace of the economic innovations that helped create a thriving middle class in the United States, it now ranks below average relative to other states in terms of key measures of economic vitality. A shift toward lower-wage employment over recent decades has turned Michigan's greatest economic strength into a relative weakness.

<sup>1</sup>See the first paper in this series for a fuller discussion of these important state population and demographic trends.

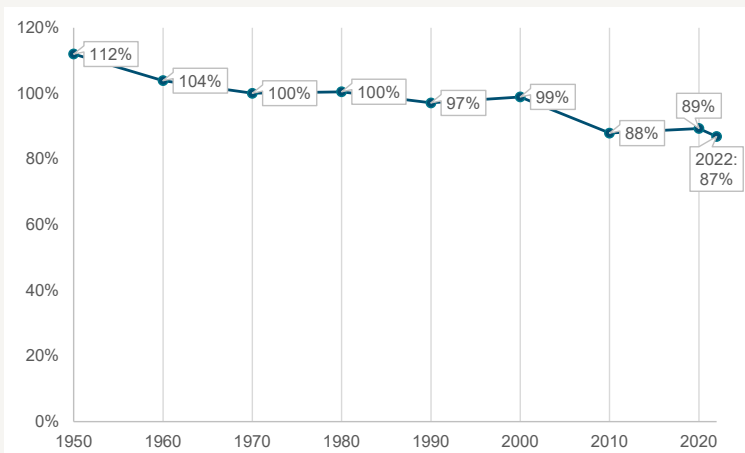
# Michigan's Economic Prosperity Relative to the Country

## Weakness: Incomes in Michigan Relative to the Nation

In 1950, Michigan's per capita personal income was 12 percent higher than the nationwide level ranking it 11<sup>th</sup> among all states. By 1970, however, that income advantage had disappeared (**Chart 1**). Michigan's per capita income remained at or slightly below the national level for the next three decades. Then, Michigan experienced a tumultuous economic slowdown during the first decade of the new century; by 2010, Michigan's per capita personal income had fallen 12 percent below the national level, putting Michigan in 38<sup>th</sup> among all states on this metric. In the most recent 2022 data, Michigan still ranks 38<sup>th</sup> with income 13 percent below the nationwide level.

Looking at more recent data, Michigan continues to fall in the lower half of all states on two frequently used metrics of economic prosperity: real per capita personal income and real median household income. Real per capita personal income incorporates a broad measure of income including not only earned wages but also interest and dividend income and transfer payments such as Social Security and public assistance. The income data also have the advantage of being adjusted for differences in the cost of living across states as measured by regional price parities developed by the U.S. Bureau of Economic Analysis.

**Chart 1: Per Capita Personal Income in Michigan**  
Percentage of U.S. Level



Source: U.S. Bureau of Economic Analysis

Real median household income reflects the income in a typical household, with 50 percent of households earning more income and 50 percent of households earning less.

**Table 1** summarizes state-level data on both income measures for 2008<sup>2</sup> and 2021 and includes the top ten and bottom ten states in 2021 along with Michigan and ten neighboring Midwest states (each bolded and italicized).

In 2021, real per capita personal income in Michigan was \$51,996, ranking 34<sup>th</sup> among all states and about 6.3 percent below the national amount of \$55,477. The good news for Michigan is that its ranking among all states on this income metric has improved from 38<sup>th</sup> to 34<sup>th</sup> across this 13-year time period. However, Michigan remains well below its Midwest neighbors. Both in 2008 and 2021, it ranked behind all but one (Kentucky) of the ten neighboring Midwest states. It is notable that none of those Midwest neighbors ranked in the top ten nationally; however, five of them – Minnesota, Pennsylvania, Illinois, Wisconsin, and

Iowa – did rank within the top 20. (**Table 1**) Despite its modest gains in the national ranking, Michigan still fares poorly among its neighbors in terms of the average income of its population.

Michigan also falls below the national average for real median household income. Real median household income in Michigan was \$64,488 in 2021, almost nine percent below the national median of \$70,784. Michigan's median income ranks below six of the ten neighboring Midwest states (**Table 1**). Unlike the improvement in national rank noted with per capita personal income over the same time period, Michigan's rank for median household income fell from 27<sup>th</sup> in 2018 to 34<sup>th</sup> in 2021. Among the states passing Michigan was neighboring Indiana, which moved from 34<sup>th</sup> to 28<sup>th</sup> nationally over the period. Overall then, Michigan trails the national average in terms of both the level and growth rate of median household income.

<sup>2</sup>Note that 2008 was the first year in which Regional Price Parities data were available to adjust for state-to-state differences in cost of living.

**Table 1: Real Personal Income Per Capita and Real Median Household Income by State**

Real Personal Income Per capita					Real Median Household Income				
State	2008		2021		State	2008		2021	
	Income	Rank	Income	Rank		Income	Rank	Income	Rank
Connecticut	\$59,248	1	\$70,424	1	Maryland	\$80,369	5	\$97,332	1
Massachusetts	\$52,013	3	\$68,104	2	New Hampshire	\$83,478	1	\$88,841	2
Wyoming	\$55,009	2	\$66,108	3	New Jersey	\$82,381	2	\$88,559	3
South Dakota	\$50,811	5	\$62,032	4	Utah	\$78,888	6	\$87,649	4
New Hampshire	\$45,978	15	\$61,946	5	Washington	\$71,438	12	\$87,648	5
North Dakota	\$50,196	6	\$61,441	6	Massachusetts	\$76,091	10	\$86,566	6
New Jersey	\$51,419	4	\$61,239	7	Colorado	\$76,877	9	\$84,954	7
New York	\$46,042	14	\$60,870	8	Hawaii	\$77,606	8	\$82,199	8
Colorado	\$44,263	22	\$59,545	9	Oregon	\$65,252	18	\$81,855	9
California	\$42,050	30	\$59,449	10	California	\$71,921	11	\$81,575	10
<b>Minnesota</b>	<b>\$47,537</b>	<b>10</b>	<b>\$58,419</b>	<b>12</b>	<b>Minnesota</b>	<b>\$69,286</b>	<b>13</b>	<b>\$80,441</b>	<b>13</b>
<b>Pennsylvania</b>	<b>\$44,702</b>	<b>19</b>	<b>\$57,861</b>	<b>14</b>	<b>Illinois</b>	<b>\$67,178</b>	<b>16</b>	<b>\$79,253</b>	<b>15</b>
<b>Illinois</b>	<b>\$45,973</b>	<b>16</b>	<b>\$57,522</b>	<b>15</b>	<b>Pennsylvania</b>	<b>\$64,842</b>	<b>20</b>	<b>\$72,627</b>	<b>23</b>
<b>United States</b>	<b>\$43,495</b>		<b>\$55,477</b>		<b>Iowa</b>	<b>\$63,252</b>	<b>26</b>	<b>\$72,429</b>	<b>24</b>
<b>Wisconsin</b>	<b>\$44,405</b>	<b>20</b>	<b>\$55,412</b>	<b>19</b>	<b>United States</b>	<b>\$63,455</b>		<b>\$70,784</b>	
<b>Iowa</b>	<b>\$46,556</b>	<b>13</b>	<b>\$55,364</b>	<b>20</b>	<b>Indiana</b>	<b>\$58,683</b>	<b>34</b>	<b>\$70,190</b>	<b>28</b>
<b>Tennessee</b>	<b>\$40,418</b>	<b>35</b>	<b>\$54,005</b>	<b>25</b>	<b>Wisconsin</b>	<b>\$64,587</b>	<b>21</b>	<b>\$69,943</b>	<b>29</b>
<b>Ohio</b>	<b>\$42,244</b>	<b>29</b>	<b>\$53,367</b>	<b>27</b>	<b>Michigan</b>	<b>\$62,806</b>	<b>27</b>	<b>\$64,488</b>	<b>34</b>
<b>Indiana</b>	<b>\$40,605</b>	<b>32</b>	<b>\$52,851</b>	<b>30</b>	<b>Missouri</b>	<b>\$58,075</b>	<b>38</b>	<b>\$63,594</b>	<b>36</b>
<b>Missouri</b>	<b>\$44,315</b>	<b>21</b>	<b>\$52,155</b>	<b>33</b>	<b>Ohio</b>	<b>\$59,205</b>	<b>32</b>	<b>\$62,689</b>	<b>38</b>
<b>Michigan</b>	<b>\$39,952</b>	<b>38</b>	<b>\$51,996</b>	<b>34</b>	<b>Tennessee</b>	<b>\$50,083</b>	<b>46</b>	<b>\$62,166</b>	<b>40</b>
<b>Kentucky</b>	<b>\$38,854</b>	<b>42</b>	<b>\$49,900</b>	<b>41</b>	Georgia	\$58,314	36	\$61,497	41
Arizona	\$36,905	48	\$49,766	42	Oklahoma	\$58,167	37	\$60,096	42
Idaho	\$36,635	50	\$49,501	43	Florida	\$56,585	39	\$59,734	43
Arkansas	\$38,522	43	\$49,099	44	Louisiana	\$49,907	48	\$57,206	44
Alabama	\$39,705	39	\$48,984	45	Alabama	\$56,105	40	\$56,929	45
South Carolina	\$38,048	45	\$48,578	46	<b>Kentucky</b>	<b>\$51,907</b>	<b>45</b>	<b>\$55,629</b>	<b>46</b>
New Mexico	\$37,616	46	\$48,544	47	New Mexico	\$53,110	44	\$53,463	47
Hawaii	\$40,589	33	\$46,694	48	Arkansas	\$49,936	47	\$50,784	48
West Virginia	\$38,053	44	\$46,344	49	West Virginia	\$47,928	49	\$46,836	49
Mississippi	\$36,642	49	\$45,960	50	Mississippi	\$45,975	50	\$46,637	50

Source: Personal income data from U.S. Bureau of Economic Analysis expressed in 2012 dollars. Personal income for each state is adjusted using regional price parities which estimate cost of living differences across states. Median household income data from U.S. Bureau of Labor Statistics expressed in 2021 dollars. Inflation adjustment uses the Bureau’s research series for the Consumer Price Index for all Urban Consumers (CPI-U-RS).

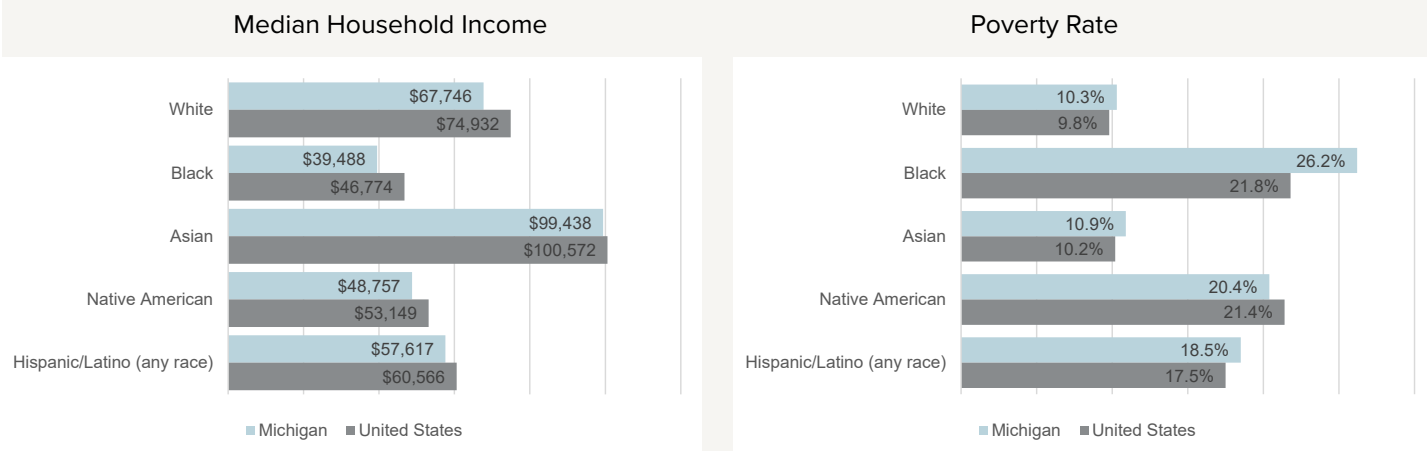
## Weakness: Economic Prosperity by Race and Geography

State economic strength also derives from fully realizing the talent and skill potential of its workforce – which, in turn, relies on shared economic opportunity for all the state’s residents. However, segments of Michigan’s population (and of the national population more broadly) are disproportionately affected by poverty and low educational attainment; these residents are also more likely to live in areas with low-performing schools. Economic opportunity is not equitably shared across all residents in a number of important ways, and Michigan is relatively weak in this regard relative to other states.

First, Michigan residents experience greater income disparity across racial, ethnic, and geographic lines. Significant variation exists in median household income and poverty rates in 2021 across different racial and ethnic groups in both Michigan and in the U.S. as a whole.

**Chart 2** shows that median incomes for Black households in Michigan are about 58 percent of that for White households; nationally, they are about 62 percent. Smaller but significant income gaps are present for Native American households (72 percent in Michigan; 71 percent nationally) as well as for households with Hispanic/Latino ethnicity (85 percent in Michigan; 81 percent nationally).

**Chart 2: Economic Characteristics of Households in 2021 by Race/Ethnicity**



Source: American Community Survey, 2021 1-Year Estimates.

Similarly, the data show a greater share of the Black, Native American and Hispanic/Latino Michigan and U.S. populations live with incomes below the federal poverty level. However, the poverty rate for Black Michigan residents is significantly higher than it is for Black residents nationally – by 4.4 percentage points.

The U.S. Office of Management and Budget (OMB) has designated over 1,000 statistical areas across the country reflecting populated regions with high degrees of social and economic integration. Michigan has 15 designated metropolitan statistical areas<sup>3</sup> with high population density and an urban area with a minimum population of 50,000 people. These effectively include Michigan’s most densely populated metropolitan areas. Michigan also contains 18 micropolitan statistical areas<sup>4</sup> centered on smaller urban areas with populations of at least 10,000 people. About 82 percent of Michigan’s estimated 2021 population live within one of the population-dense metropolitan statistical areas; around 10 percent live in a one of the micropolitan statistical areas, while the remaining 8 percent live in more rural regions of the state outside of any statistical area.

Income is concentrated in suburban communities. **Chart 3** compares the median household income and poverty rates for the full population to the populations living within (and outside) the two statistical area designations. Several trends are notable in the data. First, households living within the most-populous metropolitan statistical areas, but outside the principal cities in those areas, have the highest median incomes and the lowest poverty rates; this is true in both Michigan and nationwide. Second, households living in the smaller micropolitan statistical areas, but again outside the principal city, also have higher incomes and lower poverty rates; this group in fact has higher median incomes and lower poverty rates than the national measures for similar areas nationwide.

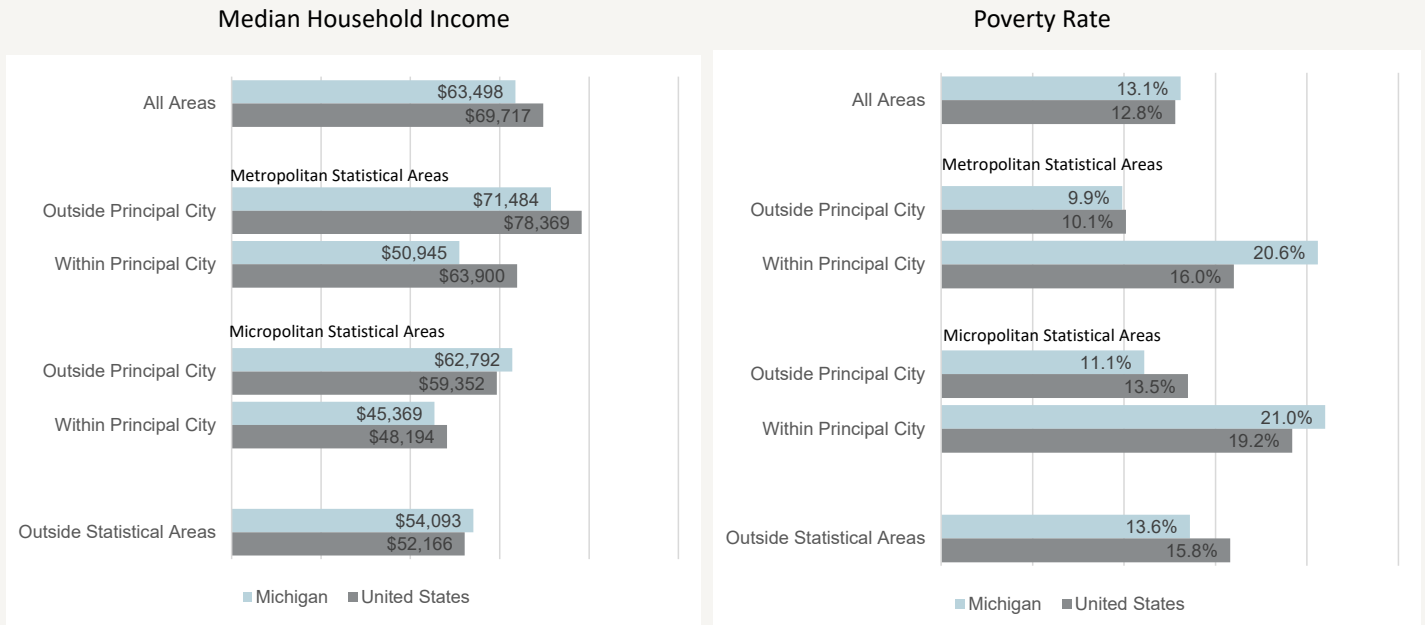
In Michigan, the populations living within the principal cities (both in the largest metropolitan statistical area and the smaller micropolitan statistical areas) have the lowest median incomes and the highest poverty rates. Nationally, this pattern holds true, but to a smaller degree, for principal cities in the micropolitan statistical areas.

But Michigan deviates significantly from national figures with regard to its largest principal cities in the 15 metropolitan statistical areas. Clearly, the City of Detroit, as Michigan’s largest city, is a key driver within the data; and median household income in Detroit in 2021 was \$36,140. But Detroit is not the only large urban city with low median income in the data. For those with reported data, the cities of Flint (\$37,102), Kalamazoo (\$40,227), and Lansing (\$48,818) all have median incomes well below the overall state median and each are the principal cities with their MSAs.

<sup>3</sup>Michigan’s 15 metropolitan statistical areas include: Ann Arbor, Battle Creek, Bay City, Detroit-Warren-Dearborn, Flint, Grand Rapids-Kentwood, Jackson, Kalamazoo-Portage, Lansing-East Lansing, Midland, Monroe, Muskegon, Niles, Saginaw, and South Bend-Mishawaka (IN/MI). Data include only Michigan residents within MSAs that cross state boundaries.

<sup>4</sup>Michigan’s 19 micropolitan statistical areas are regions around these principal cities: Adrian, Alma, Alpena, Big Rapids, Cadillac, Coldwater, Escanaba, Hillsdale, Holland, Houghton, Iron Mountain, Ludington, Marinette (MI/WI), Marquette, Mount Pleasant, Sault Sainte Marie, Sturgis, and Traverse City. Data include only Michigan residents within MSAs that cross state boundaries.

### Chart 3: Economic Characteristics of Households in 2021 by Geographic Factors



Source: American Community Survey, 2021 1-Year Estimates.

The results show that one of Michigan’s ongoing economic weaknesses is lower incomes and less economic prosperity for households within both its large and small central cities. From a public policy perspective, the data suggest that **economic development efforts should be designed with a special focus on the state’s anchor cities with the goal of restoring business development and employment opportunities in high-wage industries within these core cities.** A fuller urban economic agenda for the state would also require a focus on issues beyond pure job creation, including attracting workforce talent back to these cities, focused investments to help restore needed infrastructure, and mitigating environmental and other challenges related to previous development.

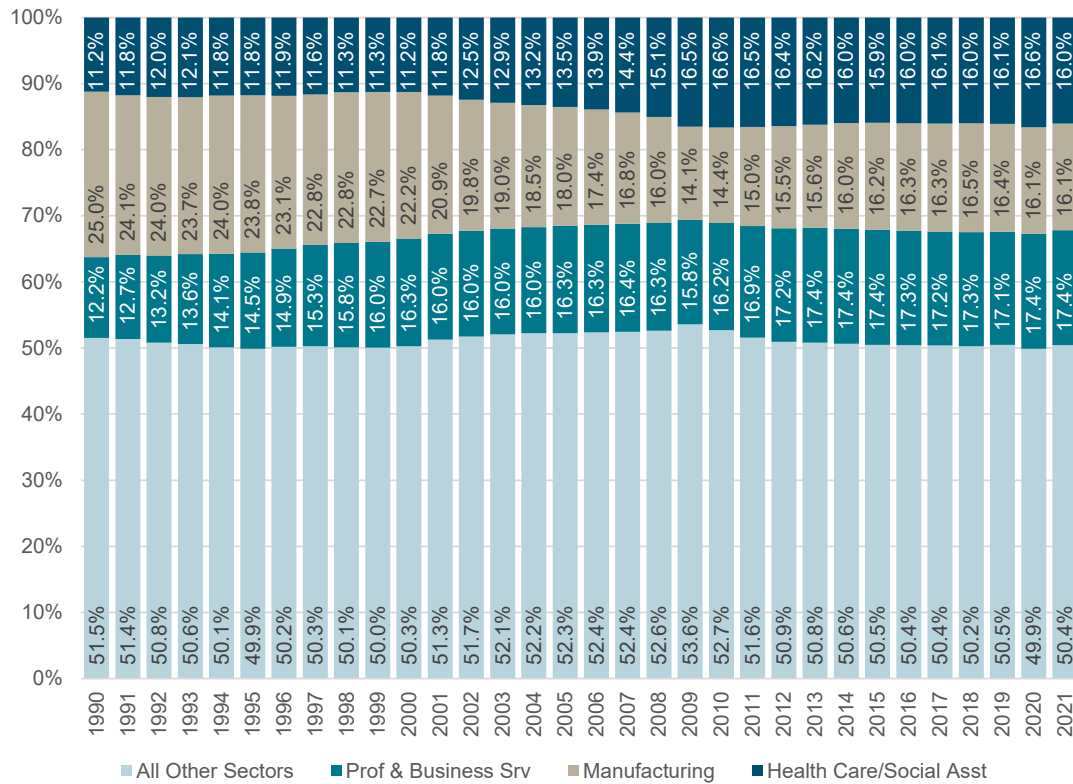
## Wages and Michigan’s Changing Employment Structure

Michigan’s status as a below-average income state derives in part from significant changes in its employment structure over the last several decades. The automotive industry played a core role in creating a large number of high-paying manufacturing jobs in Michigan. However, the dominance of manufacturing jobs has waned in recent decades (**Chart 4**). Between 1990 and 2021, roughly half of Michigan’s jobs have been tied to three major sectors: manufacturing, health care and social assistance, and professional and business services. Employment in all other sectors of the economy (including sectors like retail trade, leisure and hospitality, financial activities, and construction) accounted for the other half of Michigan jobs.

Across the three major sectors, though, the employment mix has changed significantly. In 1990, manufacturing jobs made up 25 percent of employment; by 2021, that percentage had dropped to around 16 percent. Conversely, the other two sectors drove much of Michigan’s job growth over these decades. Professional and business services accounted for just over 12 percent of Michigan jobs in 1990, but that percentage rose to over 17 percent by 2021. Similarly, job growth in health care drove the percentage of jobs in the health care and social assistance sector up from 11 percent in 1990 to 16 percent in 2021.



**Chart 4: Michigan's Changing Private Employment Composition**  
1990 to 2021



Source: Calculations based on data from U.S. Bureau of Labor Statistics. Current Employment Statistics.

The shift in employment from manufacturing to the other two major sectors resulted in slower income growth in Michigan, as manufacturing has traditionally been a high-wage sector (**Table 2**). Average wages in the manufacturing and professional and business services sectors are fairly comparable; in fact, the average annual wage for professional and business services jobs is somewhat higher than the average annual wage of a manufacturing position. However, the same is not true for health care jobs. The average annual wage within the health care and social assistance sector was significantly below the average in both the other sectors. The growth in health care jobs relative to manufacturing jobs depressed overall income growth in Michigan.

The result of this 30-year transition is that Michigan slowly saw employment shift from higher-wage to lower-wage employment sectors.

**Table 2: Michigan Employment and Earnings by Sector**

	Employment (in thousands)		Annual Growth	2021 Avg Weekly Wage
	1990	2021		
Professional & Business Services	406.2	630.4	1.4%	\$1,215
Manufacturing	829.6	583.7	-1.1%	\$1,185
Health Care & Social Assistance	372.2	580.7	1.4%	\$731

Source: U.S. Bureau of Labor Statistics. Current Employment Statistics.

## Weakness: Labor Market Developments and Wage Growth

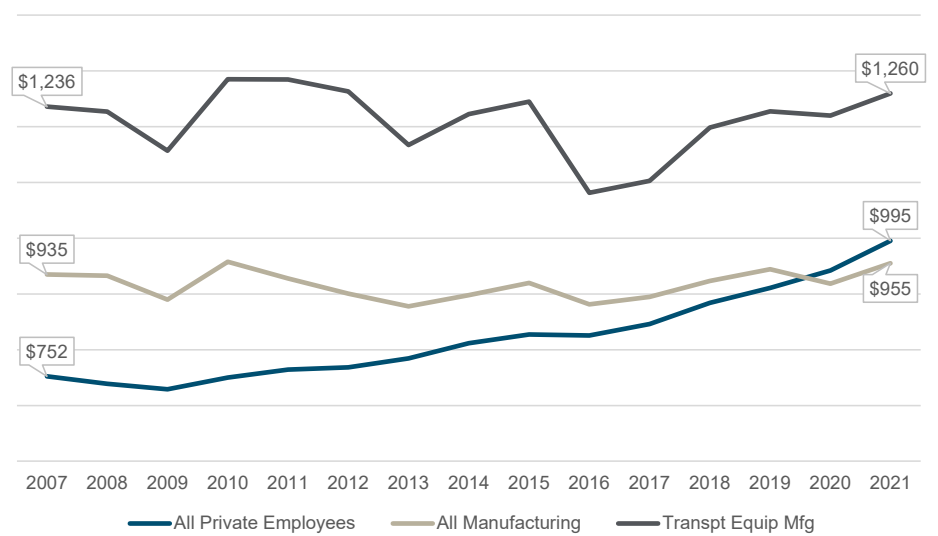
While employment shifted out of the manufacturing sector over the past decades, another factor driving slower income and wage growth in Michigan was the sluggish overall growth in wages within the manufacturing sector. Several factors contributed to this trend. Certainly, globalization has slowed wage growth as manufacturers are able to shift production to other countries with lower relative wages. Some research has argued that labor market concentration within the manufacturing sector – with fewer employers competing for workers – has also played a role.<sup>5</sup> In Michigan, significant labor market changes within the auto industry were also at play. In 2007, General Motors (GM) and the United Auto Workers (UAW) agreed to a two-tier compensation system within its labor contract. Under the arrangement, new employees would be paid much lower wages than employees already serving at the time of the new contract. The two-tier structure lasted until 2019 when it was removed from the contract after a labor strike. Michigan also enacted “Right-to-Work” legislation in 2013 that prohibited compulsory union membership or payment of union dues, which likely has reduced the labor union influence.<sup>6</sup>

Whatever the key drivers, Michigan’s manufacturing sector saw slow wage growth between 2007 and 2021 relative to other sectors of the Michigan economy. Before the Great Recession and the GM-UAW two-tier contract, average weekly wages for production employees within the manufacturing sector as a whole were 24 percent higher than the average wage for all private employment in Michigan. Within the Transportation Equipment Manufacturing sector, the wage differential was even greater, with average wages 64 percent higher than wages for all private employment (**Chart 5**).

By 2021, however, the wage differential between manufacturing jobs and all private employment had disappeared; in fact, the average weekly wage in 2021 for all private employment exceeded the average wage within the manufacturing sector. While the Transportation Equipment Manufacturing

sector still provided high-wage employment, the differential with all private employment had fallen to 27 percent. Employment within a high-wage manufacturing sector, lead by auto industry employment, has been a driving factor in providing middle class incomes to Michigan households for many decades, but the sluggish growth in manufacturing wages in recent years has brought those wages down closer to the norm.

**Chart 5: Average Weekly Wages of Manufacturing Production Workers Relative to All Private Employment**



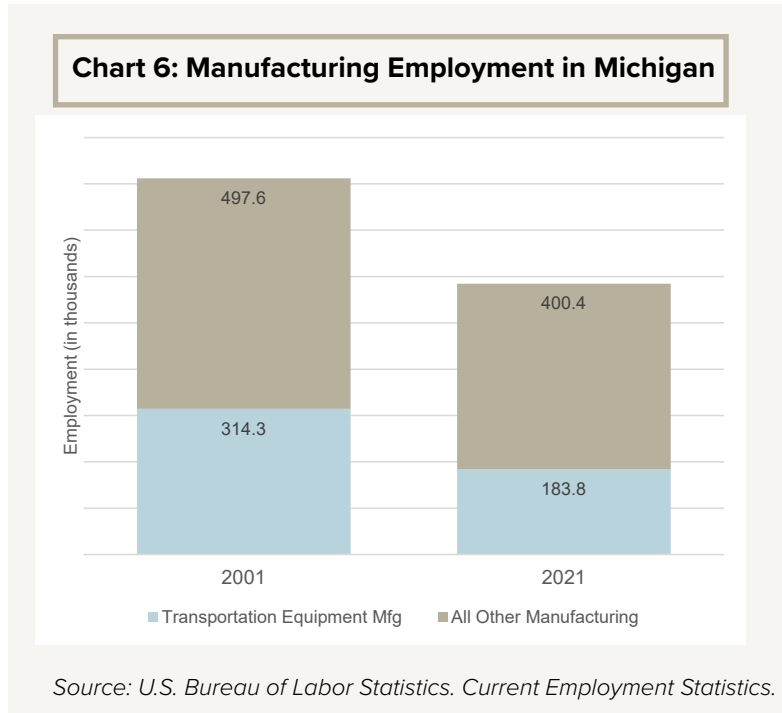
Source: U.S. Bureau of Labor Statistics. Current Employment Statistics.

<sup>5</sup>Kellogg School of Management, Northwestern University, What’s Causing the Wage Stagnation in America?, December 7, 2019.

<sup>6</sup>See the Senate Fiscal Agency analyses of Public Act 348 and Public Act 349 of 2012 for a summary of the enacted Right to Work legislation.

## Strength: Legacy of Michigan’s Automotive Industry on Talent Concentration

The decline in manufacturing employment in Michigan cut across virtually all manufacturing sectors, but the automotive manufacturing sector was hit the hardest. **Chart 6** shows that while manufacturing employment dropped by 28 percent in Michigan between 2001 and 2021, employment within the Transportation Equipment Manufacturing sector – which includes automotive-related manufacturing along with other transportation-related manufacturing sectors (e.g, aerospace, rail) – declined by over 41 percent. However, employment in this critical sector initially dropped by 60 percent to 127,000 jobs in 2009 in the midst of the Great Recession, before recovering to 183,000 jobs in 2021.



In a similar fashion, employment in all other manufacturing sectors declined by 34 percent between 2001 and the Great Recession’s trough in 2009. The economic recovery following the recession has allowed employment to recover, but it remains almost 20 percent below its 2001 level.

Despite the significant employment declines, Michigan’s historical dominance in automotive manufacturing has created a concentration of workforce talent that should assist the state in navigating the rapid transition occurring in the automotive industry. In 2021, just over 1.6 million workers were employed nationally within the Transportation Equipment Manufacturing sector. About a quarter of those jobs fell within four relatively high-wage occupational groups. (**Table 3**).

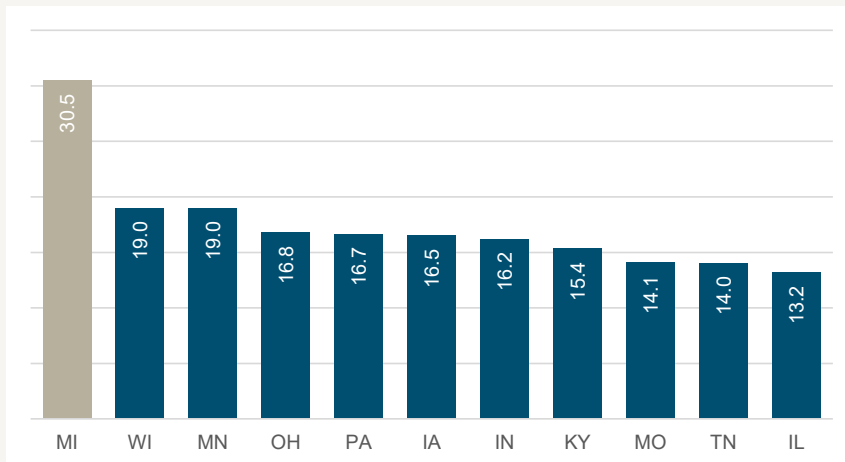
**Table 3: High-Wage Employment Occupations**

Occupation	Employment	Median Annual Wage
Architecture and Engineering	166,010	\$96,630
Business and Financial Operations	91,400	\$80,330
Management	77,810	\$127,580
Computer and Mathematical	50,600	\$102,930

Source: U.S. Bureau of Labor Statistics, Occupational Employment and Wage Statistics.

The largest group of these high-wage jobs fall within the Architectural and Engineering Operations group that largely reflects the engineering-related occupations within the automotive industry. Michigan's historical automotive legacy has provided a high concentration of workers within this critical employment cohort. **Chart 7** illustrates Michigan's strong engineering presence relative to its Midwest neighbors. Michigan has 30.5 persons employed within the Architectural and Engineering Operations per 1,000 jobs statewide, which is more than 50 percent greater than any of its comparison states. Michigan's concentration of engineering will bolster its ability to attract new business development in the automotive sector and other high-wage manufacturing sectors.

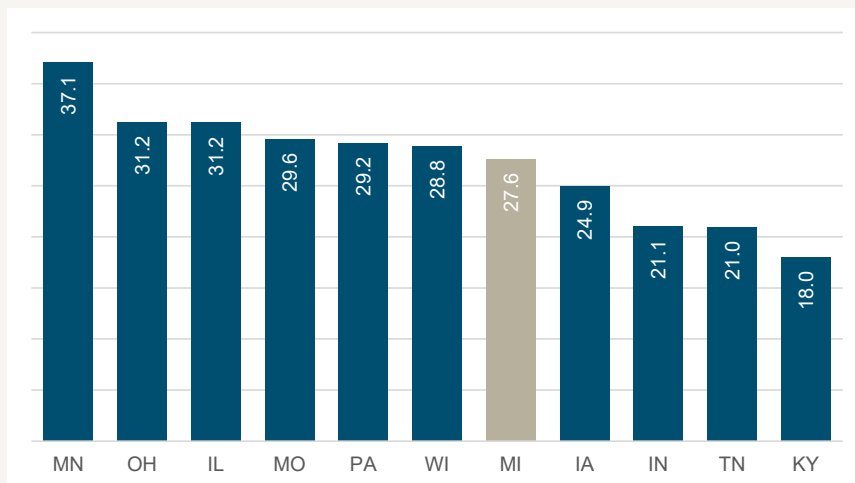
**Chart 7: Architectural and Engineering Operations  
Employment per 1,000 jobs**



Source: Research Council calculation using U.S. Bureau of Labor Statistics data.

Michigan's talent concentration is less strong in a second critical occupational group: Computer and Mathematical Occupations include occupations such as software developers, programmers, and computer system analysts. These high-skill positions have been increasing within the automotive sector as the industry has transitioned to increased digitization within vehicles. That trend is expected to increase with ongoing transition to electric vehicles. Within this occupational group, however, Michigan ranks behind six of the neighboring comparison states in terms of employment concentration (**Chart 8**).

**Chart 8: Computer and Mathematical Operations  
Employment per 1,000 jobs**



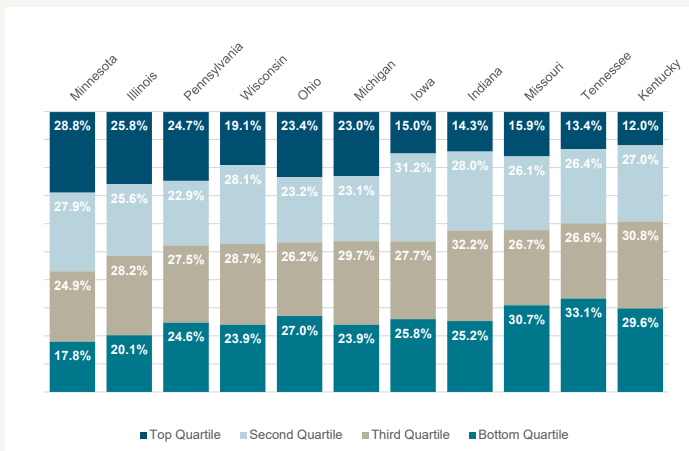
Source: Research Council calculation using U.S. Bureau of Labor Statistics data.

## Losing Ground: Employment and Earnings Relative to the Country

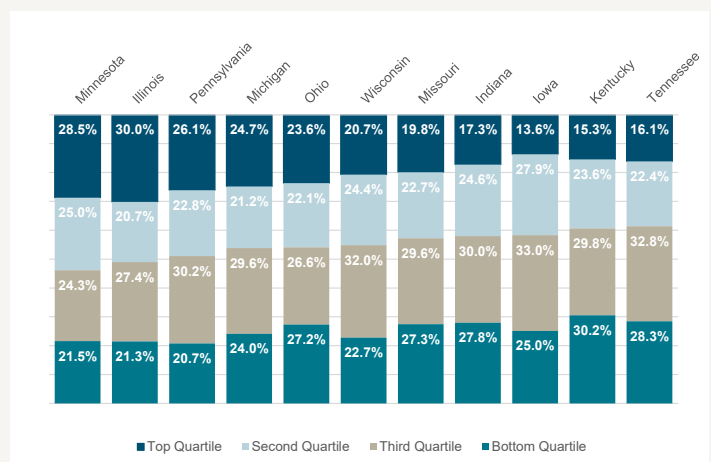
The decline in manufacturing jobs is not unique to Michigan. Nationally, employment within the manufacturing sector declined at the same annual rate as it did in Michigan – about 1.1 percent – as the result of both automation and increased economic globalization. The U.S. had almost 17.7 million workers employed in manufacturing in 1990; that employment level declined to 12.3 million by 2021. Changes in Michigan’s economic prosperity relative to other states have been shaped by how this decline in manufacturing employment has been replaced by employment in other high-wage and low-wage sectors.

**Charts 9 and 10** provide snapshots of the prevalence of high-wage and low-wage employment for Michigan and the ten neighboring comparison states across the last decade.<sup>7</sup> States with significant employment in high-wage sectors will have a greater percentage of employment in the top two quartiles. Conversely, states with lower-wage employment will have most of its employment in the lowest two quartiles. The states appear in rank order from left to right based on the percentage of jobs in each state that are part of the top two earnings quartiles.

**Chart 9: State Employment Relative to National Earnings Quartiles - 2021**



**Chart 10: State Employment Relative to National Earnings Quartiles - 2012**



Source: Citizens Research Council analysis of federal Occupational Employment and Wage Statistics data, U.S. Bureau of Labor Statistics.

The 2021 employment for each state show that only two of the neighboring states (Minnesota and Illinois) have at least 50 percent of their employment in occupations that fall into the two top tiers. Michigan and the remaining eight states all have the majority of employment within the lowest two earnings tiers. Michigan falls firmly in the middle of the comparison group; 23 percent of jobs in Michigan fell within each of the top earnings quartile, while 54.7 percent were occupations with median earnings in the bottom two quartiles.

**Chart 10** shows that Michigan’s employment and earnings mix has not changed significantly over the last decade. In 2012, the distribution of Michigan jobs across the four earnings quartiles looked very similar to the 2021 distribution. However, some of the neighboring states experienced positive shifts into higher-wage employment. Both Wisconsin and Ohio saw the share of jobs with median earnings in the top two quartiles grow between 2012 and 2021; both states were behind Michigan in 2012 but had moved ahead of Michigan by 2021.

Long-term employment forecasts suggest that the employment earnings picture will not change significantly over the next decade. Long-term occupational forecasts for the state show projected 10-year employment growth is highest in the bottom quartile (**Table 4**). Total job growth in the top two quartiles (173,280) is just above projected growth in bottom two quartiles (171,130).

<sup>7</sup>Federal Occupational Employment and Wage Statistics data to break out employment in each state into earnings quartiles based on median annual earnings for individual occupations. Jobs in occupations where median annual earnings exceed the 75th percentile of annual earnings for all occupations nationally are classified in the top quartile. Similarly, jobs within occupations with median earnings between the national median and the national 75th percentile are classified in the second quartile. The third quartile includes jobs within occupations with earnings between the 25th percentile and the national median, while the bottom quartile includes jobs in occupations with median earnings below the national 25th percentile earnings across all occupations.

**Table 4: Long-Term Michigan Employment Forecasts Across Earnings Quartiles**

	Employment		Change (2020 to 2030)	
	2020 Base	2030 Projected	Number	10-Yr Growth
Top Quartile	1,061,450	1,157,530	96,080	9.1%
Second Quartile	1,067,310	1,144,510	77,200	7.2%
Third Quartile	936,120	979,150	43,030	4.6%
Bottom Quartile	950,820	1,078,920	128,100	13.5%
<b>Total Employment</b>	<b>4,015,700</b>	<b>4,360,110</b>	<b>344,410</b>	<b>8.6%</b>

Source: Citizens Research Council analysis of long-term employment projections from Michigan Bureau of Labor Market Information and Strategic Initiatives

The findings emphasize a critical point related to economic development policy. To truly improve the state’s economic prosperity, **it is important that Michigan not only create new jobs through policy interventions, but that it create high-wage jobs capable of supporting an adequate standard of living for Michigan families.** Only then can Michigan hope to reverse the decades-long trend of reduced wages and income levels that has been its experience. To achieve this goal, however, Michigan will also have to simultaneously ensure that it has the workforce talent at hand to fill those high-wage positions. As this report will note, that will also require significant improvements for Michigan.

## Strength: Business Development and Entrepreneurship

New business formation is another strength of the Michigan economy relative to its Midwest neighbors. New business establishments play a critical role in supporting the economy. Not surprisingly, most jobs are tied to older, established firms. In 2020, almost 70 percent of Michigan employment was supported by firms that had been in business for at least 11 years. Still, about 17 percent of Michigan jobs were tied to much younger firms established within the previous five years. Significantly, however, new business establishments were responsible for all of the state’s net employment growth in 2020. New businesses created within the prior year created 128,369 new jobs within the state; those jobs offset the loss of 108,131 jobs within established firms that either closed or downsized. Entrepreneurism in business formation is critical to stabilizing employment within a state or region (**Table 5**).

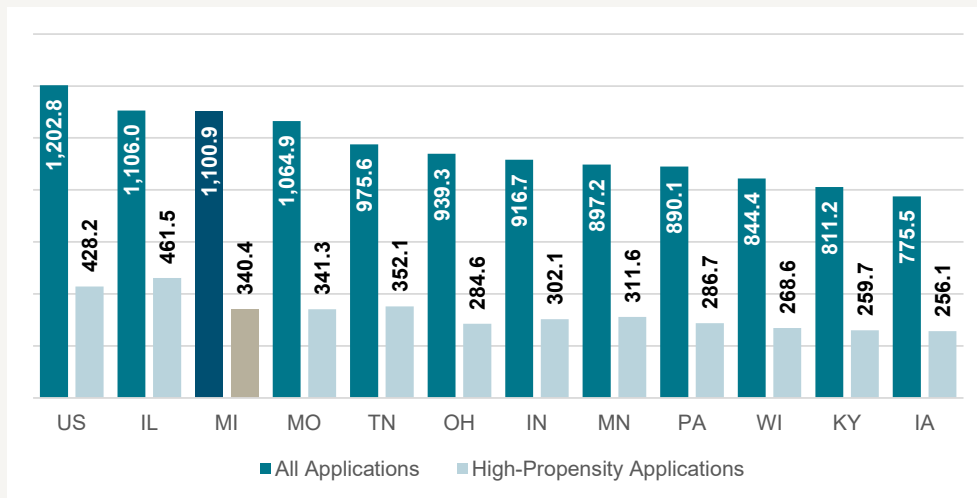
**Table 5: Michigan Employment by Establishment Age 2020**

Establishment Age	Employment		Net Job Creation
	Employees	Share of Total	
Less than 1 Year	128,369	3.2%	128,369
Between 1 and 5 Years	556,280	14.1%	(17,862)
Between 6 and 10 Years	525,850	13.3%	(10,425)
11 or More Years	2,743,077	69.4%	(79,844)
<b>All Establishments</b>	<b>3,953,576</b>		<b>20,238</b>

Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages

Entrepreneurship in Michigan is relatively strong relative to neighboring states. Michigan ranked second to Illinois in the average number of business applications per 100,000 in population from 2017 to 2021. Looking at “high-propensity applications” – those that were likely to support additional jobs and payroll employment beyond the owner – Michigan ranked fourth among the 11 states (**Chart 11**). Notably, however, states in the Midwest region generally ranked below the nationwide average for both categories of new business applications. So while Michigan is relatively strong in the Midwest, entrepreneurial activity is generally lower in this region than in the nation as a whole.

**Chart 11: Annual Business Applications per 100,000 Population, 2017-2021**



Source: Business Formation Statistics, U.S. Census Bureau.

Business formations are also not evenly distributed across gender, racial, and ethnic groups. Barriers exist for women and racial/ethnic minorities in achieving business ownership. A recent Federal Reserve report documented challenges with access to capital, with the disapproval rate on business credit applications for Black business owners (53.4 percent) more than double that of White owner applicants (24.7 percent). Credit applications were also disapproved for 39.3 percent of Hispanic owner applicants. The report also documented higher rates of loan disapproval for female (32.6 percent) versus male (25.5 percent) applicants.<sup>8</sup>

**Table 6: Ownership of Employer Firms per 100,000 Population**

	Michigan	United States
<b>All Firm Owners</b>	1,644	1,758
<b>Gender</b>		
Male-Owned	2,143	2,171
Female-Owned	627	725
<b>Race/Ethnicity</b>		
White-Owned	1,813	1,878
Black-Owned	206	296
Asian-Owned	2,584	3,097
Hispanic-Owned	398	573

Source: Citizens Research Council calculations based on 2019 Annual Business Survey data, U.S. Census Bureau.

As a result of these barriers, women minorities are underrepresented within ownership of employer firms (those with employees and payroll) both in the U.S. and in Michigan. **Table 6** shows that women are 70 percent less likely to own employer firms than are men in Michigan. Further, that gap in ownership rates is even wider for Black (89 percent less likely than Whites) and Hispanic (78 percent less likely than Whites) persons. Similar gaps exist at the national level, though they are slightly smaller.

In the big picture, Michigan’s entrepreneurial environment is a strength relative to other Midwest neighbors, but the Midwest generally lags behind the nation as a whole. **Public policies that encourage and empower entrepreneurial efforts, especially for females and minorities who have traditionally been less likely to create new businesses in Michigan, would help Michigan further improve in this area and ensure that all entrepreneurial talent is being effectively fostered.**

<sup>8</sup>Board of Governors of the Federal Reserve System, Report to Congress on the Availability of Credit to Small Businesses, September 2017.

# Weakness: Educational Attainment in Michigan

The major factor driving Michigan’s current economic position is workforce talent. As the workplace has become increasingly dependent on both technical skills and soft skills (reasoning, emotional intelligence, creativity), the highest-paying jobs are now largely limited to those with skills obtained through postsecondary education in some form. In particular, data show that jobs in the top earnings quartile are heavily skewed toward workers with a four-year bachelor’s degree or higher. Michigan, however, ranks below national averages in terms of the percentage of the state’s working age population with a college degree.

**Table 7** compiles data from the American Community Survey on educational attainment for state populations aged 25 years and older. The table lists the percentage of the population holding at least an associate’s degree and the percentage holding at least a bachelor’s degree in 2001, 2011, and 2021. For both measures, states are sorted by their 2021 percentage.

**Table 7: Educational Attainment in Selected States**

	Associate’s or Higher						Bachelor’s or Higher						
	2001		2011		2021		2001		2011		2021		
	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank	%	Rank	
Massachusetts	42.9%	1	47.0%	1	54.2%	1	35.6%	1	39.1%	1	46.6%	1	
Colorado	40.7%	2	45.3%	2	52.7%	2	29.8%	7	37.1%	3	44.4%	2	
Vermont	37.4%	8	45.1%	3	52.6%	3	33.7%	2	36.9%	4	44.4%	3	
Minnesota	36.5%	10	43.1%	7	50.7%	4	31.8%	5	35.3%	6	43.1%	4	
New Jersey	37.0%	9	41.5%	9	50.1%	5	32.7%	4	37.1%	2	42.5%	5	
New Hampshire	38.3%	5	43.3%	6	50.1%	6	32.8%	3	36.2%	5	42.1%	6	
Connecticut	39.7%	3	43.5%	5	49.5%	7	31.4%	6	35.3%	6	41.8%	7	
Virginia	37.6%	7	42.3%	8	49.5%	8	29.0%	9	33.5%	8	40.2%	8	
Maryland	38.4%	4	43.6%	4	49.4%	9	27.9%	12	33.1%	9	39.9%	9	
Washington	38.1%	6	41.4%	10	49.1%	10	29.6%	8	31.8%	11	39.0%	10	
Illinois	34.1%	15	38.2%	16	45.5%	16	<b>Minnesota</b>	<b>28.3%</b>	<b>10</b>	<b>32.7%</b>	<b>10</b>	<b>38.9%</b>	<b>11</b>
Wisconsin	30.8%	26	35.9%	24	43.9%	25	<b>Illinois</b>	<b>27.7%</b>	<b>13</b>	<b>30.9%</b>	<b>13</b>	<b>37.1%</b>	<b>12</b>
United States	32.5%		36.3%		43.8%		<b>United States</b>	<b>25.8%</b>		<b>28.5%</b>		<b>35.0%</b>	
Pennsylvania	29.6%	36	34.6%	31	43.4%	27	<b>Pennsylvania</b>	<b>23.2%</b>	<b>30</b>	<b>27.0%</b>	<b>24</b>	<b>34.5%</b>	<b>24</b>
Iowa	30.5%	28	36.4%	23	42.5%	30	<b>Wisconsin</b>	<b>23.1%</b>	<b>33</b>	<b>26.3%</b>	<b>29</b>	<b>32.5%</b>	<b>29</b>
Michigan	30.4%	30	34.0%	34	41.4%	34	<b>Missouri</b>	<b>22.9%</b>	<b>34</b>	<b>26.4%</b>	<b>27</b>	<b>31.7%</b>	<b>32</b>
Missouri	27.8%	40	33.3%	35	40.0%	38	<b>Michigan</b>	<b>23.1%</b>	<b>32</b>	<b>25.7%</b>	<b>34</b>	<b>31.7%</b>	<b>33</b>
Ohio	28.0%	39	32.6%	39	39.7%	39	<b>Ohio</b>	<b>21.6%</b>	<b>40</b>	<b>24.9%</b>	<b>38</b>	<b>30.7%</b>	<b>36</b>
Tennessee	25.4%	44	29.7%	43	38.2%	41	<b>Iowa</b>	<b>22.6%</b>	<b>37</b>	<b>25.8%</b>	<b>32</b>	<b>30.5%</b>	<b>38</b>
Indiana	26.6%	41	30.7%	42	38.0%	42	<b>Tennessee</b>	<b>20.4%</b>	<b>41</b>	<b>23.7%</b>	<b>42</b>	<b>30.5%</b>	<b>39</b>
Nevada	25.1%	45	29.6%	44	36.5%	43	Wyoming	23.3%	29	24.9%	38	29.2%	41
Alabama	26.1%	43	29.2%	45	36.2%	44	<b>Indiana</b>	<b>20.3%</b>	<b>43</b>	<b>22.7%</b>	<b>43</b>	<b>28.9%</b>	<b>42</b>
Oklahoma	26.1%	42	31.5%	41	36.0%	45	Okahoma	20.4%	41	23.8%	41	27.9%	43
Kentucky	23.3%	47	27.8%	47	35.9%	46	Nevada	18.7%	47	22.3%	45	27.6%	44
Mississippi	24.8%	46	28.3%	46	34.9%	47	Alabama	19.4%	44	22.5%	44	27.4%	45
Louisiana	22.8%	48	26.2%	49	33.2%	48	<b>Kentucky</b>	<b>18.2%</b>	<b>48</b>	<b>20.8%</b>	<b>47</b>	<b>27.0%</b>	<b>46</b>
Arkansas	22.5%	49	26.3%	48	33.2%	49	Louisiana	19.3%	45	21.1%	46	26.4%	47
West Virginia	19.8%	50	25.2%	50	32.1%	50	Arkansas	18.0%	49	20.4%	48	25.3%	48
							Mississippi	18.8%	46	20.1%	49	24.8%	49
							West Virginia	15.3%	50	18.7%	50	24.1%	50

Source: American Community Survey, 2021 1-Year sample estimates.

In 2021, Michigan was ranked 33<sup>rd</sup> among all states in terms of attainment of at least a bachelor’s degree (31.7 percent) and 34<sup>th</sup> in terms of the attainment of at least an associate’s degree (41.4 percent). Both metrics fell below the national average for each measure, with 35.0 percent of the U.S. 25-and-over population holding at least a bachelor’s degree and 43.8 percent holding an associate’s degree or higher. Within the 10 neighboring states, Michigan fell in the middle with five states exceeding Michigan’s attainment rates and five falling below Michigan.

However, only two Midwest states – Minnesota and Illinois – exceeded the national average for both educational attainment measures. Note that to reach the top ten, Michigan would need to raise its attainment percentage for an associate’s degree by almost 8 percent and its percentage for a bachelor’s degree or higher by more than seven percent.<sup>9</sup>

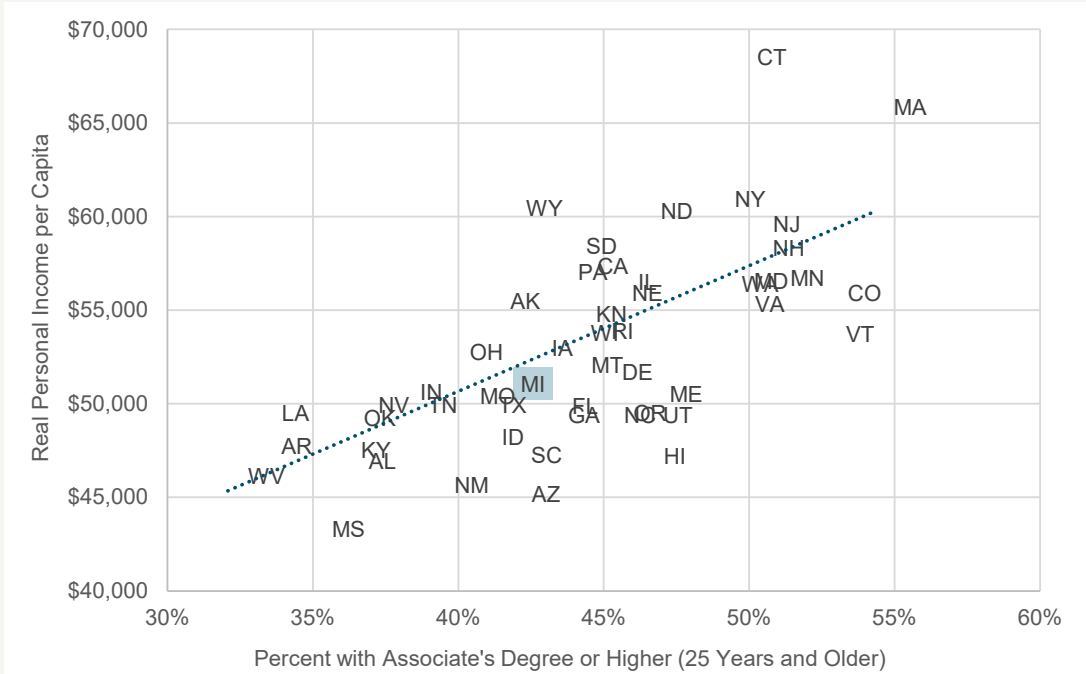
<sup>9</sup>One potential factor impacting bachelor’s degree attainment is decrease in state operating funding to Michigan’s public universities. The fifth paper in this series will show that university operating funding, adjusted for inflation, fell by 34 percent between fiscal years 2003 and 2023.



Michigan’s relatively low educational attainment rates are critically linked to its economic status in terms of the economic prosperity measures examined in the previous section of the report. **Chart 12** demonstrates the strong correlation between education attainment and prevailing income levels. The chart is a scatterplot of all 50 states; each point marks that state’s position in terms of both the percentage of the aged 25 and older population holding a college degree and real personal income per capita. For reference, Michigan’s position is shaded in green.

**Chart 12** clearly shows that states with higher rates of educational attainment also tend to have higher per capita income levels. To quantify the impact, a linear trend line is computed using statistic regression methods to measure the correlation between the two factors. On average across the states, each one percent increase in educational attainment for the 25-year and older population increases real state per capita personal income by roughly \$671.

**Chart 12: Educational Attainment and Income by State**



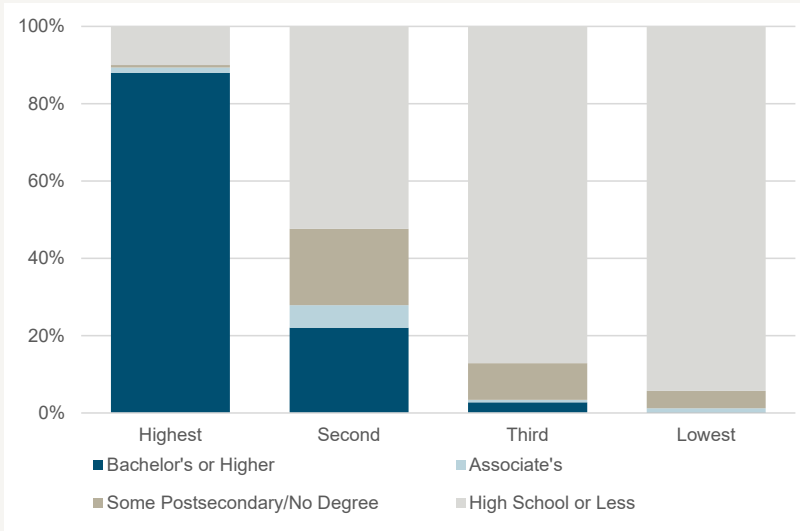
Source: Educational attainment by state from 2021 American Community Survey, 1-Year Estimates; real personal income from U.S. Bureau of Economic Analysis

Increased educational attainment lifts the economic prospects of a state for two reasons. First, the highest-paying jobs are much more likely to require some form of college degree. An analysis of the employment earnings quartiles used in the last section shows that 88 percent of the occupations in the top earnings quartile (those with median earnings that exceed the 75<sup>th</sup> percentile nationally) have entry-level education requirements of a bachelor’s degree or higher (**Chart 13**).<sup>10</sup> The data also show that some level of postsecondary education is necessary for entry-level work in almost half of occupations in the second quartile (with median earnings between the national median and the 75<sup>th</sup> percentile).

On the opposite end of the spectrum, 87 percent of jobs in the third quartile and 94 percent jobs in the lowest quartile had no educational requirements beyond high school.

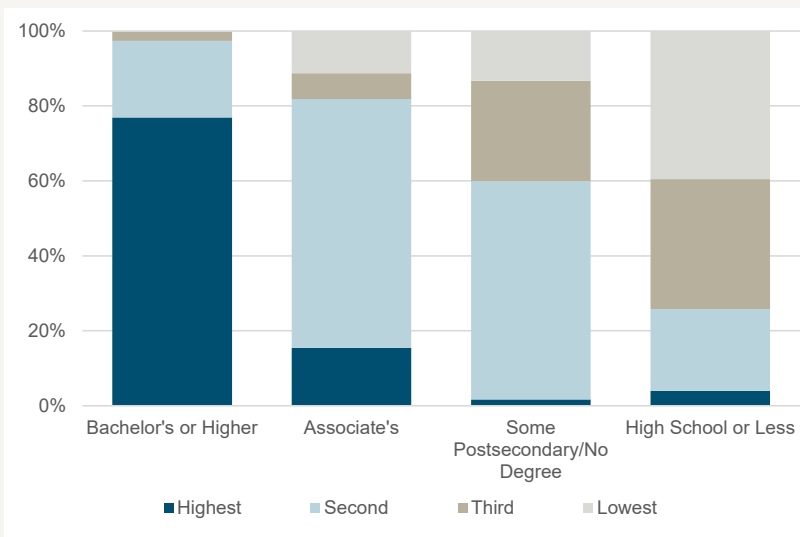
<sup>10</sup>Entry-level requirements for occupational codes are taken from U,S Bureau of Labor Statistics, Employment Projections program.

**Chart 13: Employment within Median Earnings Quartiles by Entry-Level Education Requirements**



Source: Calculations based on U.S. Bureau of Labor Statistics occupational employment and wage data.

**Chart 14: Employment within Entry-Level Education Requirement Category by Median Earnings Quartiles**



Source: Calculations based on U.S. Bureau of Labor Statistics occupational employment and wage data.

**Chart 14** cuts the data somewhat differently, but the results also reveal the importance of a college degree to earnings levels. The chart groups together jobs by entry-level education requirements and looks at the distribution of those jobs across the earnings quartiles. About 77 percent of jobs that require a bachelor's degree also pay in the top earnings quartile; another 20 percent have median earnings in the second quartile. The percentage of jobs with earnings in the top two quartiles falls significantly as education requirements fall. Of jobs requiring a high school diploma or less, only 26 percent have median earnings in those two quartiles.

Second, the benefits of increased educational attainment within a state or region extend beyond the individuals who earn college degrees; their increased skill levels have “spillover” effects on the incomes of others in the local economy.<sup>11</sup> It is theorized that these spillover effects occur for two reasons. First, a better-educated local workforce promotes innovation and enhanced worker productivity throughout a business; that increases worker productivity and results in higher wages. Second, the increasing earnings paid to individuals with college degrees results in more local spending which has multiplier effects on the local economy. A recent analysis estimates these spillover effects add 86 cents in additional income of others in the local economy for each \$1 in direct additional income earned directly by college graduates.<sup>12</sup>

<sup>11</sup>See Moretti, “Estimating the Social Return to Higher Education: Evidence from Longitudinal and Repeated Cross-Sectional Data,” *Journal of Econometrics*, Vol. 121(1-2), 2004 for a discussion and estimation of these spillover effects.

<sup>12</sup>Bartik, Miller-Adams, Pittelko, and Timmeney, *Economic Benefits and Costs of Tuition-Free College in Illinois*, Prepared for the Joyce Foundation and the Illinois Governor’s Office, 2021.

Long-term employment forecasts show that employment growth over the next decade will be faster in occupations that generally require a college degree for entry-level positions. **Table 8** suggests the number of jobs requiring a bachelor’s degree or higher will grow by 9.8 percent over the next decade, while those requiring at least an associate’s degree will grow by 12 percent. Employment in occupations requiring no college degree will grow more slowly. It’s notable, however, that more than 64 percent of all new jobs will still come in occupations with no college degree requirement.

**Table 8: Long-Term Employment Forecasts Across Education Requirements Categories**

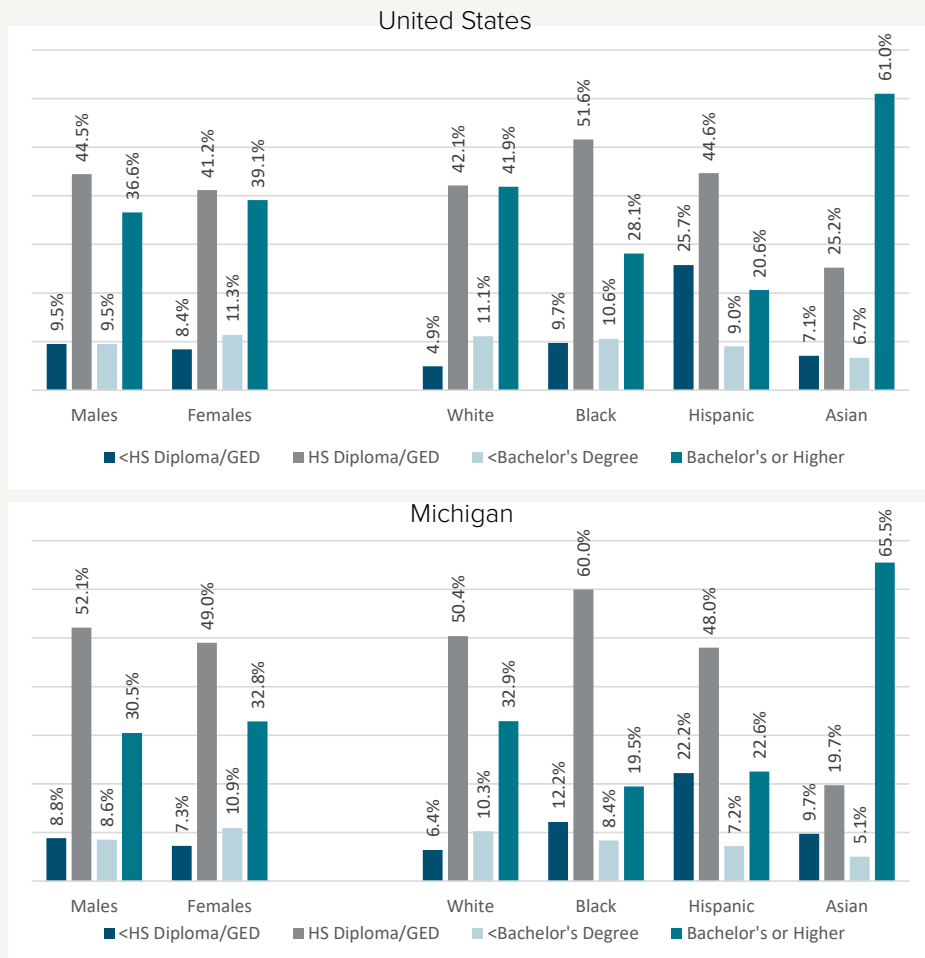
	Employment		Change (2020 to 2030)	
	2020 Base	2030 Projected	Number	10-Yr Growth
Bachelor’s or Higher	1,152,810	1,265,600	112,790	9.8%
Associate’s	80,090	89,690	9,600	12.0%
Some College/No Degree	371,610	401,330	29,720	8.0%
High School or Less	2,422,080	2,615,140	193,060	8.0%

Source: Analysis of long-term employment projections from Michigan Bureau of Labor Market Information and Strategic Initiatives

### Weakness: Racial and Ethnic Disparities in Educational Attainment

Educational attainment plays a key role in obtaining higher-wage employment, and attainment rates in Michigan lag behind the national average. **Chart 15** examines educational attainment across gender and racial/ethnic lines.

**Chart 15: Educational Attainment Rates by Gender, Race, and Ethnicity**



Source: 2021 American Community Survey, 1-Year Estimates. Based on population aged 25 and over.

Both nationally and in Michigan, females are more likely to hold a college degree than males. In Michigan, the percentage of females aged 25 and older with a degree is 4.7 percentage points higher than the percentage for males; roughly consistent with the national gender gap of about 4.3 percent. A smaller gap exists when looking specifically at the populations holding a bachelor's degree or higher, but again the Michigan and national gap are similar in magnitude.

Along racial and ethnic lines, both lowest college degree attainment rates fall within the Black and Hispanic populations. Only 27.8 of Black residents aged 25 and over hold a college degree in Michigan - significantly below the national rate of 38.7 percent. Hispanic residents have the second lowest college degree attainment rate among Michiganders, but unlike Black residents, their rate is slightly higher than the national average for all Hispanics. Asians in Michigan also have higher college degree attainment rates than all Asians nationally. College degree attainment among the White population in Michigan is significantly below the national level (53 percent nationally, 43.2 percent in Michigan).

For any state, improving the postsecondary educational attainment of its residents is a key to improving the vitality of the economy as a whole. Today's high-wage jobs generally require skills and talents that come with postsecondary education and training. Michigan cannot remain below-average on this important metric and improve its economic status in the decades to come. **Public policies related to higher education funding and financial aid availability should recognize these new economic realities and be designed to encourage maximum college degree attainments.** As will noted later in this report, Michigan will also require significant improvements in college readiness for high school graduates.

## The “Brain Drain” – Is Michigan Losing Its Young Talent?

A key for Michigan's economic future, then, is to increase the percentage of residents with a college degree, particularly the percentage with a bachelor's degree or higher. But increasing educational attainment by itself is not enough; Michigan must also keep its college-educated residents in the state. One challenge often pointed to anecdotally is that Michigan and similarly situated states are experiencing a “brain drain” – with young, new college graduates choosing to leave the state for other parts of the country.

However, measuring the “brain drain” requires data on the net result of two factors: the loss of in-state college graduates to other states; and the gain in out-state college graduates coming to work here. Looking at data on both factors suggests that Michigan is indeed experiencing a brain drain; at the same time, the state is experiencing less of a drain than may be commonly thought. One recent report uses an innovative methodology tapping into information from the social media network LinkedIn to gauge the degree to which states are net importers and net exporters of college degree recipients. The study suggests that Michigan experienced a net loss of about 13 percent of new graduates from Michigan's 4-year institutions between 2010 and 2018 who left the state for jobs elsewhere in the country.<sup>13</sup>

So, is Michigan experiencing a brain drain? Yes, according to this report, but Michigan also ranked 19<sup>th</sup> among states in terms of importing college talent, so its brain drain is smaller than the average state. Only nine states and the District of Columbia were net importers of college graduates; that included two of Michigan's Midwest neighbors – Illinois and Minnesota. Tennessee, Missouri, and Ohio were smaller net exporters of college graduates in the report. So, the report supports the anecdotal evidence of a brain drain in Michigan, but the drain is slightly better than that experienced in most states.

However, data also show that Michigan is a net importer of college degree recipients in the years and decades following their graduation. Between 2010 and 2021, Michigan had more bachelor's degree recipients move into the state than moved out. **Table 9** uses American Community Survey data on the population aged 25 and over to compare Michigan with the ten neighboring states with regard in-migration by educational attainment level; states are listed in rank order based the average annual net in-migration of persons with a bachelor's degree or higher over the period.

Michigan ranks fifth on this measure with a net inflow of 67 new residents with at least a bachelor's degree per 100,000 in population. The flow of persons with bachelor's degrees or higher across state lines is benefiting Michigan during this period. More problematic is that Michigan experienced a net outflow of persons with either an associate's degree or some college coursework but no degree. Michigan ranked second to last on that measure across the 10-year sample.

<sup>13</sup>Conzelmann, Hemelt, Hershbein, Martin, Simon, and Stange, Grads on the Go: Measuring College-Specific Labor Markets for Graduates. Ann Arbor, MI: Inter-university Consortium for Political and Social Research, May 2022.

**Table 9: Talent In-Migration by State: 2010 to 2021**

**Average Net Inflow per 100,000 population**

	All	HS Graduate or Lower	Some College/ Associate's	Bachelor's or Higher
Tennessee	708.47	258.42	195.41	254.64
Minnesota	254.83	112.20	-1.32	143.94
Kentucky	365.80	168.20	97.20	100.39
Pennsylvania	289.04	171.59	32.04	85.41
<b>Michigan</b>	<b>138.23</b>	<b>78.64</b>	<b>-7.57</b>	<b>67.16</b>
Ohio	204.77	113.41	33.57	57.79
Iowa	199.06	89.58	64.88	44.60
Missouri	335.69	159.00	135.08	41.60
Wisconsin	208.00	120.43	50.73	36.83
Indiana	249.76	163.84	89.51	-3.60
Illinois	-203.65	-46.15	-123.73	-33.77

*Source: Compiled from one-year American Community Survey estimates on migration patterns of persons aged 25 and over. Data from the 2020 American Community Survey is not included in the results to ensure appropriate comparability across years; the 2020 ACS utilized experimental weights to control from the impact of the COVID-19 pandemic on survey responses.*

Michigan’s experience has been stronger, however, over the most recent five years. Looking at the same data for the 2016 to 2021<sup>14</sup> period only, Michigan actually ranked third among its Midwest neighbors in the average annual in-migration of both persons with bachelor’s degrees or higher as well as persons with associate’s degrees or some college.

To be clear, the surest path to raising Michigan’s economic vitality is to increase college degree attainment among Michigan’s workforce; and Michigan is behind most states, including its Midwest neighbors with which it competes for critical jobs, on this metric. And many Michigan college graduates do leave the state; retaining more of them would

help improve the state’s attainment rates. In the big picture, however, the state does somewhat above average in terms of talent migration within the older working age population. From a public policy perspective, **the focus should appropriately be on increasing college degree attainment and on improving Michigan’s ability to retain new college graduates in-state by fostering attractive job opportunities and creating places around the state where young professionals want to live and work.**

## Weakness: Learning Proficiency for Michigan’s Children

Before Michigan can make significant progress in improving college degree attainment, it will first need to foster significant improvements in its K-12 education system. Michigan students score significantly below national averages on standardized educational assessments, suggesting that Michigan’s K-12 school system is struggling to make its pupils both college- and career-ready.

The National Assessment of Educational Progress is a federally mandated assessment of public and private K-12 students to gauge student achievement in specific subject areas. **Table 10** presents state-level reading and mathematics assessments for 4<sup>th</sup> grade and 8<sup>th</sup> grade for academic years 2008-09 and 2021-22. It highlights the percentage of students in each state that scored at a level meeting or exceeding the assessment’s “proficient” benchmark, which is set to represent a minimum score for students demonstrating solid academic performance and competency over subject matter in each subject area.<sup>15</sup> The four separate scores for each subject and grade level are averaged to calculate a composite score for each state in both years.

For academic year 2021-22, Michigan’s composite score was higher than only 12 other states and was lower than eight of the neighboring comparison states; Michigan had the same composite score as two neighboring states – Missouri and Kentucky. Looking back to academic year 2008-09, the results look very similar. Michigan’s composite score was below the national average and fell slightly above the scores of the bottom ten states. Of the ten comparison states, only Tennessee had a lower composite score in that year, and Tennessee has since climbed above Michigan in the more recent assessment. Overall, the data suggests Michigan students are behind their peers in terms of college- and career-readiness.

<sup>14</sup>To ensure data comparability, 2020 American Community Survey data is not used in these calculations due to the COVID-19 pandemic’s impact on sampling and the use of experimental weighting.

<sup>15</sup>See National Assessment Governing Board, A Closer Look at NAEP, for a brief overview of the assessment measures.

**Table 10: Percentage of Students Scoring At or Above Proficient by State**

State	2009					2022				
	4th Grade Math	4th Grade Reading	8th Grade Math	8th Grade Reading	Composite	4th Grade Math	4th Grade Reading	8th Grade Math	8th Grade Reading	Composite
Massachusetts	57	47	52	43	50	43	43	35	40	40
New Hampshire	56	41	43	39	45	39	38	33	42	38
Vermont	51	41	43	41	44	42	37	35	36	37
<b>Minnesota</b>	<b>54</b>	<b>37</b>	<b>47</b>	<b>38</b>	<b>44</b>	<b>44</b>	<b>33</b>	<b>33</b>	<b>32</b>	<b>35</b>
New Jersey	49	40	44	42	44	40	37	29	33	35
Connecticut	46	42	40	43	43	43	34	31	29	34
<b>Pennsylvania</b>	<b>46</b>	<b>37</b>	<b>40</b>	<b>40</b>	<b>41</b>	<b>40</b>	<b>35</b>	<b>29</b>	<b>33</b>	<b>34</b>
Montana	45	35	44	38	40	37	35	30	35	34
Colorado	45	40	40	32	39	40	32	32	31	34
North Dakota	45	35	43	34	39	36	38	28	34	34
Maryland	44	37	40	36	39	<b>41</b>	<b>32</b>	<b>32</b>	<b>30</b>	<b>34</b>
Kansas	46	35	39	33	38	<b>40</b>	<b>33</b>	<b>30</b>	<b>31</b>	<b>33</b>
<b>Ohio</b>	<b>45</b>	<b>36</b>	<b>36</b>	<b>37</b>	<b>38</b>	36	32	32	32	33
South Dakota	42	33	42	37	38	<b>40</b>	<b>34</b>	<b>27</b>	<b>31</b>	<b>33</b>
Washington	43	33	39	36	38	41	39	23	29	33
<b>Wisconsin</b>	<b>45</b>	<b>33</b>	<b>39</b>	<b>34</b>	<b>38</b>	38	32	31	31	33
Maine	45	35	35	35	38	<b>40</b>	<b>33</b>	<b>28</b>	<b>29</b>	<b>33</b>
Virginia	43	38	36	32	37	<b>38</b>	<b>33</b>	<b>27</b>	<b>32</b>	<b>32</b>
<b>Missouri</b>	<b>41</b>	<b>36</b>	<b>35</b>	<b>34</b>	<b>37</b>	34	34	27	34	32
Idaho	41	32	38	33	36	38	34	29	29	32
<b>Indiana</b>	<b>42</b>	<b>34</b>	<b>36</b>	<b>32</b>	<b>36</b>	35	34	28	32	32
New York	40	36	34	33	36	<b>36</b>	<b>33</b>	<b>26</b>	<b>31</b>	<b>32</b>
Wyoming	40	33	35	34	36	40	31	28	27	32
Nebraska	38	35	35	35	35	37	35	22	31	31
<b>Iowa</b>	<b>41</b>	<b>34</b>	<b>34</b>	<b>32</b>	<b>35</b>	34	34	24	31	31
Utah	41	31	35	33	35	34	32	24	31	30
North Carolina	43	32	36	29	35	31	31	25	33	30
<b>United States</b>	<b>39</b>	<b>33</b>	<b>34</b>	<b>32</b>	<b>35</b>	<b>36</b>	<b>30</b>	<b>25</b>	<b>28</b>	<b>30</b>
Oregon	37	31	37	33	34	35	32	25	26	30
Florida	40	36	29	32	34	28	30	28	32	30
<b>Illinois</b>	<b>38</b>	<b>32</b>	<b>33</b>	<b>33</b>	<b>34</b>	<b>34</b>	<b>30</b>	<b>24</b>	<b>28</b>	<b>29</b>
Delaware	36	35	32	31	33	32	31	24	28	29
<b>Kentucky</b>	<b>37</b>	<b>36</b>	<b>27</b>	<b>33</b>	<b>33</b>	32	30	24	23	29
Rhode Island	39	36	28	28	33	34	32	22	27	29
Texas	38	28	36	27	32	32	29	24	29	29
<b>Michigan</b>	<b>35</b>	<b>30</b>	<b>31</b>	<b>31</b>	<b>31</b>	35	31	23	26	29
Alaska	38	27	33	27	31	<b>33</b>	<b>31</b>	<b>21</b>	<b>29</b>	<b>29</b>
Arkansas	36	29	27	27	30	<b>32</b>	<b>28</b>	<b>25</b>	<b>28</b>	<b>29</b>
Georgia	34	29	27	27	29	30	31	23	30	28
South Carolina	34	28	30	24	29	29	28	21	29	26
Oklahoma	33	28	24	26	27	28	30	19	26	26
Hawaii	37	26	25	22	27	28	24	23	26	25
<b>Tennessee</b>	<b>28</b>	<b>28</b>	<b>25</b>	<b>28</b>	<b>27</b>	27	28	19	22	24
Arizona	28	25	29	27	27	26	25	18	24	23
Nevada	32	24	25	22	26	27	24	16	21	22
California	30	24	23	22	25	23	22	15	22	20
Alabama	24	28	20	24	24	19	13	18	18	18
West Virginia	28	26	19	22	24	30	31	23	30	28
New Mexico	26	20	20	22	22	29	28	22	28	27
Louisiana	23	18	20	20	20	27	27	21	29	26
Mississippi	22	22	15	19	20	28	27	19	22	26
Massachusetts						28	30	19	27	25
New Jersey						28	24	23	26	25
Utah						27	28	19	27	25
Wyoming						27	28	19	22	24
<b>Wisconsin</b>						26	25	18	24	23
New Hampshire						27	24	16	21	22
Nebraska						23	22	15	22	20
<b>Ohio</b>						19	21	13	18	18
Connecticut										
South Dakota										
Colorado										
<b>Minnesota</b>										
<b>Indiana</b>										
Idaho										
<b>Pennsylvania</b>										
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Louisiana										
Alabama										
West Virginia										
Oklahoma										
West Virginia										
New Mexico										

Source: Compiled from National Center for Education Statistics, The Nation's Report Card. Composite represents average of individual scores for each state. Michigan and nationwide scores are highlighted in blue for reference. Ten Midwest comparison states are highlighted in gold.

Within Michigan, academic performance varies even more dramatically based on geography, with students in more affluent areas of the state demonstrating proficiency at a higher rate. The Michigan Merit Examination (MME) is given to each Michigan student in the spring of their 11<sup>th</sup> grade academic year; this examination uses the SAT with Essay test to evaluate the college readiness of Michigan students. The SAT is administered by The College Board, which sets a college readiness benchmark meant to gauge the likelihood of college success.<sup>16</sup> **Table 11** lists the ten intermediate school districts (ISDs) in Michigan within which students demonstrated the highest college readiness on the MME for the 2021-22 school year along with the 10 ISDs with the lowest percentage of college-ready students according to the test.

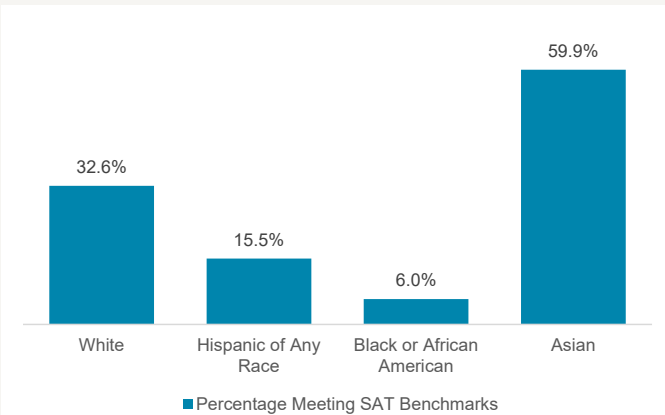
<sup>16</sup>The College Board sets the benchmark to reflect the minimum score needed to ensure a 75% likelihood that a student would earn C average or better during the first semester of college.

**Table 11: College Readiness by Michigan ISD - Top Ten and Bottom Ten**  
Academic Year 2021-22

Meeting Benchmark	
Washtenaw ISD	47.1%
Midland County ESA	41.9%
Ottawa Area ISD	39.7%
Northwest Education Services	37.5%
Oakland Schools	37.3%
Clinton County RESA	35.4%
Charlevoix-Emmet ISD	35.0%
Kent ISD	34.8%
Heritage Southwest ISD	34.7%
Kalamazoo RESA	33.5%
St. Joseph County ISD	19.5%
Muskegon Area ISD	19.5%
Clare-Gladwin RESD	19.1%
Mecosta-Osceola ISD	19.1%
Calhoun ISD	18.3%
Hillsdale ISD	17.6%
Gogebic-Ontonagon ISD	16.7%
Montcalm Area ISD	16.5%
Jackson ISD	16.2%
Manistee ISD	11.2%

Source: Michigan Department of Education, MI School Data, State Testing - College Readiness

**Chart 16: College Readiness of Michigan Students**  
Academic Year 2021-22



Source: Michigan Department of Education, MI School Data, State Testing - College Readiness

Additionally, **Chart 16** shows that significant performance gaps exist across racial and ethnic groups with 32.6 percent of White students meeting the college readiness benchmark compared to only 6.0 percent of Black students and 15.5 percent of Hispanic students. Conversely, 59.9 percent of Asian students met the benchmarks.

Overall, Michigan will face significant challenges in improving its workforce talent without significant improvements in the college- and career-readiness of students who reach high school graduation. The data document Michigan’s current substandard proficiency levels in critical areas for students at all grade levels. They also show learning and proficiency vary dramatically based on a student’s place of residence and their race and ethnicity. Michigan has recently made significant new dollar investments in its K-12 schools aimed at improving long-term performance. However, greater investments – particularly targeted investments to help schools and students struggling to meet proficiency benchmarks – may be necessary to obtain the broad improvements needed to ensure students are ready for college and have the skills needed to succeed in the future workforce.

Further, research has documented that – in the same way that an effective K-12 education is critical to college- and career-readiness – early childhood learning during the first years of life is critical to a child’s learning readiness entering the school classroom.<sup>17</sup> For this reason, high-quality pre-school programs and child care settings as well as early childhood supports like home visiting programs are also critical as part of a broader “P-20” educational system that effectively serves youth and families beginning prenatally and continuing through a young adult’s postsecondary education. Public investments in these early childhood programs are especially important to improving long-term outcomes for children from families with unique challenges such as single-parent or low-income families, children with developmental delays, and children dealing with particularly adverse situations at home.

Higher skills bring higher incomes, and postsecondary education is increasingly critical to developing those higher skills. But the foundation of any effective strategy to promote college degree attainment must appropriately begin with effective learning starting in a child’s earliest years.

<sup>17</sup>See Citizens Research Council and Public Sector Consultants, Policy Options to Support Children from Birth to Age Three, November 2014 for an overview of the evidence base for these early childhood programs.

# Threats and Opportunities for Michigan

The data demonstrate that Michigan will need to improve in a number of key areas to enhance its economic prosperity going forward. Public policy can play important role in addressing these challenges, but Michigan will face new challenges in the coming decades that provide both opportunities for improvement and threats with the potential of moving the state further behind.

## Threat and Opportunity: Transition of the Automobile Industry to Electric Vehicles

Detroit's three major automakers have announced their intentions to invest billions of dollars to transition the industry to the production of electric vehicles (EVs). To facilitate that transition, the federal government has initiated new tax incentives for the purchase of electric vehicles produced in North America, and the Biden Administration has announced the goal of converting at least half of all automobiles to zero-emission electric vehicles by 2030.<sup>18</sup> This transition poses a major economic challenge to Michigan and other states where internal combustion engine vehicle manufacturing has played a central role in the state economy.

Electric vehicles will have a smaller economic footprint than internal combustion engine vehicles. With fewer parts and simpler propulsion systems, they will demand significantly less labor effort to build. A recent Ford Motor Company presentation suggested that battery electric vehicles could bring a 50 percent reduction in capital investments and a 30 percent in production hours per unit.<sup>19</sup>

Michigan's Transportation Equipment Manufacturing sector employed 178,930 workers in 2021. Of those workers, 118,390 fall within the Production Occupations grouping; these include traditional automotive occupations such as auto and parts assemblers, fabricators, machinists, and sorters/inspectors. With a reduced need to produce engines, fuel systems, and transmissions within electric vehicles, a larger portion of these and other auto sector jobs could be at risk.

Further, Michigan could potentially lose additional employment if the share of electric vehicle production in this state falls in comparison to Michigan's share of employment within the traditional automotive sector. Bureau of Labor Statistics data show that 11 percent of all employment within the Transportation Equipment Manufacturing sector resided in Michigan; that percentage was somewhat higher (just over 13 percent) for Production Occupations within the sector. Competition from other states and other nations for electric vehicle and battery manufacturing facilities will pose a significant threat to the state.

At the same time, the transition brings new opportunities for Michigan to enhance employment related to massive increase that will be needed to install and deploy electric charging infrastructure in Michigan and throughout the country to facilitate this transition to electric vehicles.

## Opportunity: Embrace Immigration

The report has highlighted the importance of workforce talent in Michigan's economic future. International immigration has played an important role in helping Michigan and other states in improving the educational attainment of their populations. **Table 12** shows that those migrating to Michigan either from another state or international migrants coming from abroad have, on average, higher educational attainment than the Michigan population at large.

Roughly half of all migrants into the state have earned at least a bachelor's degree; that is the case for only 31.7 percent of the total Michigan population aged 25 and over. Further, entrants into the state generally have higher educational attainment than those that leave the state.

States that embrace international immigration and create welcoming environment for new immigrants will likely benefit from a higher skilled workforce in the future.

<sup>18</sup>The White House, Fact Sheet: President Biden Announces Steps to Drive American Leadership Forward on Clean Cars and Trucks, August 5, 2021.

<sup>19</sup>Ford Motor Company, CEO Strategic Update, October 3, 2017.



**Table 12: Educational Attainment of Migrants to Michigan**

	<u>Moved to Michigan from...</u>		Moved from Michigan to Another State
	Another State	Abroad	
Bachelor's or Higher	50.9%	50.0%	47.6%
Some College/Associate's	25.1%	22.8%	26.4%
HS Graduate or Lower	23.9%	27.2%	26.0%

Source: 2021 American Community Survey, 1-Year Estimates

### Threat: Pandemic-Induced Learning Loss

Newly released data from the 2022 National Assessment for Educational Progress show significant declines in the percentage of 4<sup>th</sup> Grade and 8<sup>th</sup> Grade meeting the test's proficiency benchmarks in reading and mathematics between 2019 and 2022. The results strongly suggest that the COVID-19 pandemic has, at least temporarily, set back student learning. **Table 13** outlines the percentage of students meeting the test's proficiency benchmarks both before the advent of the pandemic in 2019 and in the first round of testing since the pandemic in 2022. The table shows this phenomenon of learning loss applies both nationally and in Michigan.

This report has documented the importance of college degree attainment to Michigan's economic future, but Michigan's K-12 system will need to adequately prepare students for postsecondary studies. Public policy can address this threat through appropriately targeted public investments to help Michigan students that have experienced learning loss gain ground with their peers both in Michigan and nationally.

**Table 13: COVID-19 Impact: Students At or Above Proficient**

<b>Michigan</b>				Pct Pt Decline
	2009	2019	2022	2019 to 2022
4th Grade Reading	30%	32%	28%	-4%
4th Grade Math	35%	36%	32%	-4%
8th Grade Reading	31%	31%	28%	-3%
8th Grade Math	31%	31%	25%	-6%
<b>United States</b>				Pct Pt Decline
	2009	2019	2022	2019 to 2022
4th Grade Reading	33%	35%	33%	-2%
4th Grade Math	39%	41%	36%	-5%
8th Grade Reading	32%	34%	31%	-3%
8th Grade Math	34%	34%	26%	-8%

Source: National Center for Education Statistics, The Nation's Report Card.

## Threat: Michigan's Aging Population, the Labor Force, and the Health Care Workforce

Michigan's declining population of working age adults will create added economic challenges for the state.<sup>20</sup> Employers considering Michigan as part of a location decision will be looking for workforce talent, but these population trends will further restrict the available labor force. Recent population projections suggest that all of Michigan's population growth over the coming two decades will come from within the elderly population. **Table 14** shows that the youth population is expected to decline by 3.3 percent between 2020 and 2040; likewise, the population of working age adults (aged 18-64) is expected to decline by about 1.0 percent. Population growth comes only from the older population. In particular, Michigan's population aged 75 and over is expected to increase by almost 80 percent over those same 20 years.

**Table 14: Projected Michigan Population by Age Group**

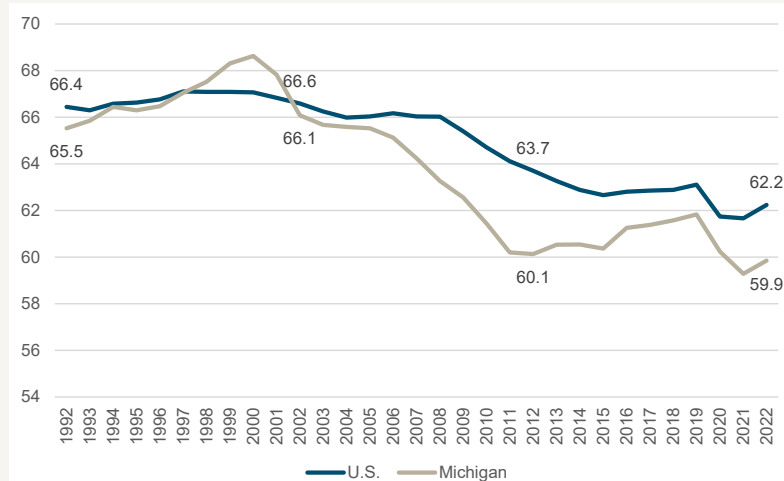
	2020	2040 (est)	Projected 20-Yr Growth
Youth under 18	2,145,001	2,073,960	-3.3%
Working age adults (18-64)	6,108,828	6,046,462	-1.0%
Adults over 65	1,813,808	2,371,214	30.7%
Adults 65-74	1,074,127	1,040,311	-3.1%
Adults 75 and over	739,682	1,330,903	79.9%

Source: University of Michigan Research Seminar in Quantitative Economics projections

Compounding the problem is Michigan's persistently low labor force participation rate (LFPR) – defined as the percentage of the civilian population that is either working or seeking work. Michigan's LFPR has been below the national rate since 2002, but it dropped much faster than the nationwide rate between 2002 and the end of the Great Recession in 2012. Following the recession, the gap between the U.S. and Michigan began to close, but then expanded again following the onset of the COVID-19 pandemic. In 2022, it remains 2.3 percentage points below the national rate.

A slowing shrinking traditional working age population alongside this relatively low LFPR means the size of the state's labor force is likely to remain somewhat constrained in future decades. Labor force growth would require either an uptick in the LFPR – particularly for older workers above 65 years of age whose population will actually grow over the forecast period.

**Chart 17: Michigan and U.S. Labor Force Participation Rates**



Source: U.S. Bureau of Labor Statistics

<sup>20</sup>The first paper in this series takes a more extensive look at these population and demographic trends.

Strain on the labor force could be particularly serious within the health care industry. Research suggests that Michigan is already experiencing challenges in meeting the health care needs of its population. Primary care physician shortages are widespread, particularly in more rural areas of the state.<sup>21</sup> In terms of behavioral health care, it is estimated that only 62 percent of persons experiencing mental illness receive treatment.<sup>22</sup>

Forecasted population growth of almost 80 percent between 2020 and 2040 among those aged 75 and older will bring greater demand for health care services. This will increase the need for health care workers, including not only health care professionals but also home health workers and direct care staff within nursing homes and other facilities. While employment within the health care sector has been strong in Michigan, it's clear that growth under the current trajectory will be sufficient to meet these new demands.

**Table 15** shows that while employment within Michigan's health care sector will continue to outpace overall employment growth in the state, this growth is unlikely to keep pace with the increased demand for health care services that will come with Michigan's aging population. Michigan will likely face even greater challenges in the coming decades with the adequacy of its health care workforce.

**Table 15: Employment Projections within the Health Care Sector**

	2010	2020	2040 (est)	Projected 20-Yr Growth
Ambulatory health care services	232,856	245,598	327,553	33.4%
Private hospitals	192,955	202,103	224,836	11.2%
Nursing/residential care facilities	103,479	106,316	125,393	17.9%

Source: University of Michigan Research Seminar in Quantitative Economics projections

## Recap

This paper has documented that Michigan has fallen below national averages in key measures of economic prosperity and workforce talent; yet its automotive legacy also leaves the state with high concentrations of talent in important high-skilled occupations. It also has shown that prosperity and economic opportunity are not equally accessible to all Michiganders. To address these issues in an effort to retain current residents and attract new ones:

- Economic development efforts should be designed with a special focus on the state's anchor cities with the goal of restoring business development and employment opportunities in high-wage industries within these core cities.
- It is important that Michigan not only create new jobs through policy interventions, but that it create high-wage jobs capable of supporting an adequate standard of living for Michigan families.
- Public policies that encourage and empower entrepreneurial efforts, especially for females and minorities who have traditionally been less likely to create new businesses in Michigan, would help Michigan further improve in this area and ensure that all entrepreneurial talent is being effectively fostered.
- Public policies related to higher education funding and financial aid availability should recognize the new economic realities and be designed to encourage maximum college degree attainments.
- Public policies should focus on increasing college degree attainment and on improving Michigan's ability to retain new college graduates in-state by fostering attractive job opportunities and creating places around the state where young professionals want to live and work.

<sup>21</sup>Citizens Research Council of Michigan, Where are the Primary Care Doctors?, 2015.

<sup>22</sup>Altarum, Access to Behavioral Health Care in Michigan, 2019.