

# 2023 SCORE CARD

19TH ANNUAL SCORE CARD

Produced by the  **SBAM**  
Foundation

**DTE**  
Foundation

 **Blue Cross  
Blue Shield  
Blue Care Network**  
of Michigan  
Nonprofit corporations and independent licensees  
of the Blue Cross and Blue Shield Association

 **MICHIGAN ASSOCIATION OF  
STATE UNIVERSITIES**

 **SMALL BUSINESS**  
Association of **MICHIGAN**

 **MSHDA**  
MICHIGAN STATE HOUSING DEVELOPMENT AUTHORITY

 **michigan  
municipal  
league**



# ACKNOWLEDGEMENTS

Prepared in partnership with GrowthEconomics, Inc., and ROI – Research on Investment, Canada

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## ABOUT THE SBAM FOUNDATION

It will focus its work on:

- Research and publications in connection with entrepreneurship
- Training and education on entrepreneurship including those that benefit disadvantaged individuals and economically challenged communities
- In-depth analysis of the entrepreneurial environment in Michigan via the Michigan Entrepreneurship Score Card

The Score Card analytics and methodology were developed in 2004.

SBAM Foundation is grateful for the generous sponsors and supporters who help underwrite the production and distribution of the Michigan Entrepreneurship Score Card each year.

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# BEST FOR THE WORLD

Our energy powers communities,  
so we're passionate about making  
our public service personal.

We're grateful for our partners who inspire and drive progress in our communities. Together, we're working toward a thriving Michigan with opportunities for all.

Together, we will be Best for the World.

**DTE**  
Foundation



# THANK YOU SPONSORS

## **BLUE CROSS BLUE SHIELD OF MICHIGAN**

Blue Cross Blue Shield of Michigan is an independent licensee of the Blue Cross and Blue Shield Association. We're the largest health insurer in Michigan, serving 3.9 million people here and 1.3 million more in other states. And we have the largest network of doctors and hospitals in Michigan: 158 hospitals and more than 33,000 doctors.

## **DTE FOUNDATION**

The DTE Foundation ("Foundation") is the philanthropic arm of DTE Energy ("DTE") and supports initiatives focused on arts and culture, community transformation, economic progress, education and employment, environment, and human needs. For more than 20 years, the Foundation has invested in communities where DTE has a business presence. In 2022, the Foundation provided more than \$15 million in grant support to over 300 nonprofits. Visit [DTEFoundation.com](https://DTEFoundation.com) to learn more.

## **MICHIGAN ASSOCIATION OF STATE UNIVERSITIES**

The Michigan Association of State Universities serves as the coordinating board for Michigan's 15 public universities, providing advocacy and fostering policy to maximize the collective value these institutions provide in serving the public interest and the State of Michigan. Michigan's public universities enroll more than 250,000 students, providing excellent undergraduate and graduate education, internationally renowned research, and services to Michigan's employers, government leaders, non-profit organizations, and residents. Learn more at [www.masu.org](https://www.masu.org).

## **MICHIGAN MUNICIPAL LEAGUE**

We love where you live — The Michigan Municipal League is dedicated to making Michigan's communities better by thoughtfully innovating programs, energetically connecting ideas and people, actively serving members with resources and services, and passionately inspiring positive change for Michigan's greatest centers of potential: its communities.

## **MICHIGAN STATE HOUSING DEVELOPMENT AUTHORITY (MSHDA)**

MSHDA's mission is to serve the people of Michigan by partnering to provide quality housing that is affordable, a cornerstone of diverse, thriving communities. By forging creative and collaborative partnerships, sharing knowledge, and targeting resources, our investments help build a strong and vibrant Michigan and a better quality of life for the residents we serve.

## **SMALL BUSINESS ASSOCIATION OF MICHIGAN**

The Small Business Association of Michigan is the only statewide and state-based association that focuses solely on serving the needs of Michigan's small business community. We have been successfully serving small businesses like yours in all 83 counties of Michigan since 1969. We're located in Lansing, just one block from the Capitol.

Our mission is the success of Michigan's small businesses. We do this through: advocating for small business, bringing business owners together to share knowledge, creating collaboration and partnerships, and delivering group buying power.





Turn your dreams into a home.

We serve the people of Michigan by partnering to provide quality housing that is affordable, a cornerstone of diverse, thriving communities.

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MICHIGAN STATE HOUSING DEVELOPMENT AUTHORITY





# TABLE OF CONTENTS

- 7** EXECUTIVE SUMMARY
- 12** MICHIGAN ECONOMIC SNAPSHOT
- 20** TOP TENS & BOTTOM TENS
- 27** CROSS-STATE METRICS & COMPARISONS
- 34** ENTREPRENEURIAL TREND WATCH INDICATORS
- 37** SELECT SMALL BUSINESS / ENTREPRENEUR ISSUES 2023
- 49** CRITICAL FOUNDATIONS FOR ENTREPRENEURIAL SUCCESS

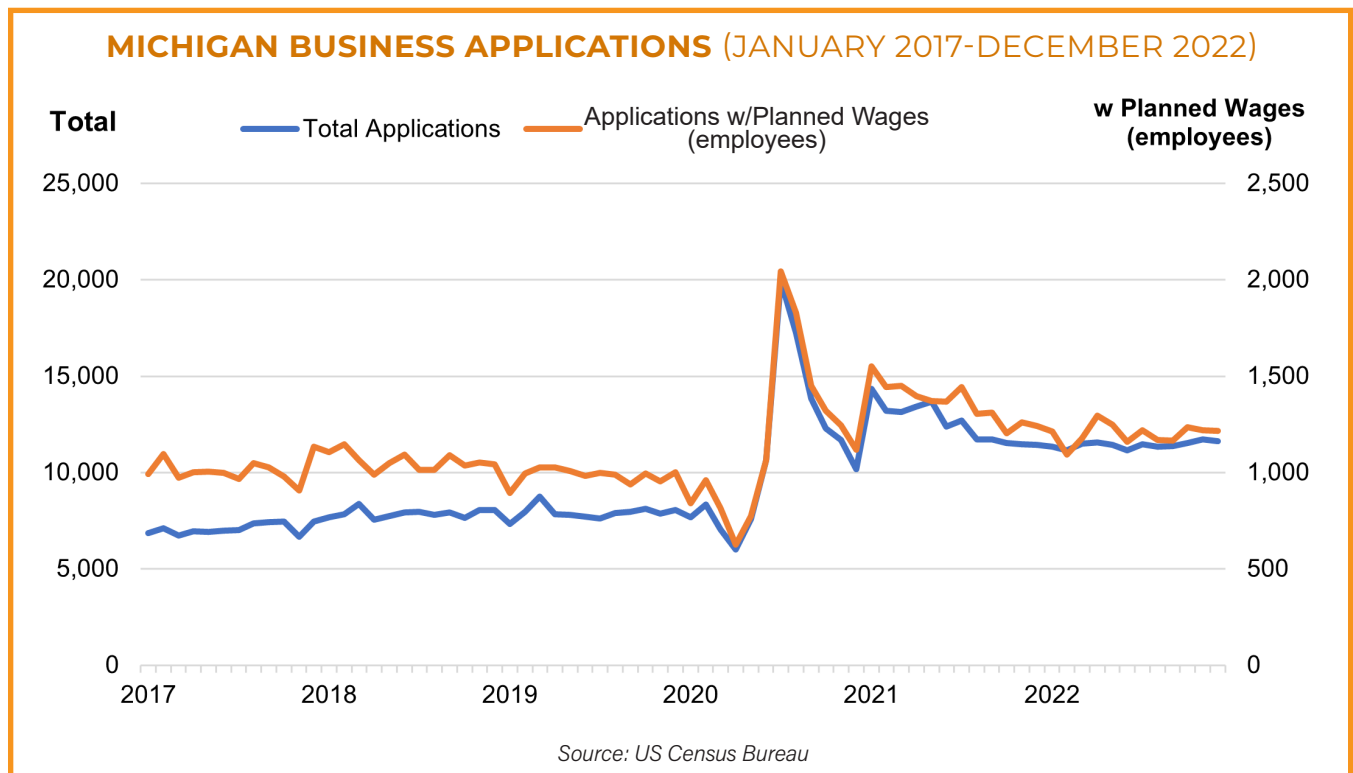
# EXECUTIVE SUMMARY

The 2023 edition of the Entrepreneurship Score Card marks the 19<sup>th</sup> annual report of its kind, and bears witness to a period of extensive change in the Michigan economy. The purpose of this Score Card is to examine the health of Michigan's entrepreneurial economy, calling out strengths and weaknesses, while measuring our state's progress against other states. The entrepreneurial economy, which is dominated by small businesses, is distinct from the overall economy, providing Michigan and its citizens with resilience and diversity.

Over the past two decades, Michigan has seen extended periods of decline, stagnation, recovery, and growth. Through these changes, Michigan citizens appear to be turning to entrepreneurship more than ever before, even as the rising costs of inflation and worker shortages pose challenges, and a potential economic slowdown looms on the horizon.

## Small Business is Big in Michigan, and it's Getting Bigger

While the number of small businesses (between 1-99 employees) in Michigan held mostly steady from 2010-2020 at over 150,000, the pandemic seems to have sparked an impressive increase in entrepreneurship. Beginning in the summer of 2020 and continuing through 2022, Michigan has seen record business starts, including those with employees and those operating as independent contractors and sole proprietors. Chart below.

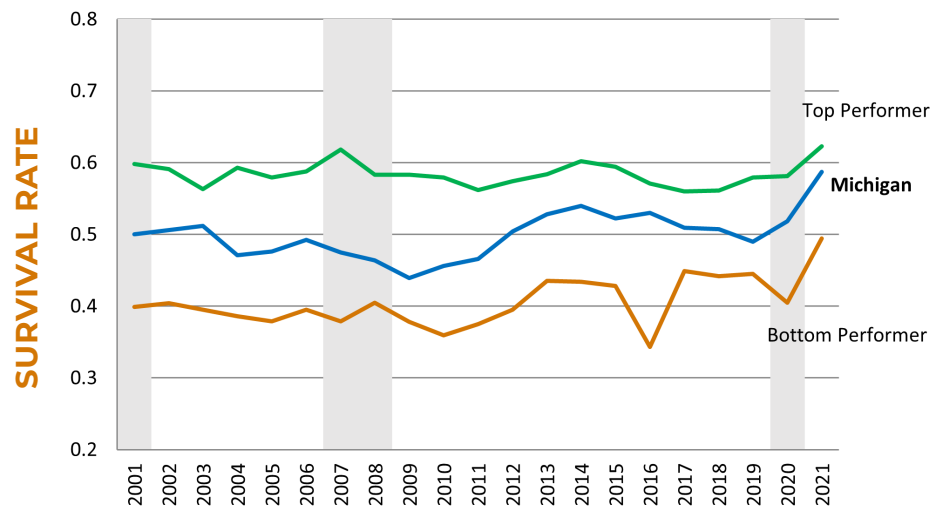




### More Small Businesses are Surviving

It is a widely held rule of thumb that more than half of new small businesses fail within five years. Michigan experienced a small business survival rate of lower than 50% during many of the years between 2001 and 2010 before exceeding 50% for much of the next decade. However, since 2020, Michigan has seen the five-year survival rate notably improve.

### 5-YEAR ESTABLISHMENT SURVIVAL RATE, 2001-2021

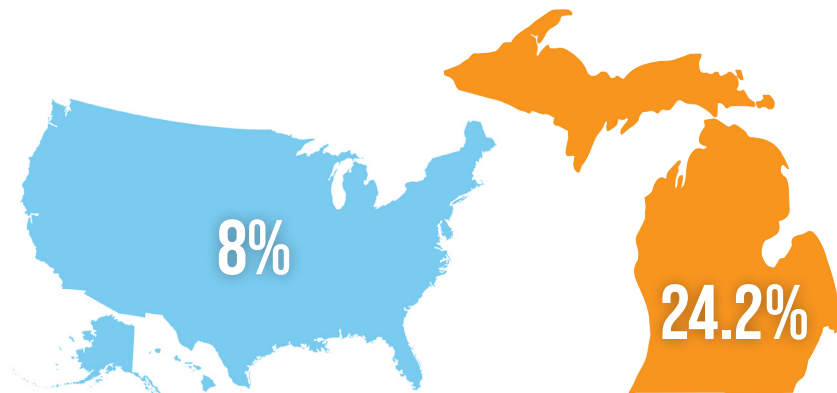


Source: Bureau of Labor Statistics. Data as of March the following year.

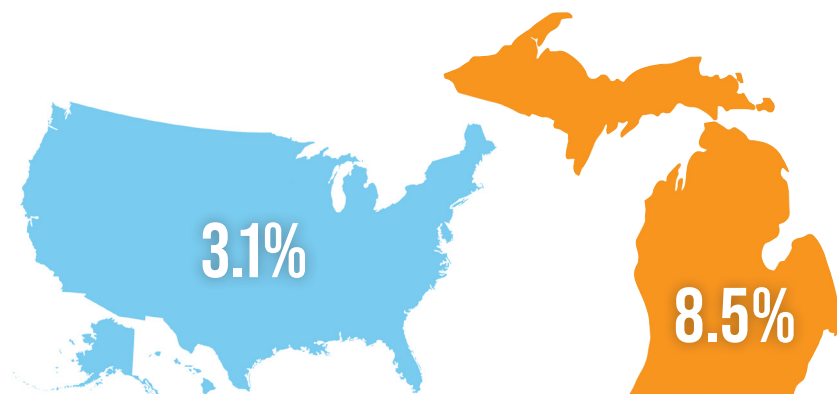
### Increased Revenues and Businesses Open

An increase in new business starts combined with more businesses surviving past the five-year mark is a powerful combination for growth. Economy Tracker statistics show that small business revenue has experienced a 24.2% increase since 2020 which tripled the U.S. increase of 8%. Furthermore, the Economy Tracker indicates that Michigan now boasts 8.5% more small businesses open as compared to the beginning of 2020. This compares very favorably with the overall national average increase of 3.1%.

### PERCENT CHANGE IN SMALL BUSINESS REVENUE, JANUARY 2020 TO FEBRUARY 06, 2022



### PERCENT CHANGE IN SMALL BUSINESSES OPEN, JANUARY 2020 TO FEBRUARY 2022



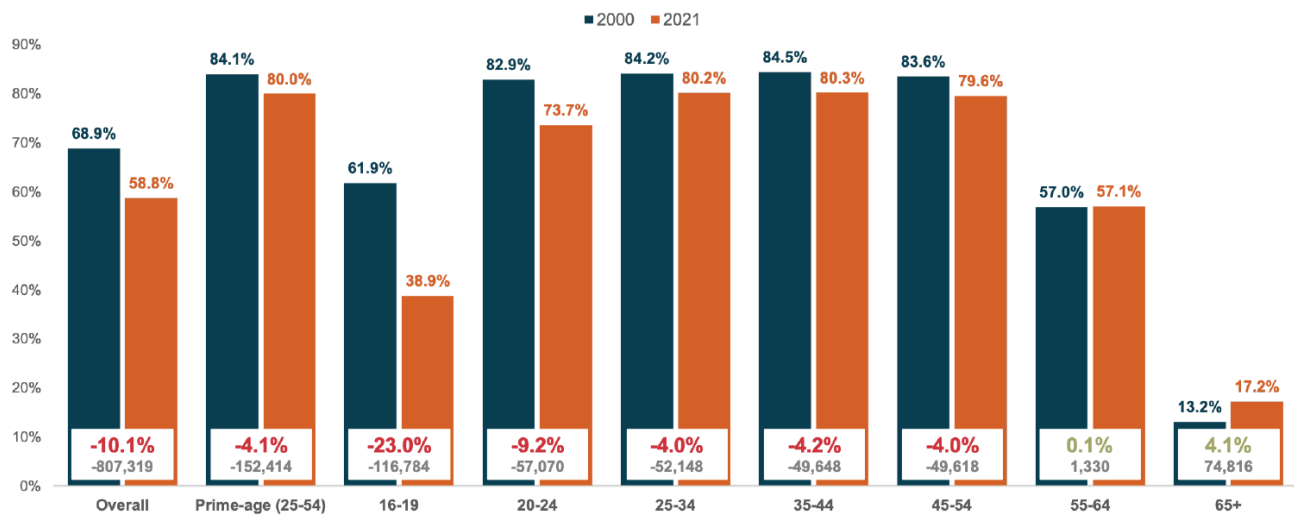
### Michigan's Labor Force Participation Still Lags

While this increased entrepreneurial activity strikes a hopeful tone, Michigan small businesses are feeling the impacts of our long-term demographic trends. Michigan has 721,000 fewer people in the workforce as compared to January of 2000. Labor force participation peaked at 68.8% around the turn of the century. Today, Michigan struggles to stay above 60%. During that

time period, Michigan has seen the steepest declines in labor force participation among younger workers.

The pandemic has exacerbated these problematic work force trends and interrupted modest increasing labor force participation between 2011 and 2019. As of the end of 2022, Michigan's workforce was down by 97,200 people since COVID struck.

### LABOR FORCE PARTICIPATION RATE BY AGE GROUP MICHIGAN 2000-2021



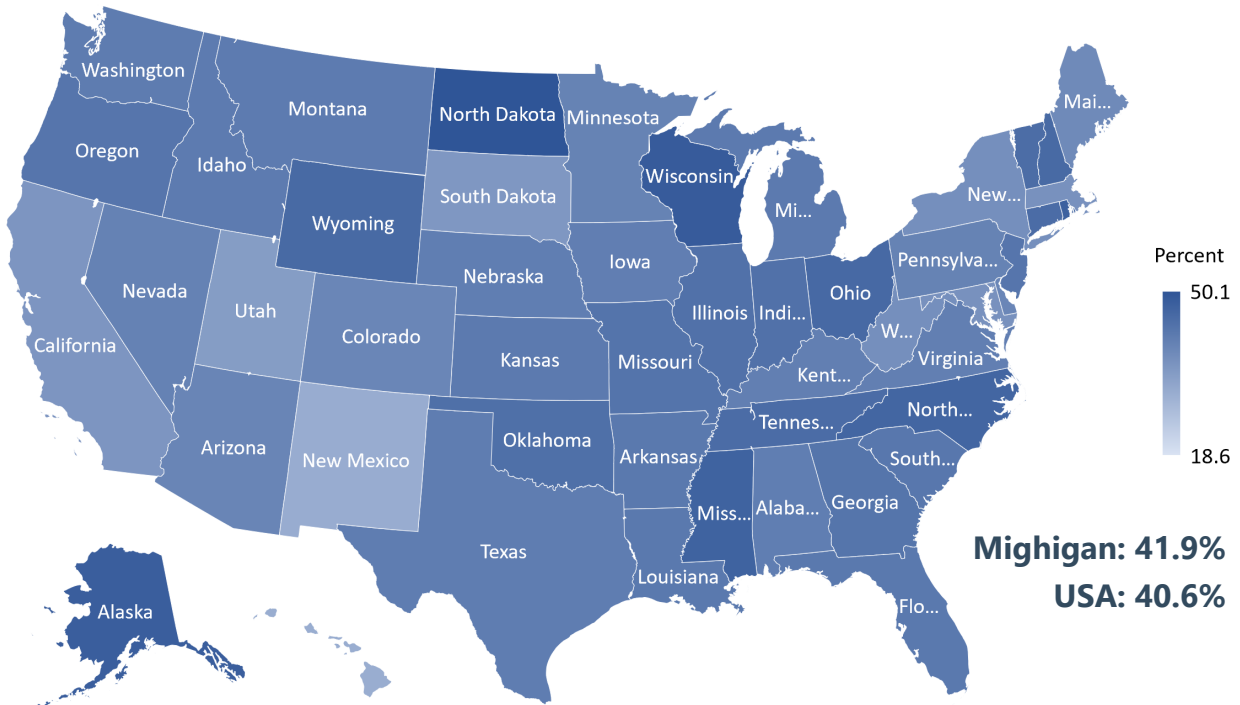
Sources: US Bureau of Labor Statistics, Current Population Survey (CPS), Subnational Estimates

### MICHIGAN LABOR FORCE PARTICIPATION RATE



Source: TalentFirst and Bureau of Labor Statistics, seasonally adjusted.

## PERCENT OF BUSINESS EXPERIENCING LARGE PRICE INCREASES OVER PAST 6 MONTHS



### Rising Costs Still Hitting Small Businesses

This Score Card report noted small business concerns with rising costs early in 2021, ahead of the Federal Reserve acknowledging inflation as the serious problem that it has since become. While year over year inflation has moderated somewhat from 40-year highs experienced in 2022, core inflation remains stubbornly high. To combat inflation and cool off the economy, the

Federal Reserve has increased interest rates 10 times, substantially increasing the cost of borrowing as small businesses grapple with rising labor, material, and energy costs.

The U.S. Census Bureau Small Business Pulse Survey reflects the hardship caused by inflation with 40.6% of U.S. Small Businesses and 41.9% of Michigan Small Businesses experiencing what they describe as large/severe price increases in 2022.

## NOW IS THE RIGHT TIME TO RETHINK ALL WE DO

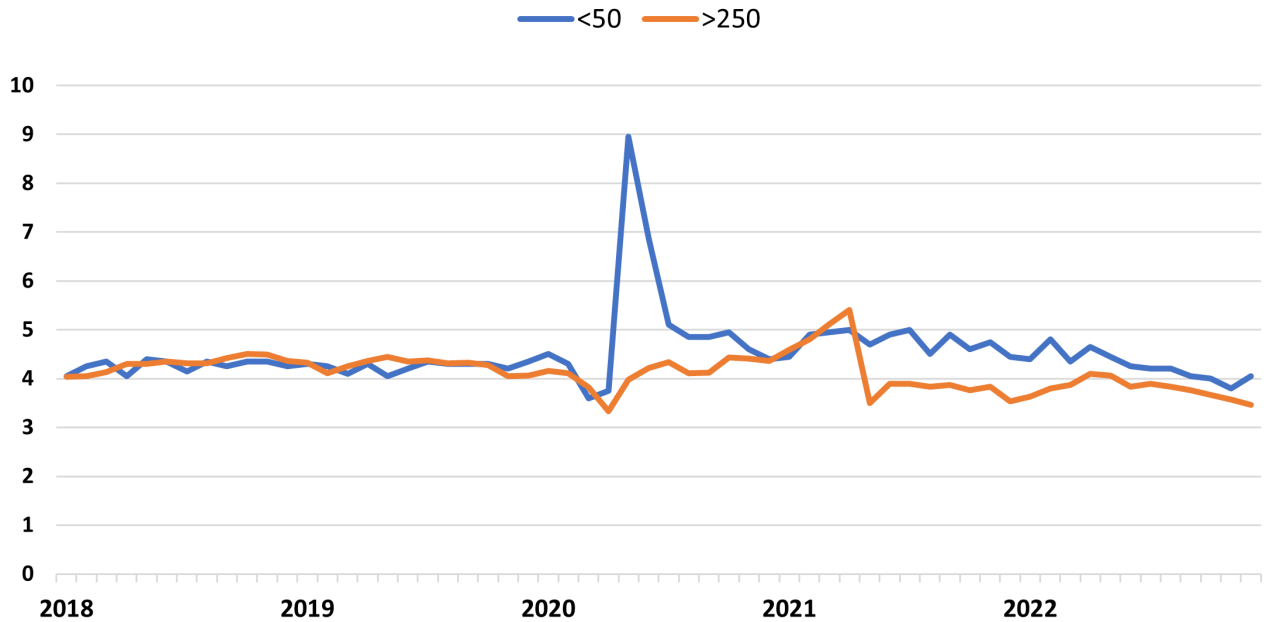
Our focus on building community wealth is driven by successful communities that are growing, and in the process, are making their states more prosperous.

Community wealth building encourages innovations that will assist our communities—large and small—to grow, become stronger, and transform into even better places for their residents, businesses, and visitors.





## US HIRING RATE BY SIZE



Source: Bureau of Labor Statistics, seasonally adjusted

### Recessionary Risks Loom but the Overall Story is Still Positive

The efforts to cut inflation by “cooling” the economy with higher interest rates poses an increased risk of recession in the coming year and credit tightening within the banking system could further slow growth. There is much debate and discussion over the length and severity of a potential recession, though some signs of slowing are starting to show up in the data. US hiring by both small and large firms are still positive but trending lower and Comerica’s Michigan Economic Activity Index showed softening in the second half of 2022.

The 2023 Entrepreneurship Score Card Report is full of useful and insightful data that gives a multidimensional picture of Michigan’s small business economy and how it stacks up to other states and itself, year over year. From the scorecard’s proprietary entrepreneurial climate, change, and vitality indexes to the return of top ten/bottom ten rankings in dozens of topical areas, this report is the most complete record of how Michigan’s small businesses are doing.

# GROW YOUR IDEA IN COLLEGE

Where do budding entrepreneurs learn skills, take their first risk, and build a network for life?  
At one of Michigan’s 15 public universities.





## CHAPTER 1

# MICHIGAN ECONOMIC SNAPSHOT

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The experiences and policy responses of the past few years continue to affect the state and national economy in various ways. Most notable as this report goes to press: the nation is wrestling with inflationary effects in part aggravated by unprecedented pandemic stimulus measures in 2020 and 2021, international instability, and shortages in labor, goods, and services.

The 2021 Score Card noted Michigan's economy gained back significant lost ground after the COVID recession of 2020. Relatively quick recoveries in certain industries, such as manufacturing and construction, resulted in stronger topline economic performances in many categories in 2021-22. However, Michigan's recovery has not been even. Several industries still face extraordinary challenges that will likely continue as the pandemic aftermath slowly recedes.

This Chapter reports on the general state of Michigan's economic progress in 2022 with indications of the challenges and risks that lie ahead. We pay attention to the overall condition of the Michigan economy because in general, small business growth does better when the overall Michigan economy is in a 'growth mode.'

### In summary:

- In 2022, the Michigan economy held up well. For monthly reports by the Federal Reserve (Philadelphia) for most of the year, prior three-month economic improvements have been positive. However, fourth quarter 2022 reports show signs of weakening.
- 2022 monthly commercial and industrial electricity use has been mostly up from the equivalent month the previous year, and likewise 2021 usage was up from 2020.
- As noted in the 2021 Score Card, growth has slowed since the recovery began in mid-2020. Nevertheless, job postings in Michigan have been robust through 2022.
- Aggregate state rankings for the economy and business climate continue to place Michigan around mid-point amongst the states.
- State of Small Business rankings are much improved from 20 years ago – two reports in 2022 ranked Michigan at 10 and 28 out of the 50 states. According to statistics from Economy Tracker, Michigan small businesses have been outperforming the U.S. averages since 2020 (measured in percent growth in businesses open and in business revenue).
- Both Michigan's percent-employed and labor force participation have declined since pre-pandemic, while spending and consumption have remained strong and state sales tax collections exceptionally strong through 2022. Early 2023 shows signs of softening sales tax collection.
- Exports have long been an important part of Michigan's economy (given global manufacturing supply chains). Latest year exports improved over 2021. Overall trade activity is comparable with pre-COVID levels.

## STATE SCORE CARD SNAPSHOT

Based on (GDP), Michigan is the 14th largest state.

A quick scan of state business and economy score-cards below shows Michigan ranking in the 16 to 29 range. While the focus and methodologies of these reports vary considerably, they offer a starting point for understanding where Michigan stacks up overall. Regarding Best States to Start a Business, the three reports below show its rank varying widely between 21 and 47.

### How good is Michigan as a State to do Business?

- CNBC: America's Top States for Business, 2022, Michigan #16
- US News and World Report: Michigan's Economy, 2021, Michigan #29
- Chief Executive Magazine: Best and Worst States for Business, 2022, Michigan #18

### How good is Michigan as a State to Start a Business?

- Wallet Hub: Best States to Start a Small Business, 2023, Michigan #21
- Forbes: Best States to Start a Business, 2023, Michigan #47
- The Ascent: Best States to Start Your Small Business, 2022, Michigan #28

## OVERALL ECONOMY SNAPSHOT

*"Michigan's economy will likely slow along with national and global economies in 2023. Rising interest rates will slow credit-intensive sectors, such as housing and commercial real estate investment. The auto industry will likely outperform other types of durable consumer goods manufacturing as car dealers restock inventories, but even it could face a lower speed limit on its rebound due to higher interest rates."* – Comerica Bank Insights, Jan31, 2023, Bill Adams and Waran Bhahirethan

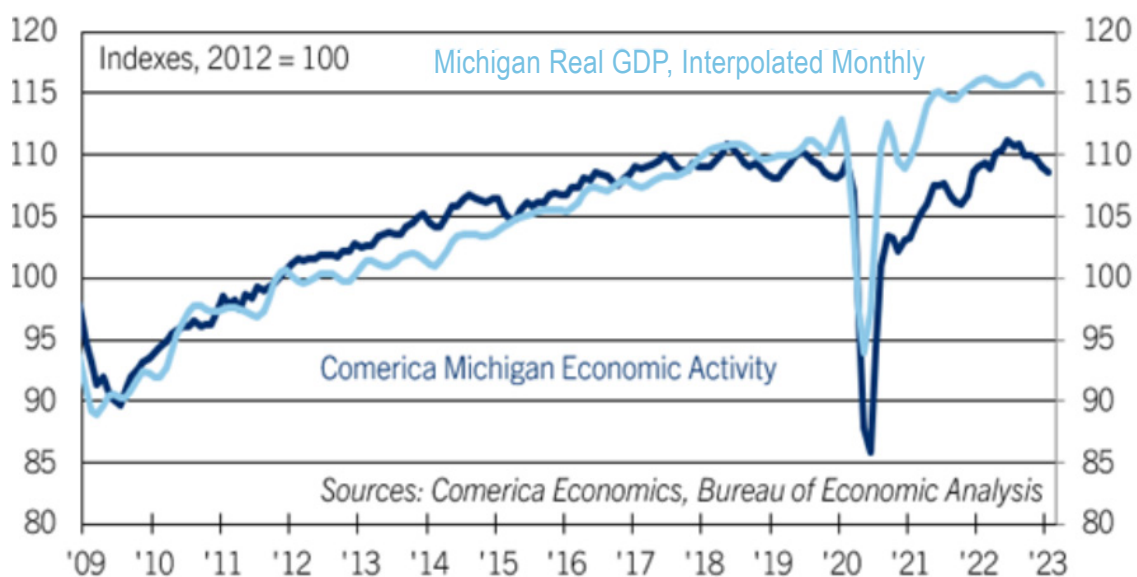
### Comerica's Michigan Index: Quarterly Decline Through October

The Comerica Michigan Economic Activity Index is a monthly composite indicator of state economic activity. Because it uses data released about one quarter earlier than real GDP, it provides an advance view. Its Index's long-term path is shown in the graph below, alongside the state's Real GDP.

*"The Comerica Michigan Economic Activity Index fell 2.9% annualized in the three months through October. The Index was up a solid 3.6% from the same month of last year. Only four of the index's nine components increased in October."*

*Employment rose in the month – but so did continuing claims for unemployment insurance, painting a mixed picture of the state's job market."*

## MICHIGAN INDEX AND MICHIGAN REAL GDP



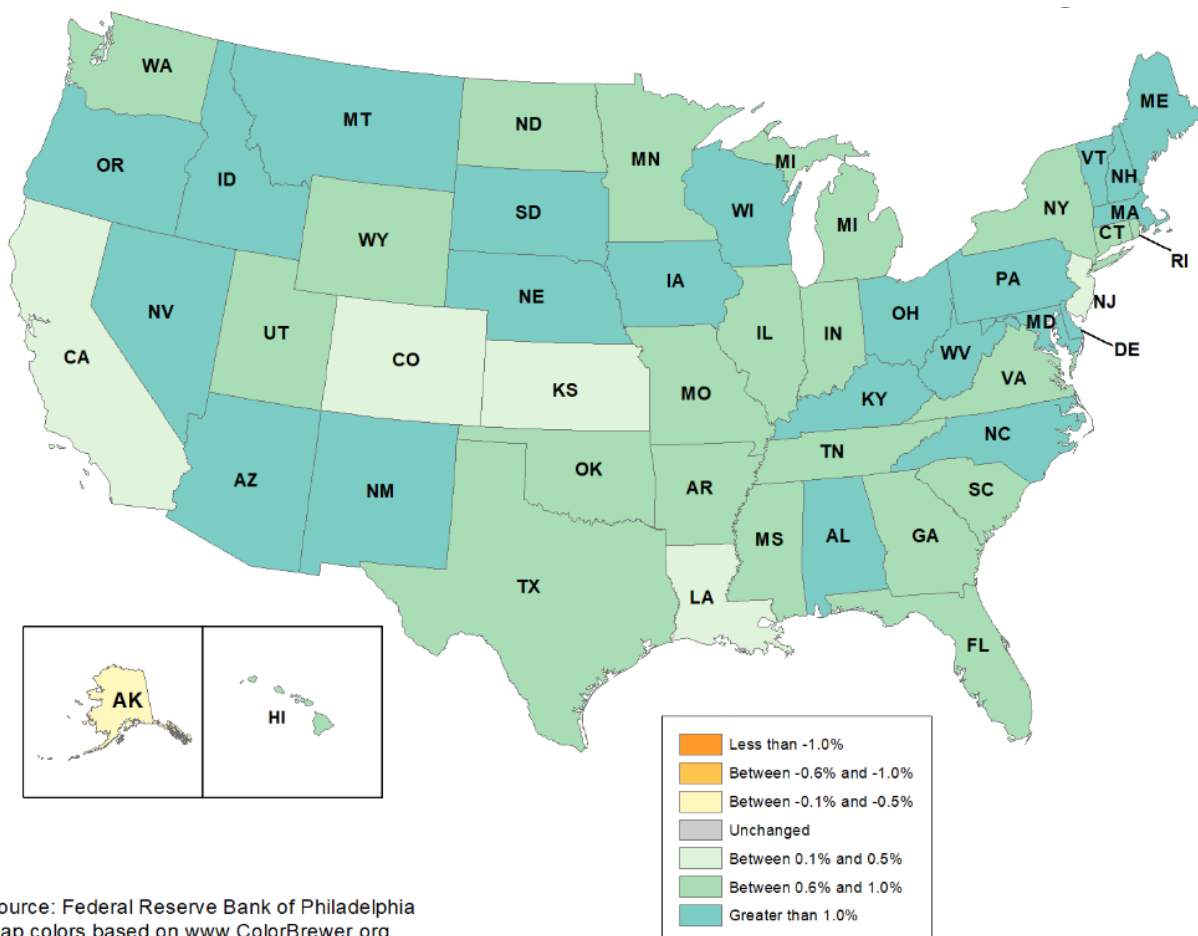
Sources: Comerica Economics, Bureau of Economic Analysis and [www.comerica.com/insights.html](http://www.comerica.com/insights.html)



Car and light truck assemblies rose to 10.5 million units at a seasonally adjusted annualized pace in October from 10.3 million in September and topped 10 million for the seventh consecutive month. October's run rate was just shy of the 10.6 million units assembled in 2019 prior to the pandemic, a further sign that supply chain disruptions are finally abating; assemblies slowed in November and December, though, which will weigh on the index in the next few releases. Electricity consumption by the state's industrial sector declined in October.

House prices declined for the fifth consecutive month and were down 1.9% from the peak in May. Housing starts rose for a third consecutive month and were still up 21.7% from a year earlier, even after a precipitous decline in July. Housing is likely to weaken further near-term as high prices and soaring mortgage rates weigh on demand." - Comerica Bank Insights, Jan31, 2023, Bill Adams and Waran Bhahirethan

## DECEMBER 2022 STATE COINCIDENT INDEXES: 3-MONTH CHANGE



Source: Federal Reserve Bank of Philadelphia  
Map colors based on [www.ColorBrewer.org](http://www.ColorBrewer.org)

Source: <https://www.philadelphiafed.org/surveys-and-data/regional-economic-analysis/state-coincident-indexes>

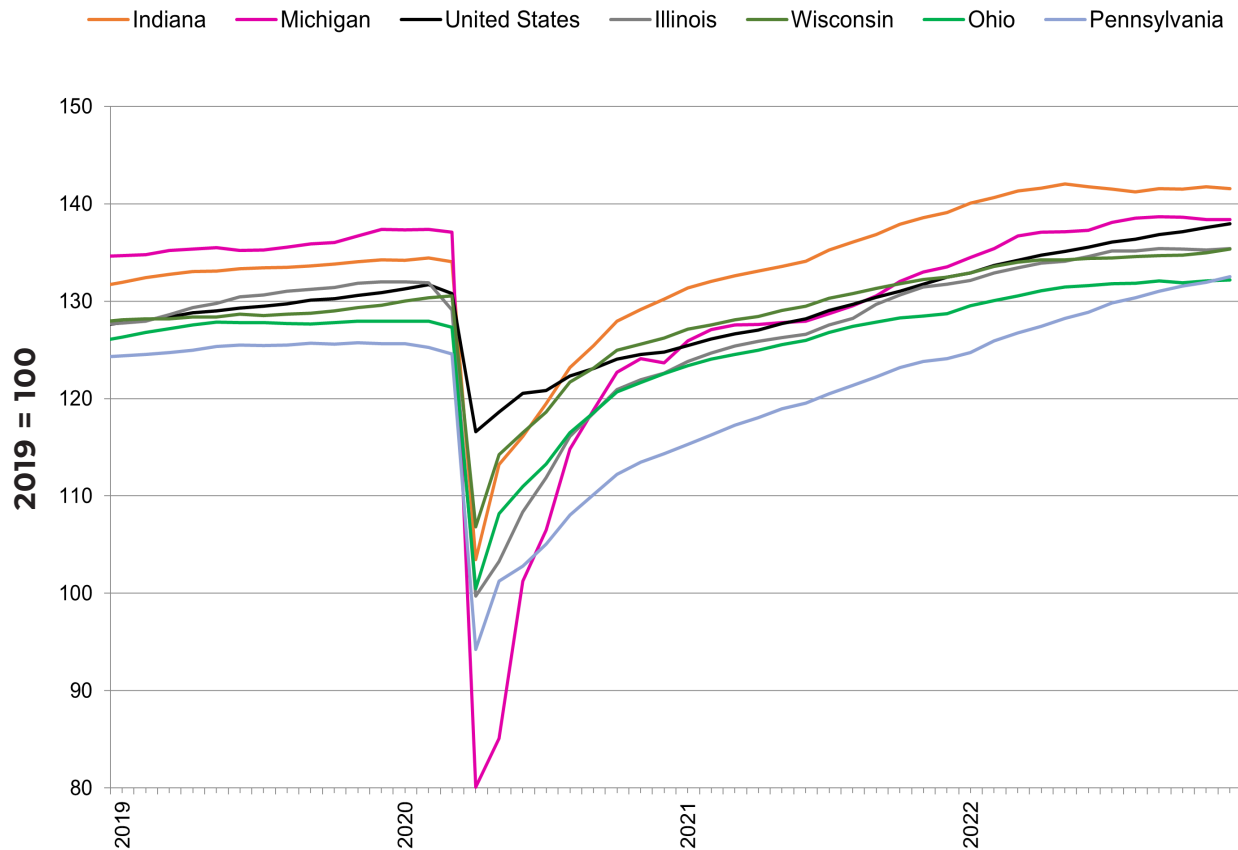
### The Federal Reserve Coincident Index

The Coincident Index is a widely recognized measure of near-term state economic growth from the Federal Reserve Bank of Philadelphia.

- From December 2021 to May 2022, Michigan was included among the national leaders in economic growth. In the Midwest, Indiana has maintained the lead since September 2021, with Michigan holding in second place.

- From the chart below, over the previous three months to December 2022, Michigan places among the bottom 14 states for three-month economic improvement among the 50 states.
- Michigan had placed consistently in the top improvement category through July 2022. The chart below shows the state slipping in economic performance during the second half of 2022. However, for the first three months of 2023 the Michigan economy has returned improvements better than the latter half of 2022.

### INDUSTRIAL MIDWEST COINCIDENT INDEX January 2019 - December 2022



Sources: Federal Reserve Bank of Philadelphia

## ANNUAL COUNT OF MICHIGAN-BASED ESTABLISHMENTS Employing 1-99

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
SUSB	174,522	172,085	172,457	172,016	172,079	172,339	172,273	173,494	173,899	172,794	171,324

Source: US Census Bureau

### SMALL BUSINESS COUNT

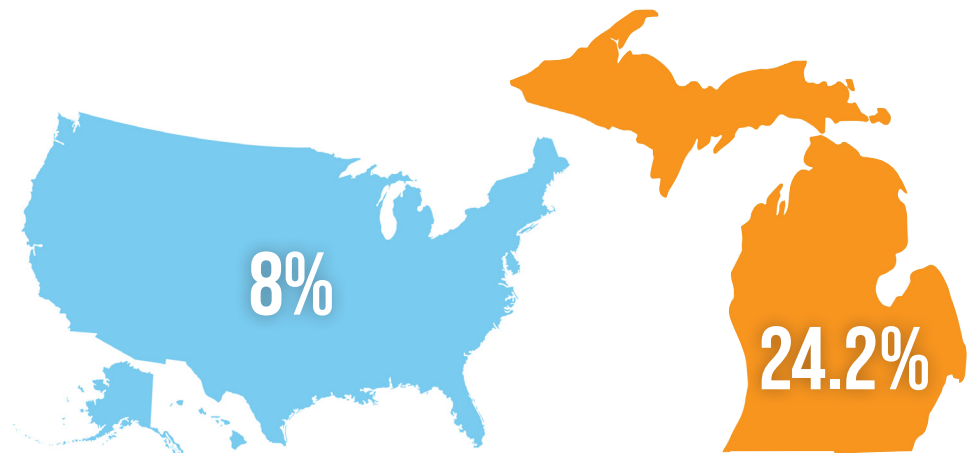
In terms of the 10-year trend, the number of Michigan small business establishments (1 to 99 employment) has remained quite steady, with an observable drop in 2020 due to the pandemic outbreak.

Recovery from 2020 looks promising. In the United States, according to the Economy Tracker, as of February 2022, the number of U.S. small businesses open

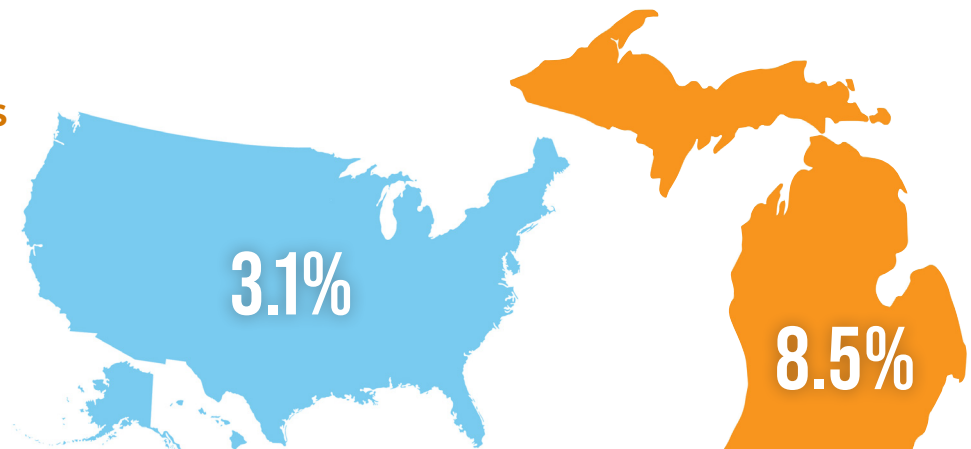
increased by 3.1 percent compared to January 2020. In Michigan, as of February 2022, the number of small businesses open increased by 8.5 percent compared to January 2020. Confirmatory data will be available later in 2023.

According to the statistics from Economy Tracker below, Michigan Small Business Revenue has been outperforming the U.S. since 2020 – a good sign.

### PERCENT CHANGE IN SMALL BUSINESS REVENUE, January 2020 to February 06, 2022

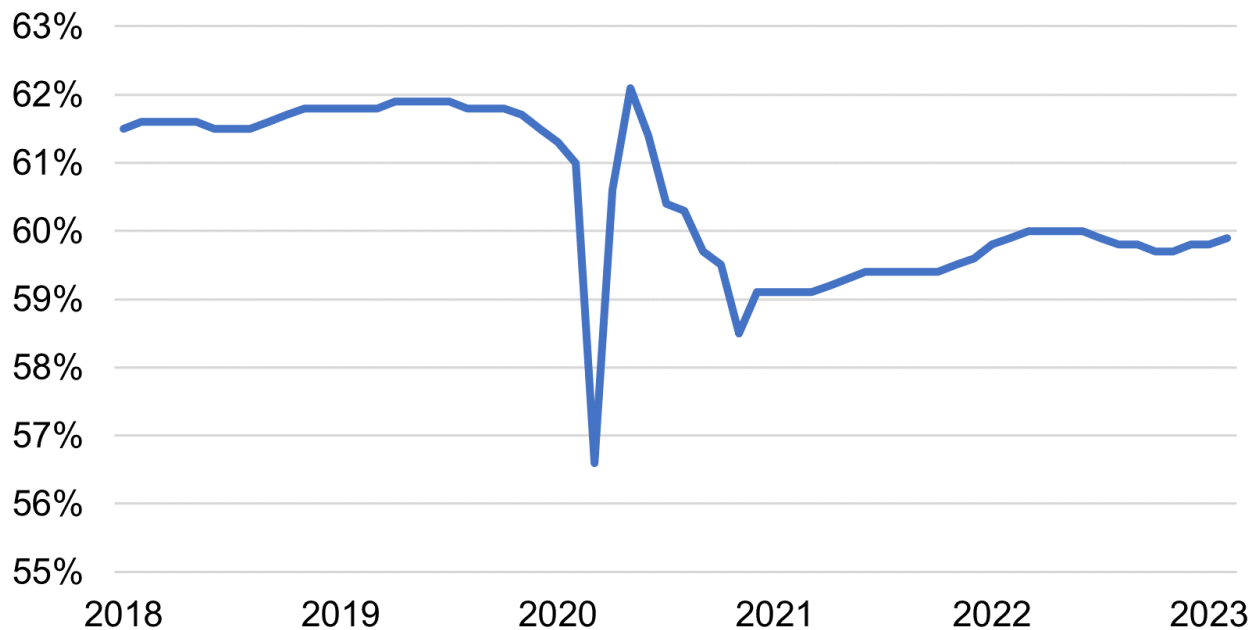


### PERCENT CHANGE IN SMALL BUSINESSES OPEN, January 2020 to February 2022





## MICHIGAN LABOR FORCE PARTICIPATION RATE



Source: Bureau of Labor Statistics, seas. adj.

## UNEMPLOYMENT RATE AND LABORFORCE PARTICIPATION

Nationally, the Labor Force Participation Rate is slowly recovering from an extraordinary reduction in spring 2020. Similarly, the unemployment rate has clearly improved but that rate somewhat overstates the true recovery when you consider how many people exited the labor force and have not returned.

Between January 2020 and Dec. 16, 2022, the **Percent Change in Employment** dropped 6.7% for the U.S. as a whole but less so for Michigan, at 0.7% (not seasonally adjusted, Economic Tracker). The Michigan Labor Force Participation Rate (the number of all employed and unemployed workers divided against the state's civilian population) dropped from 61.2 in January 2020 to 59.6 (preliminary report) in December 2022 (seasonally adjusted). These data reflect what all small business owners know: Like most other states, Michigan is experiencing a workforce decline resulting in labor shortages. However, across all states Michigan's ranking is particularly acute - nearing the bottom at 40th in labor force participation as compared to other states. The graph above depicts the notable drop in labor force participation post COVID.

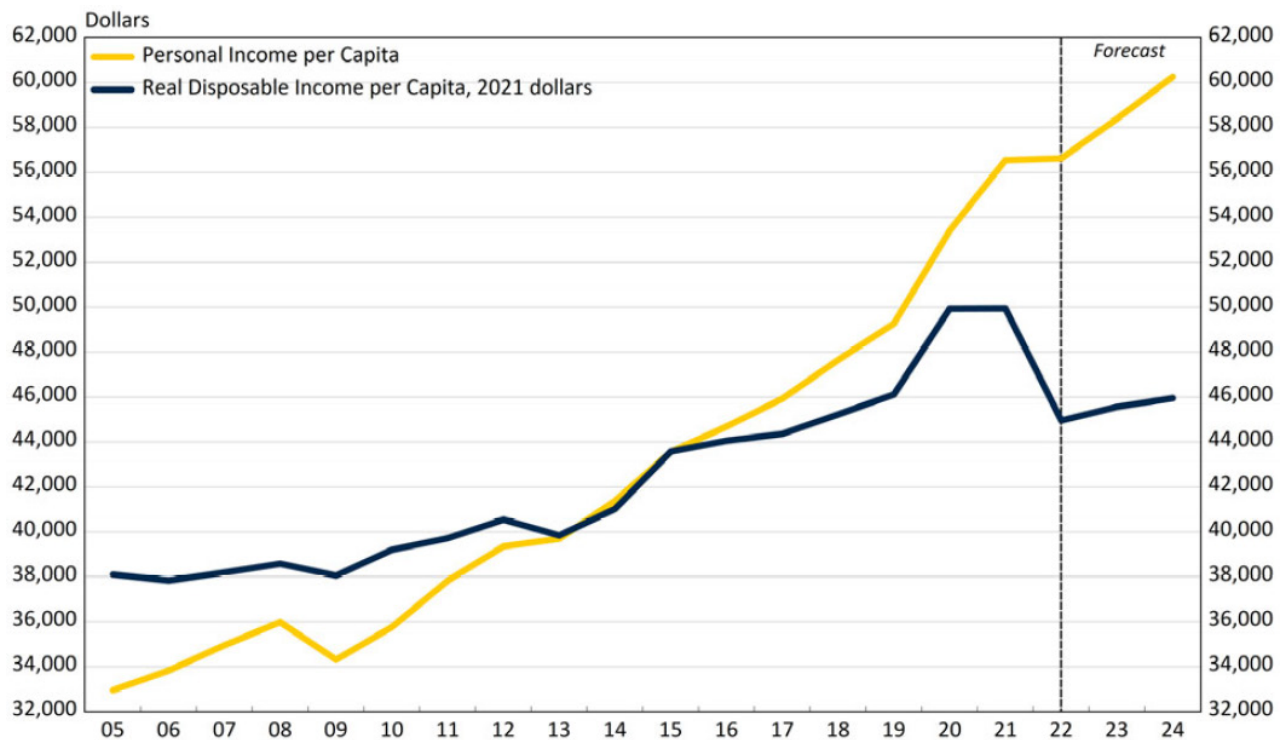
The unemployment rate has declined significantly. As of February 11 2023, Michigan's **Initial Claims for Unemployment Benefits** per 100 people in the labor force was 0.18 and 0.14 for the U.S.

- Unemployment Rate 3.8% - December 2022, marginally higher than the U.S. at a current 3.5%.
- WARN notices 2022 = 37 (Employers of 100 workers or more covered by Unemployment Insurance giving advance notice of plant closings or mass layoffs)

## JOB POSTINGS

While Michigan employment is not back to pre-COVID levels, Michigan's job postings have been robust. For the week ending February 17, 2023, total job postings increased by 23.1% compared to January 2020 (11.1% for the U.S.) (Economy Tracker). Of particular note are job posting rates for jobs requiring higher levels of education, indicating a Michigan economy moving toward increasingly advanced skills/knowledge jobs. For jobs requiring 'extensive' education, Michigan job postings were up 38%, January 2020 thru February 17, 2023 (27.1% for the US).

## MICHIGAN PERSONAL INCOME AND REAL DISPOSABLE INCOME, 2005-2024



Source: LSA, University of Michigan

[https://lsa.umich.edu/content/dam/econ-assets/Econdocs/RSQE%20PDFs/MI\\_Exec\\_Sum\\_\(2023.02\).pdf](https://lsa.umich.edu/content/dam/econ-assets/Econdocs/RSQE%20PDFs/MI_Exec_Sum_(2023.02).pdf)

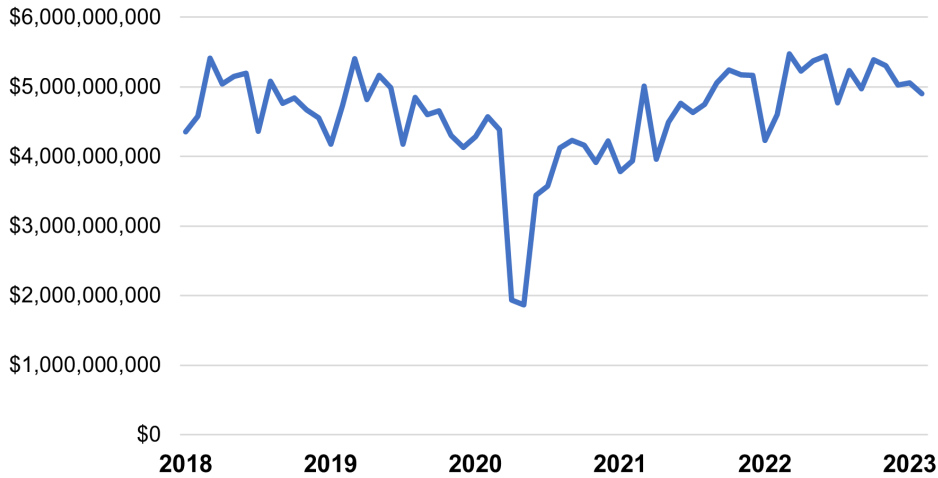
### PERSONAL INCOME, CONSUMER SPENDING AND TAX REVENUES

While overall employment remains lower than pre-pandemic, **Spending and Personal Income** has been strong. Over the past two years, Federal unemployment benefits stacked on top of regular and extended state unemployment benefits, in addition to direct stimulus payments, provided substantial personal income support even in the face of major interruptions in employment. The graph below shows a strong uptrend in per capita personal income, but real disposable income per capita is moderated by a rising cost of living.

Michigan's Consumer Spending recovered more quickly than that for the nation. From January 2020 to January 2023, the **percent change in All Consumer Spending** increased 22.9% for Michigan, while 17% for the nation (Economy Tracker).

Michigan Sales Tax collections were exceptionally strong in 2022. Michigan sales tax receipts totaled \$942.2 million in January 2023, a 7.2% increase from January 2022, but \$23.5 million below forecast. Sales tax collections have softened in early 2023.

### MICHIGAN COMMODITY EXPORTS

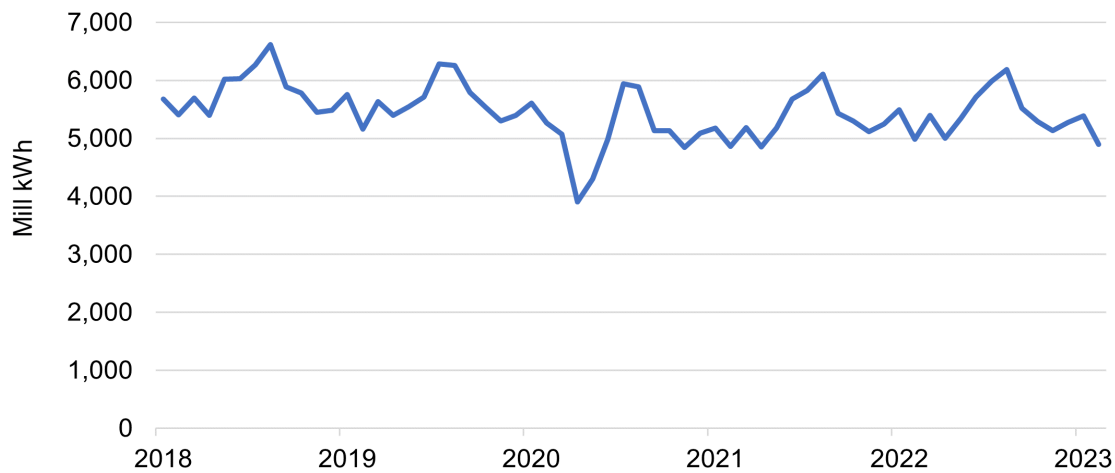


Source: U.S. Census Bureau

### EXPORTS

Exports have long been an important part of Michigan's economy (given global manufacturing supply chains). Michigan exports showed strong performance in Q2 2022. They are now comparable with pre COVID levels. A definitive recovery upswing in exports will be an indication that pandemic-related trade interruptions are behind us.

### MICHIGAN RETAIL ELECTRICITY SALES TO COMMERCIAL & INDUSTRIAL END-USERS



Source: EIA

### COMMERCIAL AND INDUSTRIAL ELECTRICITY USE

Beginning March 2021, monthly business electricity use exceeded that of the same month in the prior year. Monthly electricity usage in 2022 has exceeded that of the same month the prior year, except for July and August.



## CHAPTER 2

# TOP TENS & BOTTOM TENS

For 19 years Score Card readers have appreciated its 50-state comparisons on over 100 metrics pertaining to small business and the Michigan entrepreneurial economy. While this report covers 62 metrics, we are still missing some data that has not been fully available post-pandemic. Full details are expected to be available in 2024.

Where can Michigan count itself in the Top 10 (Leaders) and the Bottom 10 (Laggards)? And where is Michigan making substantial improvements over the past five years (Leapers)?

### LEADERS: TOP 10 METRICS

Michigan ranks among the TOP 10 States in the following 11 Metrics for 2022 (primarily 2021 Data)

- **#4 in Four-Year + Tech Credentials (2021)**  
*Metric Definition:* Percent of bachelor's and above degrees/certificates earned in technology-related fields
- **#2 in Physical Science & Engineering Workers (2021)**  
*Metric Definition:* Percent of occupations in physical sciences and engineering fields
- **#10 in Other Innovation Degrees (2021)**  
*Metric Definition:* Percent of degrees earned in quasi-science and quasi-technical fields
- **#8 in Patents per Innovation Worker (2021)**  
*Metric Definition:* Number of patents per 100,000 innovation workers
- **#10 in Graduate Program Ranking (2021)**  
*Metric Definition:* Number of graduate programs ranked in top categories in U.S. News Graduate School Report per 100 educational institutions
- **#8 in Unemployment Insurance Tax Rate (from Tax Foundation 2023)**
- **#10 in Fortune 500 (2021)**  
*Metric Definition:* Total number of Fortune 500 headquarters

#4



Four-Year +  
Tech Credentials

#2



Physical Science &  
Engineering Workers

#10



Other Innovations  
Degrees

#8



Patents per  
Innovation Worker

#10



Graduate Program  
Ranking

#8



Unemployment  
Insurance Tax Rate

#10



Fortune 500

- **#8 in Foreign Direct Investment (FDI) Employment Growth (2020)**  
*Metric Definition:* Growth in employment in foreign-owned firms as a percentage of total employment
- **#3 in Initial Public Offering (IPO) Financing (2021)**  
*Metric Definition:* Three-year total of initial public offerings per \$100,000 gross domestic product
- **#8 in High Performance Firm Change (2021)**  
*Metric Definition:* 3-year average of change in number of firms with significant revenue/sales growth
- **#9 in Homeownership Rates (2021)**  
*Metric Definition:* Homeownership rate

#8



Foreign Direct Investment  
(FDI) Employment Growth

#10



Initial Public Offering  
(IPO) Financing

#8



High Performance  
Firm Change

#9



Homeownership  
Rates

#### LAGGARDS: BOTTOM 10 METRICS

Michigan ranks among the BOTTOM 10 STATES in the following 5 Metrics (2021 Data)

- **#48 in Bank Commercial and Industrial Lending (2021)**  
*Metric Definition:* Total bank lending to commercial and industrial customers per \$1,000 gross domestic product
- **#45 in Manufacturing Value added per hour (2021)**  
*Metric Definition:* Value added per manufacturing production hour
- **#44 in Adult Education (2021)**  
*Metric Definition:* Postsecondary enrollment of 30-year-olds and above to a state's above-30 population
- **#42 in Bridge Quality (2021)**  
*Metric Definition:* Percent of bridges characterized as "deficient"
- **#47 in Airport Performance (Arrivals/Departures on time) (2021)**  
*Metric Definition:* 100 - Percent of arrivals and departures delayed

#48



Bank Commercial and  
Industrial Lending

#45



Manufacturing Value  
Added per Hour

#44



Adult  
Education

#42



Bridge  
Quality

#47



Airport Performance  
(Arrivals/Departures on time)

## LEADERS: TOP 10 METRICS

### Four-Year + Tech Credentials (2021)

*Metric Definition:* Percent of bachelor's and above degrees/certificates earned in technology-related fields

#### RANKING

1	Maryland
2	Washington
3	Montana
<b>4</b>	<b>Michigan</b>
5	Massachusetts
6	Wyoming
7	Colorado
8	Vermont
9	New Jersey
10	Georgia

### Physical Science & Engineering Workers (2021)

*Metric Definition:* Percent of occupations in physical sciences and engineering fields

#### RANKING

1	Maryland
<b>2</b>	<b>Michigan</b>
3	Alaska
4	Massachusetts
5	Colorado
6	Washington
7	New Mexico
8	Oregon
9	Alabama
10	Georgia

### Other Innovation Degrees (2021)

*Metric Definition:* Percent of degrees earned in quasi-science and quasi-technical fields

#### RANKING

1	New Hampshire
2	Delaware
3	Pennsylvania
4	Rhode Island
5	Indiana
6	Massachusetts
7	Connecticut
8	Arizona
9	Nebraska
<b>10</b>	<b>Michigan</b>

### Patents per Innovation Worker (2021)

*Metric Definition:* Number of patents per 100,000 innovation workers

#### RANKING

1	California
2	Washington
3	Oregon
4	Massachusetts
5	Connecticut
6	New Hampshire
7	Idaho
<b>8</b>	<b>Michigan</b>
9	Minnesota
10	New Jersey

### Graduate Program Ranking (2021)

*Metric Definition:* Number of graduate programs ranked in top categories in U.S. News Graduate School Report per 100 educational institutions

#### RANKING

1	California
2	New York
3	Pennsylvania
4	Texas
5	Massachusetts
6	Illinois
7	North Carolina
8	Indiana
9	Ohio
<b>10</b>	<b>Michigan</b>

### Workers Compensation Benefits (2020)

*Metric Definition:* Average workers' compensation benefits paid per \$100 of covered wages

#### RANKING

1	Texas
2	Arkansas
<b>3</b>	<b>Michigan</b>
4	Utah
5	Virginia
6	Tennessee
7	Indiana
8	North Carolina
9	Arizona
10	Massachusetts



## LEADERS: TOP 10 METRICS

### Fortune 500 (2021)

*Metric Definition:* Total number of Fortune 500 headquarters

#### RANKING

1	California
2	New York
3	Texas
4	Illinois
5	Ohio
6	Pennsylvania
7	Florida
8	Virginia
9	Georgia
<b>10</b>	<b>Michigan</b>

### Foreign Direct Investment (FDI) Employment Growth (2021)

*Metric Definition:* Growth in employment in foreign-owned firms as a percentage of total employment

#### RANKING

1	New Hampshire
2	Delaware
3	Pennsylvania
4	Rhode Island
5	Indiana
6	Massachusetts
7	Connecticut
8	Arizona
9	Nebraska
<b>10</b>	<b>Michigan</b>

### Initial Public Offering (IPO) Financing (2021)

*Metric Definition:* Three-year total of initial public offerings per \$100,000 gross domestic product

#### RANKING

1	California
2	Massachusetts
<b>3</b>	<b>Michigan</b>
4	Utah
5	New York
6	Idaho
7	Colorado
8	Tennessee
9	Connecticut
10	New Mexico

### High Performance Firm Change (2021)

*Metric Definition:* 3-year average of Change in number of firms with significant revenue/sales growth

#### RANKING

1	Massachusetts
2	Utah
3	Texas
4	Arizona
5	Washington
6	Delaware
7	Louisiana
<b>8</b>	<b>Michigan</b>
9	Minnesota
10	Tennessee

### Homeownership Rates (2021)

*Metric Definition:* Homeownership rate (MI 71.7%)

#### RANKING

1	West Virginia
2	Maine
3	Minnesota
4	New Hampshire
5	Vermont
6	Delaware
7	Alabama
8	South Carolina
9	Indiana
<b>10</b>	<b>Michigan</b>

## LAGGARDS: BOTTOM 10 METRICS

### Bank Commercial and Industrial Lending (2021)

*Metric Definition:* Total bank lending to commercial and industrial customers per \$1,000 gross domestic product

#### RANKING

41	Oregon
42	Washington
43	Maryland
44	Colorado
45	Vermont
46	Idaho
47	South Carolina
<b>48</b>	<b>Michigan</b>
49	Nevada
50	New Hampshire

### Manufacturing Value added per hour (2021)

*Metric Definition:* Value added per manufacturing production hour

#### RANKING

41	Rhode Island
42	Arkansas
43	Maine
44	Wisconsin
<b>45</b>	<b>Michigan</b>
46	Idaho
47	Vermont
48	South Dakota
49	Washington
50	Alaska

### Adult Education (2021)

*Metric Definition:* Postsecondary enrollment of 30-year-olds and above to a state's above-30 population

#### RANKING

41	Pennsylvania
42	Hawaii
43	Arkansas
<b>44</b>	<b>Michigan</b>
45	Iowa
46	Tennessee
47	New Jersey
48	Montana
49	Nevada
50	South Carolina

### Bridge Quality (2021)

*Metric Definition:* Percent of bridges characterized as "deficient"

#### RANKING

41	Oklahoma
<b>42</b>	<b>Michigan</b>
43	North Dakota
44	Maine
45	Louisiana
46	Pennsylvania
47	South Dakota
48	Rhode Island
49	Iowa
50	West Virginia

### Airport Performance (Arrivals/Departures on time) (2021)

*Metric Definition:* 100-Percent of arrivals and departures delayed

#### RANKING

41	Utah
42	Nebraska
43	Oregon
44	Missouri
45	Virginia
46	West Virginia
<b>47</b>	<b>Michigan</b>
48	Illinois
49	Minnesota
50	Hawaii

## LEAPERS

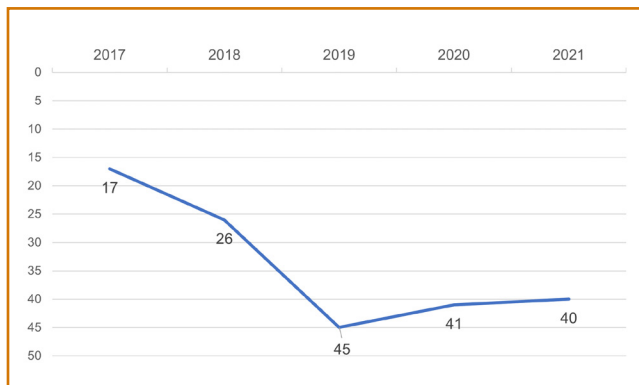
The purpose of this 'Leapers' section is to identify those metrics that show Michigan leaping forward or backward by five or more ranks over the past five years. Here we are looking for notable improvement or slip-page relative to the 49 other states regardless of the metric's overall rank.

*Note: The numbers below refer to Michigan's rank for select metrics for 2017 thru 2021. They are not the score for that metric.*

## GSP GROWTH

Annual growth in nominal gross domestic product, 2017, three-year average. Rankings since 2017 shown in graph below.

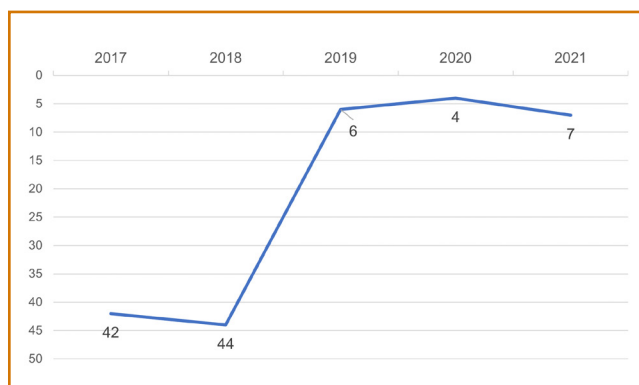
5 Year +/- Rank Change: **-23**



## INCREASE IN HIGH PERFORMANCE FIRMS

Change in number of firms with significant revenue/sales growth, 2017, three-year average. Rankings since 2017 shown in graph below.

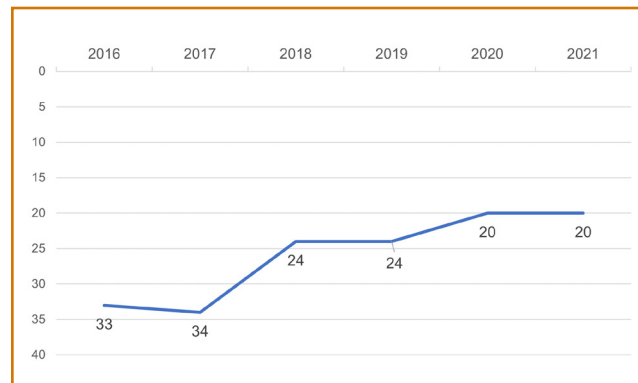
5 Year +/- Rank Change: **+35**



## HIGH PERFORMANCE FIRMS

Number of firms with significant revenue/sales growth. Rankings since 2016 shown in graph below.

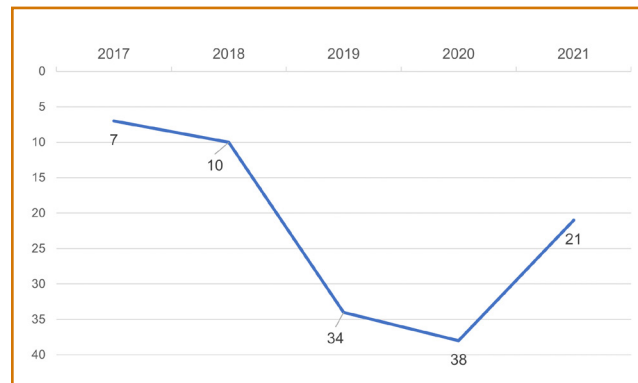
5 Year +/- Rank Change: **+6**



## ONE YEAR ESTABLISHMENT SURVIVAL RATE

2019/2020 was 10-year low in 1-year and 5-year survival rates in Michigan. Rankings since 2017 shown in graph below.

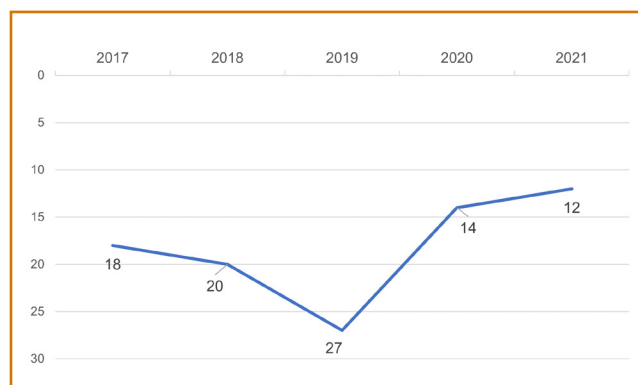
5 Year +/- Rank Change: **-14**



## FIVE YEAR ESTABLISHMENT SURVIVAL RATE

Rankings since 2017 shown in the graph below.

5 Year +/- Rank Change: **+6**

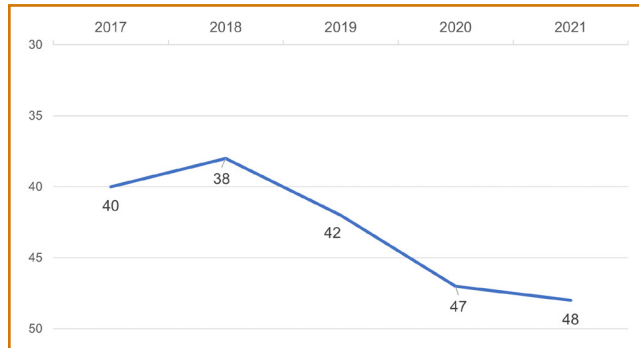




## BANK COMMERCIAL & INDUSTRIAL LENDING

Total bank lending to commercial and industrial customers per \$1,000 GDP. Continuous long term downward trend but especially last three years. Rankings since 2017 shown in graph below.

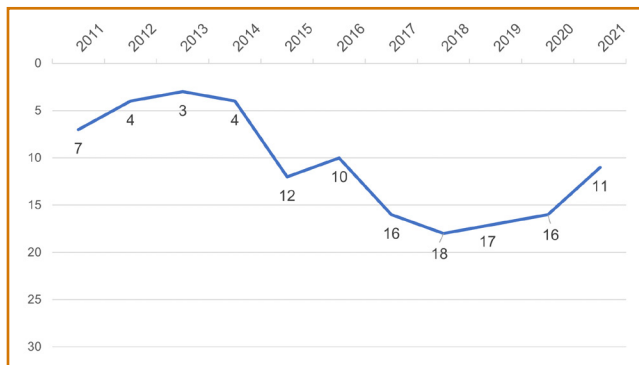
5 Year +/- Rank Change: **-8**



## ASSOCIATE DEGREE ATTAINMENT

Percent of 16-and-older labor force with an associate degree or equivalent or some college attainment. Rankings since 2011, turnaround since 2018, shown in graph below.

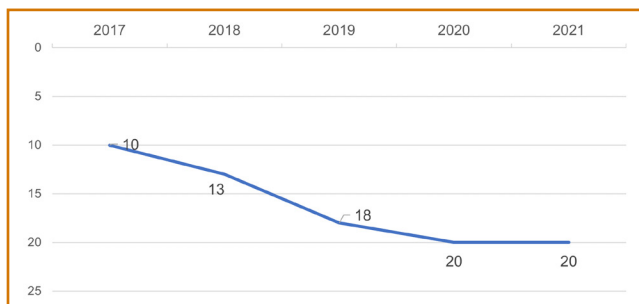
5 Year +/- Rank Change: **-5**



## STATE BUSINESS CORPORATE TAX STRUCTURE

Balance across all tax types; sales, income, property, resource taxes etc. Rankings since 2017 shown below.

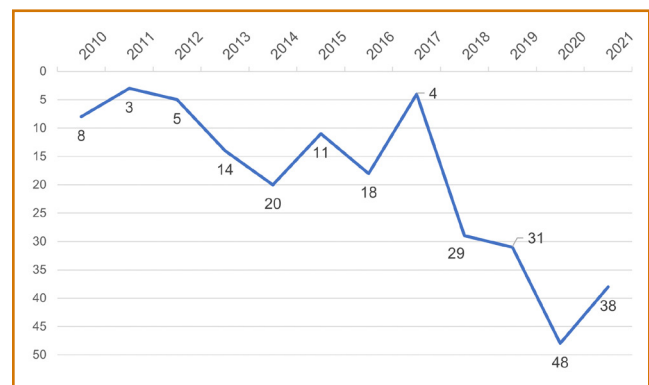
5 Year +/- Rank Change: **-10**



## HOUSING CONSTRUCTION GROWTH

Growth in number of new privately owned housing units per 100,000 residents, 2017, three-year average. A longer run shows a trend. Rankings since 2010 shown in graph below.

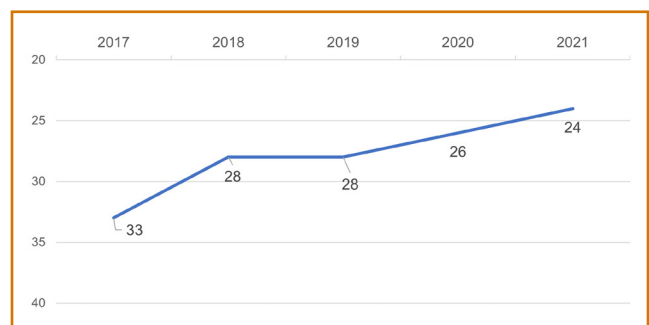
5 Year +/- Rank Change: **-34**



## INNOVATION WORKERS OUTSIDE HIGH TECH EMPLOYMENT

Percent of workers in quasi-science and quasi-technical occupations. Rankings since 2017 shown below.

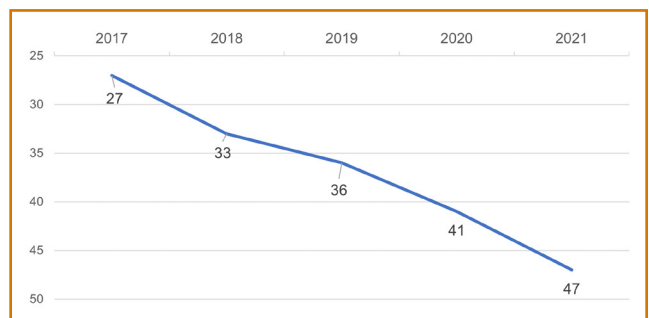
5 Year +/- Rank Change: **+9**



## AIRPORT PERFORMANCE/FLIGHTS ON TIME

Metric Definition: 100-Percent of arrivals and departures delayed. Rankings since 2017 shown graph below.

5 Year +/- Rank Change: **-19**



## CHAPTER 3

# CROSS-STATE METRICS & COMPARISONS

## Including Entrepreneurial Drivers

### MICHIGAN'S ENTREPRENEURIAL CLIMATE, CHANGE & VITALITY: 2011-2021

The Michigan Entrepreneurship Score Card seeks to document how well Michigan's entrepreneurial economy has been performing within Michigan's broader regional and national economic context.

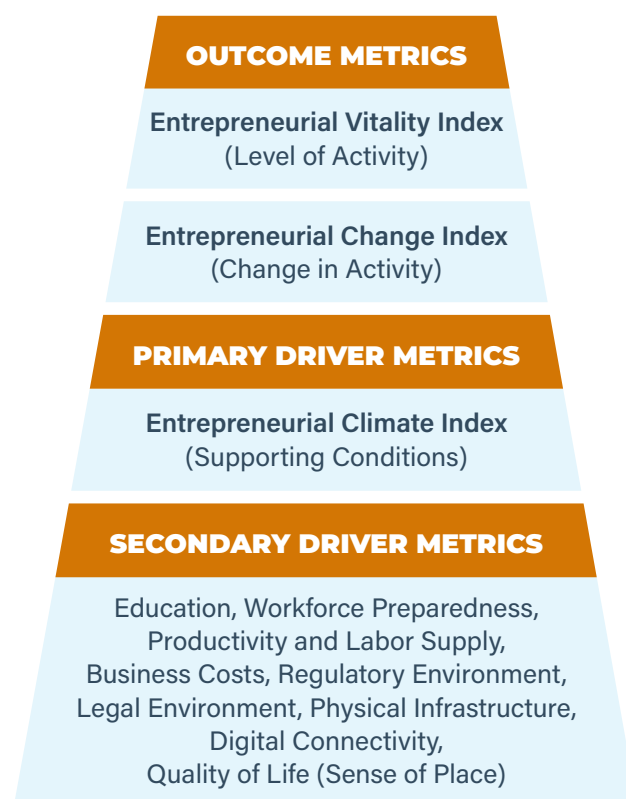
*Broadly, how has Michigan "Entrepreneurial Economy" been doing?* The short answer is "much better" than 15 to 19 years ago. When the 2004-2005 Michigan Entrepreneurship Score Card was first released 19 years ago, Michigan's entrepreneurial conditions were challenging relative to other states, and then worsened significantly during the Great Recession of 2007-09. Since mid-2009, however, Michigan's entrepreneurial economy has taken several turns, over the long term for the good. Constructive forces have included:

- Growth of the overall national economy, despite the disruptive COVID recession.
- Stable state economy and more predictable, stable state government.
- The introduction in 2011-12 of more favorable business tax policies and a broad shift of state economic development priorities from "attraction" to "economic gardening," an approach that prioritizes augmenting the success of homegrown businesses.
- Independent contractor rules
- Workers' compensation reform
- Favorable labor policies

It is important to note that the current legislative climate in Michigan may prove problematic for certain labor policies, including independent contractor rules.

### Michigan's Entrepreneurial Climate, Change and Vitality Indices

Michigan's entrepreneurial economy is complex, with many nuances and dimensions. As such, Michigan's



entrepreneurial economy cannot be captured effectively through a single measure or indicator. This challenge is complicated by the fact that we seek to understand how Michigan's entrepreneurial economy is positioned relative to the entrepreneurial economies of all other states.

To better address this complexity over the past 19 years, the Michigan Entrepreneurial Score Card team developed and has used, tested, and refined three distinct indices: **Entrepreneurial Climate**, **Entrepreneurial Change**, and **Entrepreneurial Vitality**. Together, these three indices have continued to do a remarkably comprehensive and effective job capturing the 'health' of Michigan's entrepreneurial economy relative to other states.

While Entrepreneurial Climate, Change and Vitality are each described more fully later in this chapter, it is helpful to understand first how these indices relate to one another. As shown in this pyramid, the Entrepreneurial Vitality and Change indices are ‘outcome’ metrics influenced by the set of “Primary Driver” metrics that make up the Entrepreneurial Climate Index. Entrepreneurial climate is, in turn, affected by a very wide range of supportive, yet background, “Secondary Driver” metrics also presented in the Score Card.

The Vitality, Change and Climate indices track specific dynamics of Michigan’s entrepreneurial economy that have different degrees of focus on Michigan’s entrepreneurial economy in a given year. The separation of these indices is intentional, and a unique feature of the Michigan Entrepreneurship Score Card methodology.

Scanning Michigan’s Entrepreneurial Climate, Change and Vitality rankings over the past 10 years gives a sense of the “arc” of the early weakness, the gathering strength, and the current moderation of Michigan’s entrepreneurial economy.

### MICHIGAN’S ENTREPRENEURIAL CLIMATE RANK, 2011-2021

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
ENTREPRENEURIAL CLIMATE	34	24	33	27	22	18	27	38	40	37	23

Note: Green shading indicates “Top 10” ranking and Red shading indicates “Bottom 10” ranking.  
Annual rankings are revised as additional data becomes available.

#### MICHIGAN’S ENTREPRENEURIAL CLIMATE – RANK 23 (2021)

Michigan’s Entrepreneurial Climate is a primary driver index made up of metrics that together give a composite indication of the *underlying supporting conditions for the entrepreneurial economy relative to other states*. A high Entrepreneurial Climate rank for a state implies a “pro-entrepreneurship climate” that fundamentally makes it more conducive for entrepreneurs to establish and grow their businesses in that state relative to other states.

The Entrepreneurial Climate Index is comprised of three sub-indices related to innovation, capital access, and general business conditions. The Research and Innovation sub-index seeks to measure investment in and returns from a variety of innovation-focused activities. The Financial and Institutional Capital sub-index takes the pulse of actual cash flow as well as institutional support for small firms and startups. The General Business Growth sub-index captures the vitality and health of the underlying business economy that supports entrepreneurial dynamism.

Additionally, the Entrepreneurial Climate is influenced

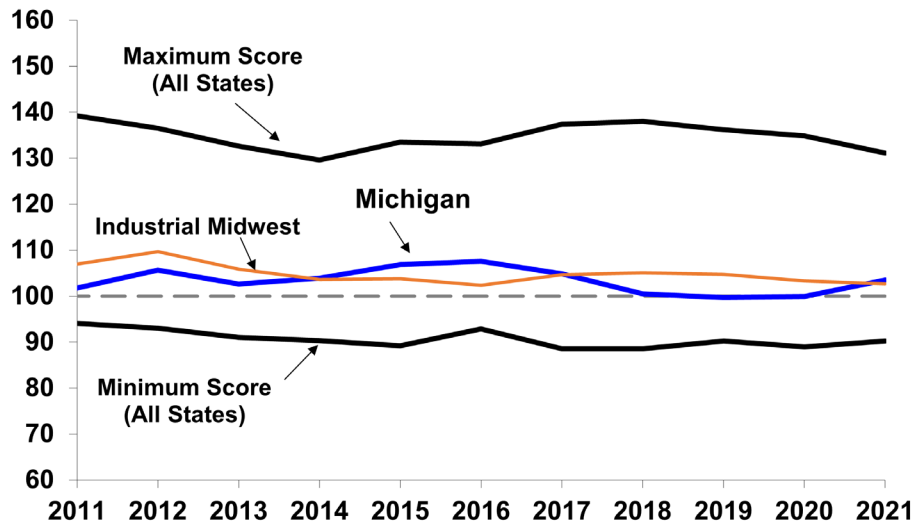
by Secondary Driver metrics that include measurements of education, workforce and labor productivity, business costs, and infrastructure (see 4.5 below). Further, Entrepreneurial Climate is affected by the broader national and international economies.

As Michigan’s Entrepreneurial Climate began to improve quickly from the depths of the recession, Michigan’s Entrepreneurial Change index also improved. Beginning in 2009, the Entrepreneurial Change Index picked up dramatically, suggesting that even as the recession dragged on, Michigan’s entrepreneurs became more active. Then their rising rate of activity – and success – began to compound. Indeed, by 2016, Michigan’s Entrepreneurship Change rank had rocketed to 18<sup>th</sup> in the nation, up from a lowly 2010 rank of 49.

Since 2016, Michigan has experienced slippage in Entrepreneurial Climate momentum relative to other states, stagnating in 2018 to 2020 around 37 to 40 and below the Midwest range of performance. However, there have been improvements with the latest 2021 data year due to a jump in IPO Financing and Growth in Manufacturing Capital Investment to a current rank of 23. Michigan is now performing near the Midwest mid-point.

## ENTREPRENEURIAL CLIMATE SCORE PERFORMANCE, 2011-2021

Entrepreneurial Climate Index, Median = 100  
(25 states above and below 100)

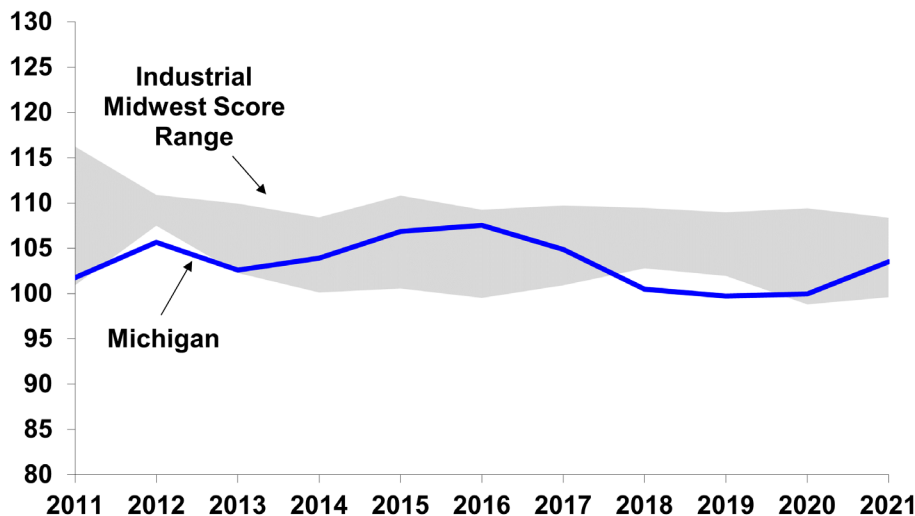


Note: Industrial Midwest = IN, IL, OH, WI

Note: These charts capture two things: where Michigan's score places among other states and how strong/weak that score is. Each Index is scaled so that the mid-point state/median score is 100. Typically, 25 states fall above and 25 states fall below 100 (if there are no missing data or identical values). The spread between the upper and lower lines shows the range of scores from top to bottom performing states. The median 100 does not necessarily lie "in the middle" of the score range as top performers might have exceptionally high values, or in the reverse case, poor performers may have exceptionally low values.

## ENTREPRENEURIAL CLIMATE SCORE PERFORMANCE, 2011-2021

Entrepreneurial Climate Index, Median = 100  
(25 states above and below 100)



Note: Industrial Midwest = IN, IL, OH, WI



## MICHIGAN'S ENTREPRENEURIAL CLIMATE RANK, 2011-2021

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
INCREASE IN HIGH PERFORMANCE FIRMS	8	11	11	21	3	38	42	44	6	4	7
NET ESTABLISHMENTS INCREASE	5	5	9	44	49	28	8	16	50	38	22
PROPRIETOR INCOME GROWTH PER PROPRIETOR	33	13	11	15	21	25	11	25	20	26	11
ENTREPRENEUR ACTIVITY INDEX	36	45	37	31	24	35	38	40	38	30	29
ONE-YEAR ESTABLISHMENT SURVIVAL RATE	24	1	18	17	5	6	7	10	34	38	

Note: Green shading indicates "Top 10" ranking and Red shading indicates "Bottom 10" ranking. Yellow shading is 'below average. Annual rankings are revised as additional data becomes available

### MICHIGAN'S ENTREPRENEURIAL CHANGE

Entrepreneurial Change is a "movement" index that shows *the direction a state's entrepreneurial economy is going relative to other states*. Entrepreneurial Change speaks to the level of success entrepreneurs are experiencing relative to other states. A state's Entrepreneurial Change rank improvement means more new businesses, with more new jobs and more new wealth at higher rates than lower ranking states.

Entrepreneurial Change is comprised of running three-year averages of variables that broadly indicate the direction of entrepreneurial economy growth or decline. The Entrepreneurial Change index includes *incremental rates of change data* for commercial enterprises including rates of change in business growth, start-ups, fast-growth/high tech businesses, payroll, and proprietor income. Regrettably, insuffi-

cient full-state data is yet available to draw the usual charts or come to definitive conclusions. We must wait for 2024 to get the full picture.

### MICHIGAN'S ENTREPRENEURIAL VITALITY, RANK 32 (2021)

The direction of Entrepreneurial Change in turn influences a state's *relative level of entrepreneurial activity – its Entrepreneurial Vitality*. Entrepreneurial Vitality variables together present a broad measure of the level of entrepreneurial activity going on in a state relative to other states.

The Entrepreneurial Vitality Index is a slow-to-change outcome index that **captures the size and structure of the entrepreneurial economy, relative to that in other states**. Realistically, it could take decades for Michigan's entrepreneurial economy to experience

## MICHIGAN'S ENTREPRENEURIAL VITALITY RANK, 2011-2021

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
ENTREPRENEURIAL VITALITY	26	12	24	28	27	31	32	30	34	30	32

Note: Green shading indicates "Top 10" ranking and Red shading indicates "Bottom 10" ranking. Annual rankings are revised as additional data becomes available

the very robust Economic Vitality that Michigan likely had in its industrial heyday. Metrics that contribute to a state's Entrepreneurial Vitality include:

- Net Establishment Entrants
- Establishment Turnover Rate
- Self-Employment Rate
- High Performance Firms
- IPO Awards
- STTR Award
- SBIC Award
- SBIR Award
- Five Year Establishment Survival Rate

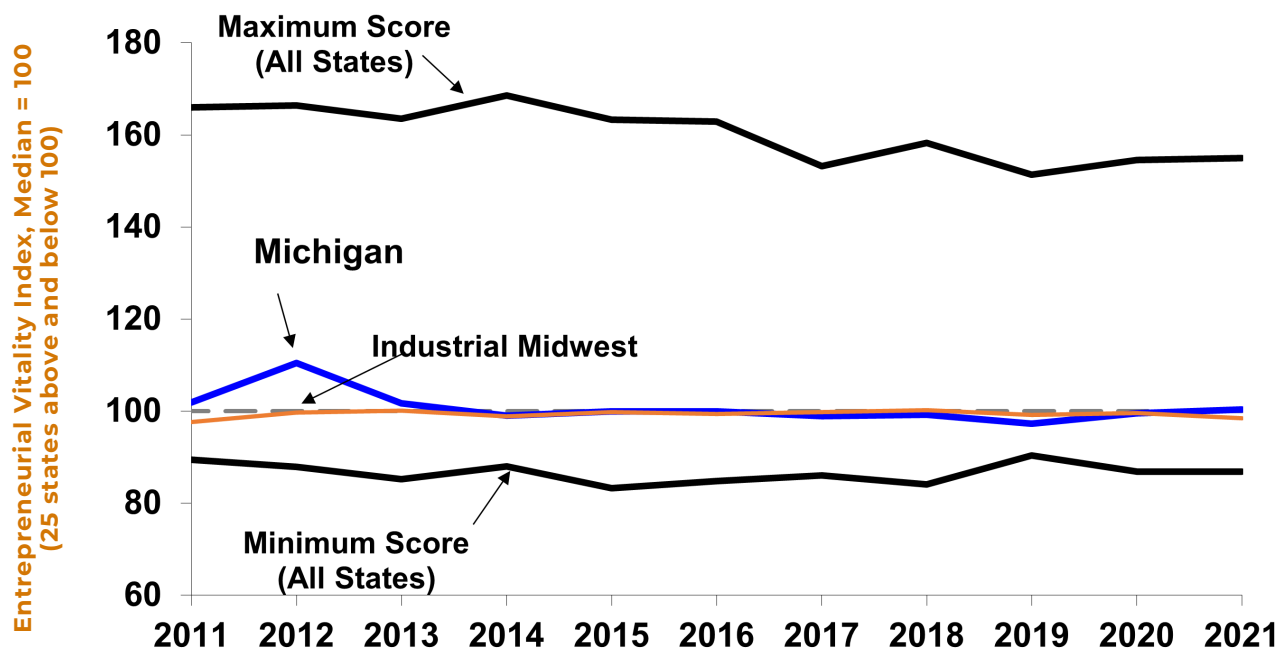
Relative to other states, Michigan's Entrepreneurial Vitality score has remained in the low '30's' range the past five years and high '20's' for the prior five years. The exception was 2012. The state has been below the median dashed line of 100 (bunched tightly with many lower scoring states) for the first half of the decade while moving above that line slightly in recent years. The top performer state for Entrepreneurial Vitality is Massachusetts. Indeed, Massachusetts' exceptionally high score causes the scale of the changes in Michigan and other lower performers to appear relatively small.

Michigan's strides in Entrepreneurial Vitality from 2010 to 2012 suggests that a more rapid rise in Vitality transformation is possible, though the subsequent drop in the state's performance since 2013 is evidence of how difficult it is to improve ranking in this Index over the long term.

Nevertheless, to become a top 10 Entrepreneurial Vitality state is a desirable aspiration for Michigan, and potentially achievable in the long run. While comparisons with Top 10 Vitality states like Massachusetts, Virginia or California may not be realistic in the near term, comparisons with other Top 10 states like Florida, Utah, and Colorado surely are.

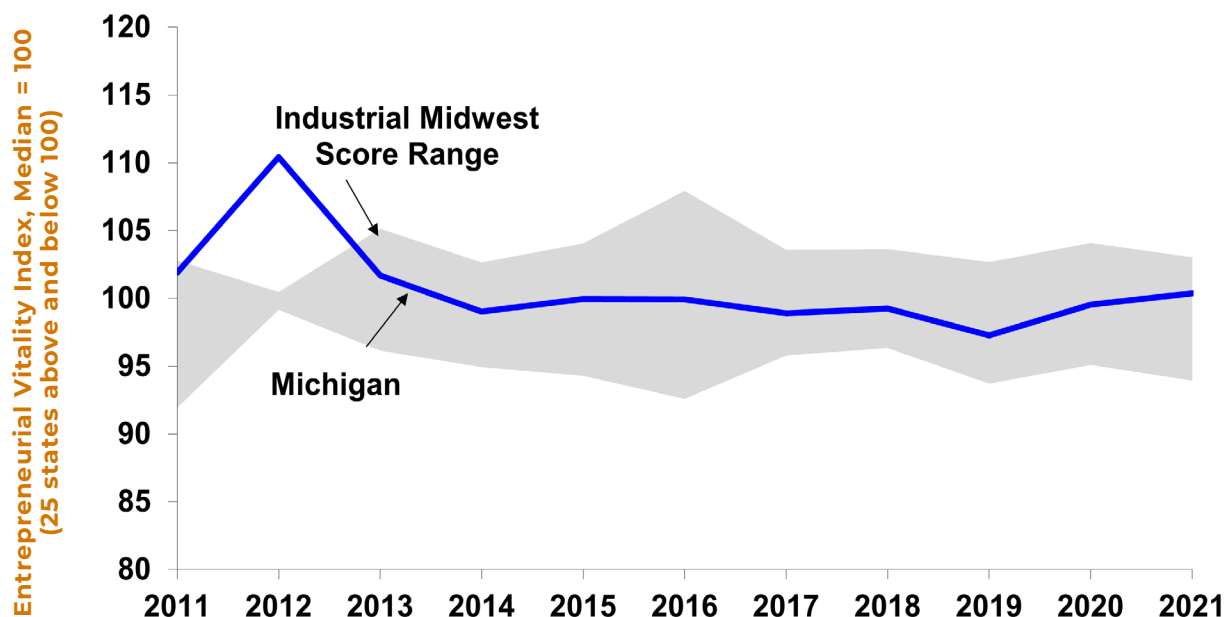
A key metric that has sustained Michigan's Entrepreneurial Vitality score for many years is its five-year establishment survival rates metric, a Top 15 states performer since 2012 except for 2018 and 2019, and now back at rank 12. However, Michigan's relative and consistent underperformance in other metrics such as Establishment Turnover rates and Net Establishment Entrants, puts downward pressure on Michigan's Entrepreneurial Vitality scores over the years.

## ENTREPRENEURIAL VITALITY SCORE PERFORMANCE, 2011-2021



Note: Industrial Midwest = IN, IL, OH, WI

## ENTREPRENEURIAL VITALITY SCORE PERFORMANCE, 2011-2021



Note: Industrial Midwest = IN, IL, OH, WI

### LABOR MARKET HIGHLIGHTS

On education, workforce, productivity and labor supply, the table below shows Michigan's rankings 2011-2021. Several metrics are not included in this 2023 report because complete all-state data remains unavailable. Nevertheless the data below give a clear sense of how Michigan has maintained, and, in some cases, enhanced, its "technology" and "high skill" assets over the past 10 years.

#### Select 10-year Michigan Entrepreneurship Score Card "Labor Market" Ranks (2011-2021)

As shown by the green cells, (see table on the following page) Michigan has historically had a strong technology R&D and talent base. It continues to rank in the Top 10 in numerous R&D and high-tech workforce metrics. This is a critical economic competitive advantage for Michigan's entrepreneurs.

Michigan's strong position here is in part because Michigan's public and private sectors invest heavily relative to many other states in several key areas that are critical to future technology-led entrepreneurial growth, including:

- R&D (both university-based and industry-based)
- Innovation (measured in patents per worker)
- STEM educated workers pre- and post-BS
- STEM and related 'knowledge' credentialing programs
- Excellence in graduate programs
- High tech employment (both mfg. and services high-tech)

As noted in earlier editions of the Score Card, **Michigan holds onto key 'technology and high-skill economy' leadership remarkably well. However, improvements in pre-baccalaureate output, technician/technology workforce and adult education deserve focus if the state is to remain competitive in a fast-changing national economy.**

However, it is also the case that Michigan's entrepreneurial companies must contend with increasing demand for skilled middle-level workers in both tech and non-tech fields. Ranking improvement to these metrics is desirable to remain competitive.

## SELECT 10-YEAR MICHIGAN ENTREPRENEURSHIP SCORE CARD “LABOR MARKET” RANKS, 2011-2021

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Bachelor Degree Attainment	27	28	29	32	21	24	20	18	19	19	20
Associate Degree Attainment	7	4	3	4	12	10	16	18	17	16	11
University R&D Performance	7	7	5	6	6	6	7	7	7	8	11
4Y+ Tech Credentials Output	7	6	5	6	6	6	7	6	5	5	4
4Y+ 'Knowledge' / Innovation Workers	13	13	15	16	18	14	14	10	8	8	10
Phys. Science & Engineering Workers	4	5	4	2	3	2	2	2	1	5	2
Top Ranked Graduate Programs	6	11	11	10	7	7	6	7	n/a	n/a	10
Top Ranked Undergraduate Programs	16	28	22	29	30	32	35	19	n/a	n/a	31
Pre-BA Tech Credentials Output	28	21	26	28	30	35	29	35	36	32	26
Technology & Technician Workers	14	12	11	18	28	29	24	24	26	28	24
Adult Education	20	n/a	29	n/a	37	n/a	42	n/a	48	n/a	44
Other 'Knowledge' / Innovation Workers	22	19	21	22	31	33	33	28	28	26	24
Skilled Immigrants	16	17	18	20	23	23	24	22	21	22	21
Net Migration	46	43	42	39	39	31	28	31	35	37	34
Labor Force Participation Rate	44	43	40	40	40	38	37	36	34	35	40
Manufacturing Labor Productivity (Value added per hour)	39	40	39	41	40	39	41	45	45	42	45

*Note: Green shading indicates “Top 10” ranking and Red shading indicates “Bottom 10” ranking. Yellow shading is ‘below average.’ Annual rankings are revised as additional data becomes available.*



## CHAPTER 4

# ENTREPRENEURIAL TREND WATCH INDICATORS

The purpose of *Trend Watch Indicators* is to use the most current business growth and expansion data, mostly from the Bureau of Economic Analysis, to paint, as near term as possible, an overall picture of trends in Michigan's entrepreneurial economy relative to high and low state performance.

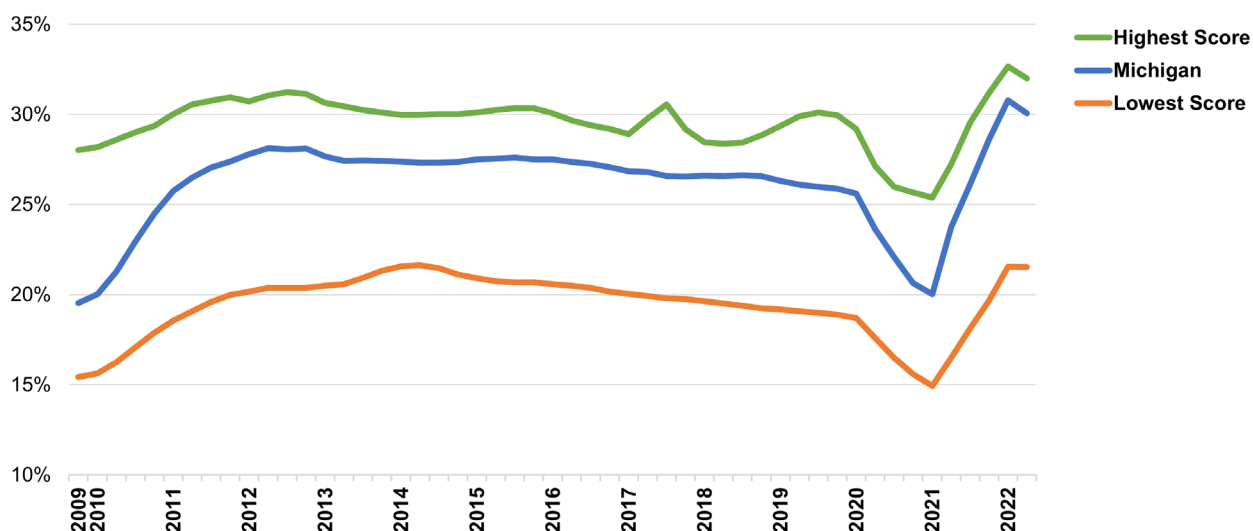
As reported in the 2022 Score Card, overall, the story from these data is positive: that the MI entrepreneurial economy has been doing well since the COVID recession. While many Michigan small businesses were set back by the 2020 recession, several metrics below, including new business start-ups, provide a strong indication that the pandemic has not dampened entrepreneurship in Michigan. Some Michigan softening is apparent in 2022, especially in new business starts.

### Trend Watch Indicator #1: Breadth of Job Creation

The percent of businesses (large and small) creating jobs in any quarter is a good measure of the job-creating dynamism of a state's economy. In good times, one usually finds at least 25% of existing businesses creating net new jobs in any quarter. This graph shows the percentage of establishments creating jobs by quarter, with Michigan bound by the highest and lowest-performing states. These data have a three-quarter lag, so the graph below is up through Q2 2022.

With a rapid improvement starting in 2010 after the Great Recession, the Michigan job-creating engine plateaued in late 2012. Along with the highest and lowest performers, Michigan presented a slight but noticeable downward trend between 2014-2020. Since the COVID economic shock of 2020, Michigan shows a nice rebound into Q1 2022, with a potential slowdown in Q2 2022.

### % OF EXISTING ESTABLISHMENTS GAINING JOBS, Q4.2009-Q2.2022



Source: Bureau of Economic Analysis, Business Employment Dynamics, 4-qtr. moving avg.

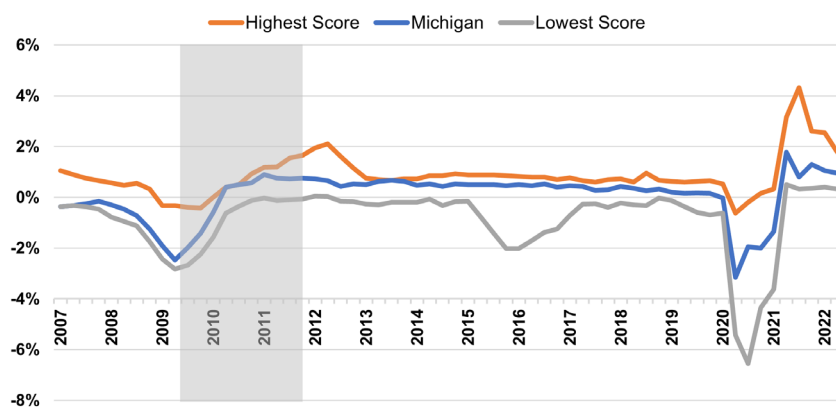
### Trend Watch Indicator #2: Net Job Gains from Business Expansions minus Contractions

This metric shows the net jobs created from expansions minus those lost from contractions relative to the total number of jobs. The metric is an aggregate indicator of the degree to which existing businesses are taking on risks. In general, a higher rate implies a stronger entrepreneurial economy, wherein businesses are embracing the challenge of success and failure.

With the share of existing Michigan businesses creating jobs slowing down between 2014-2020, the net job contribution rate of Michigan was sluggish. Following the COVID recession of 2020,

Michigan's performance has been strong and, for a time, close to the highest scoring state. It has stagnated since then, stable into 2022.

### NET JOB GAINS FROM EXPANSIONS/CONTRACTIONS 2007-Q2.2022



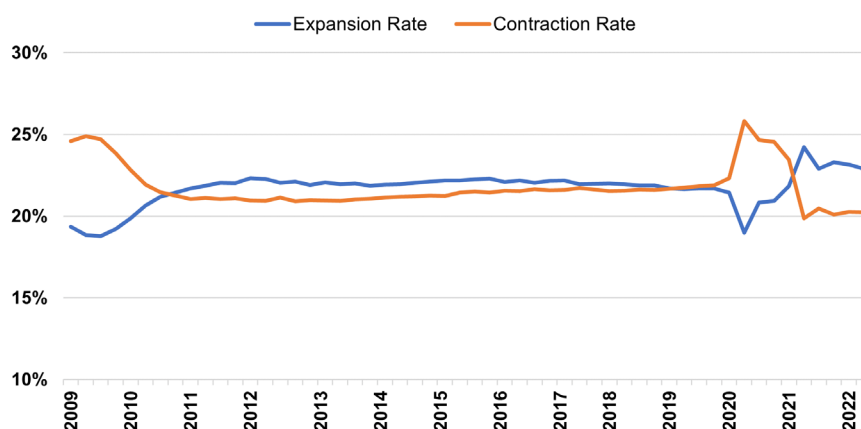
Source: Bureau of Labor Statistics, Business Employment Dynamics. 4-qtr. moving avg.

### Trend Watch Indicator #3: Business Expansion & Contraction Rates

One of the most conspicuous signs of a dynamic and strong business economy is a business expansion rate outperforming the contraction rate, with expansion and contraction rates measured in terms of net jobs.

Michigan's expansion rate of existing business turned above the contraction rate in Q3 2010 and remained above it through mid-2019. After the COVID recession, Michigan business expansion took off. It has remained notably above the contraction rate through Q2 2022.

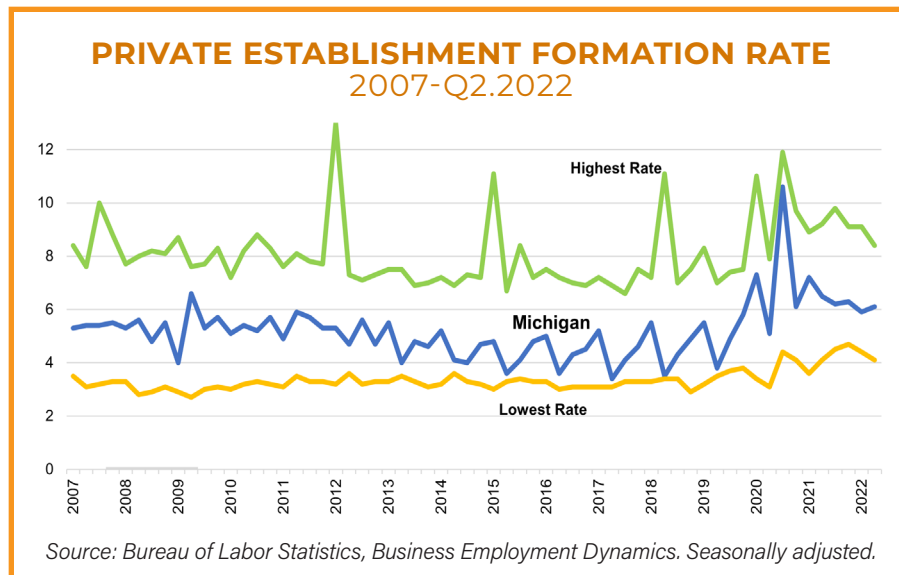
### MICHIGAN % OF ESTABLISHMENTS WITH JOB EXPANSIONS / CONTRACTIONS 2009-Q2.2022



Source: Bureau of Labor Statistics, Business Employment Dynamics. 4-qtr. moving avg.

#### Trend Watch Indicator #4: Michigan's Private Establishment Formation Rate

Michigan's Private Establishment Formation Rate shows the quarterly rate of new business creation as a percentage of all businesses. Michigan, in line with top performing states, showed a notable trend decline from 2010 to 2015, then stabilization through late 2018. Small business formation rates have been on an upward general trend since Q4 2018 through Q2 2022. The spike in 2020 was a consequence of the COVID recession early that year. Since then, Michigan has tracked approximately midway between the low and high performing states. There has been some drop-off in establishment formation in the second half of 2022 but the Business Applications data in Chapter 6 point to business starts remaining elevated for the year.



The formation of new businesses is part of the “life blood” of any state’s entrepreneurial economy. As stated in last year’s Score Card, there is reason for optimism with the current establishment formation rate and business applications sitting higher than pre-Great Recession.

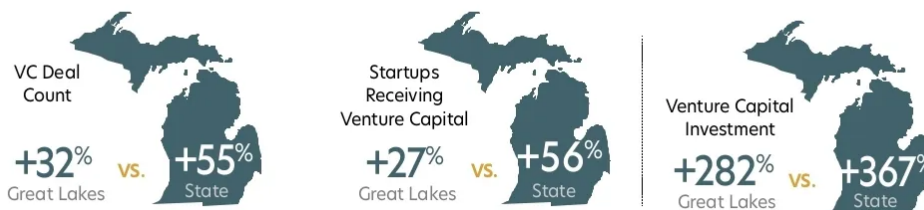
#### Trend Watch Indicator #5: Expansion/Later Stage Venture Capital

A relatively small proportion of U.S. small businesses per year receive venture capital, and VC funding focuses largely on two sectors: information technology and health care. Consequently, tracking seed and startup finance to judge a state’s business dynamism can be debatable. However, local access to later stage funding rounds often makes it much easier for promising Stage 1 and 2 companies to raise and deploy additional investment capital to significantly accelerate their growth rates – and turn them into solid job creators. The data below from the September 2022 Michigan Venture Capital Association report shows Michigan VC investment quite healthy relative to the U.S. average, especially for growth in venture capital investment and

#### Five-Year Trends: Michigan vs. U.S.



#### Five-Year Trends: Michigan vs. Great Lakes



deal values. Compared to the Great Lakes Region, the share of start-ups receiving venture capital in Michigan grew twice as fast over the past five years. Further, from Crunchbase public access data there were 252 VC funding events in 2022 in Michigan compared to 180 in 2021; that is 40% growth compared to the U.S. 27% growth. 2022 was a good VC year for Michigan.



## CHAPTER 5

# SELECT SMALL BUSINESS/ ENTREPRENEUR ISSUES 2023

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Given the fluid nature of today's economy, the purpose of this chapter is to revisit several of the most pressing issues facing Michigan small businesses and entrepreneurs discussed in the 2022 Score Card.

### In summary, this Chapter finds:

- As shown in Chapter 4, Michigan small business vitality held steady in 2021. Business applications data had a healthy surge in 2021. Through 2022, month-by-month **business applications with planned wages** were trending at or below 2021 numbers but above pre-COVID levels.
- Further, as shown in Chapter 5, small business starts while down from a surge in 2021, by the close of 2022, kept a comparable pace with the prior two years.
- While the pandemic economy of 2020-2021 severely disrupted Michigan small businesses, their uptake since has outpaced the nation in number of open businesses and small business revenue. Small business job openings have kept pace with nation, but have slowed in 2022.
- Inflation remains the top issue facing small business in 2022. 41.9% of Michigan small businesses are experiencing large/severe price increases (U.S. 40.6%).
- However, for major cost factors, labor and electric energy Michigan is not hurting quite as badly as the U.S.
- Workforce remains a major issue. This year, attention continues to be focused on availability of workers. While skill levels remain a big issue, the problem has shifted to 'warm bodies.' Labor supply has become acute.
- Michigan small business labor supply is constrained by a decline in available prime working age population, women leaving the workforce with slow return after the pandemic, and low rates of in-state migra-

tion, foreign migration, and college student retention after graduation.

- Remote work arrangements and office/home-base hybrids are both a promising opportunity and a threat to small businesses. Successful introduction of these work arrangements will call for innovations from owners and managers, especially since a greater percentage of small businesses involve customer face-to-face transactions.
- Affordable housing in safe, pleasant communities becomes part of the 'women back to the workforce' challenge. While Michigan ranks in the top ten states for home ownership, housing has become an important factor in stabilizing and improving low/moderate income neighborhoods and quality of life (see State-wide Housing Plan (SHP), Michigan State Housing Development Authority (MSHDA)).

### BUSINESS STARTS; EXISTING BUSINESS VITALITY

#### Small Business Applications

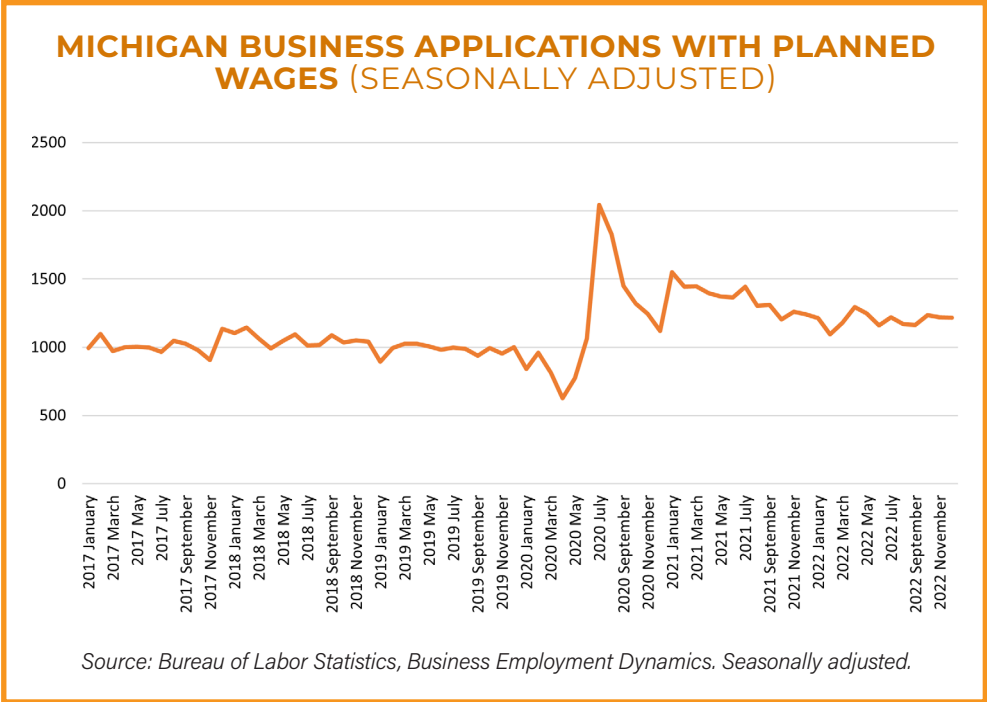
One surprising and hopeful statistic is the substantial increase in business start-ups indicated by the number of new business filings during the pandemic and into 2022. This trend has occurred in Michigan and nationally, but has been particularly strong in Michigan, while softening after the summer 2021. Through the first half of 2022, month-by-month **business applications with planned wages** were higher than in 2020, while lower than the initial surge in 2021. The second half, except for November, has been trending at or below 2020 numbers.

There are many conceivable reasons for the surge in new business startups during 2021. During uncertain economic times, the relative risk of an individual start-



ing a new business may be lower because other employment opportunities may have evaporated. As the pandemic disrupted business and so many other aspects of life, it would not be a surprise to see entrepreneurs meet those disruptions with innovations advanced through new businesses. More remote work may be leading to an increase in independent contractors. Some might be starting side businesses because a more flexible remote work schedule makes it feasible.

It will take some time to understand the drivers and long-term sustainability of these new enterprises, but it is clear that a significant increase in entrepreneurship has occurred during and after this pandemic and is continuing, while somewhat subdued.



### ANNUAL COUNT OF MICHIGAN-BASED ESTABLISHMENTS Employing 1-99

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Michigan	152,533	151,915	152,273	151,545	151,382	152,140	153,417	152,975	152,613	152,143	150,037

Source: US Census Bureau, BDS

Michigan	174,522	172,085	172,457	172,016	172,079	172,339	172,273	173,494	173,899	172,794	171,324
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Source: US Census Bureau, SUBB

#### Small Business Trends and Recovery

Extended closures and restrictions due to COVID impacted small businesses more substantially than larger businesses. The makeup of the most restricted business sectors (restaurants, entertainment venues, bars, movie theaters, bowling centers, banquet facilities, etc.) are largely comprised of small businesses. As of March 2023, reliable data for 2021 on the number of Michigan small businesses remains unavailable. In terms of the 10-year trend in the number of Michigan small busi-

nesses with 1 to 100 employment has remained very steady, with an observable drop in 2020 due to the pandemic outbreak.

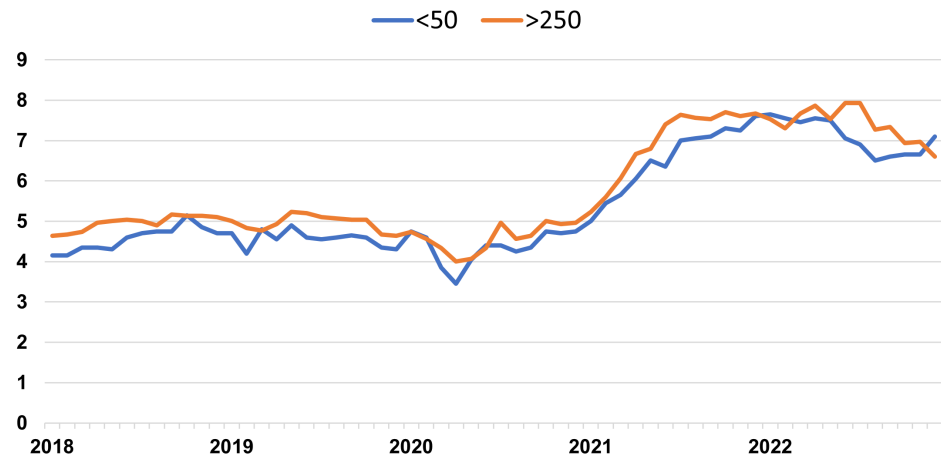
Recovery from 2020 looks promising. In the U.S., according to the Economy Tracker, as of February 6, 2022, the number of small businesses open increased by 3.1% compared to January 2020. In Michigan, as of February 6, 2022, the number of small businesses open increased by 8.5% compared to January 2020. Confirmatory data for 2022 will be available later in 2023.

### Existing Business: Job Opening Rates, Small vs Larger Businesses

While small business starts and recovery trends do appear strong the past two years, larger businesses have also been doing well. The graphs below show that for the U.S., larger businesses have been doing slightly better than smaller ones on job openings. Openings rates for all businesses stabilized in 2021 followed by declines in 2022. However, small business perked up late 2022 and by December small business rates were surpassing large business ones.

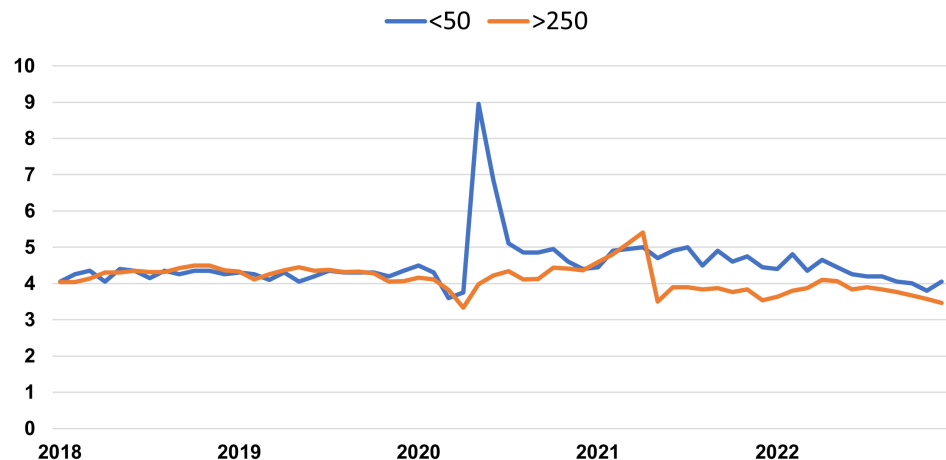
The graph to the right shows small businesses notably outpacing larger businesses in 2021 as COVID pandemic disruptions began to subside. For 2022 a similar downward pattern has set in for U.S. hiring rates, both for large and small businesses. According to the LinkedIn 'State of Labor Report,' in March 2023, the U.S. was experiencing a month-over-month in hiring of 6.5% in February 2023, with the cut-back in hiring more evident in large businesses. Nevertheless the openings-to-applications ratio remain very positive and above pre-COVID levels.

#### US JOB OPENING RATE BY SIZE



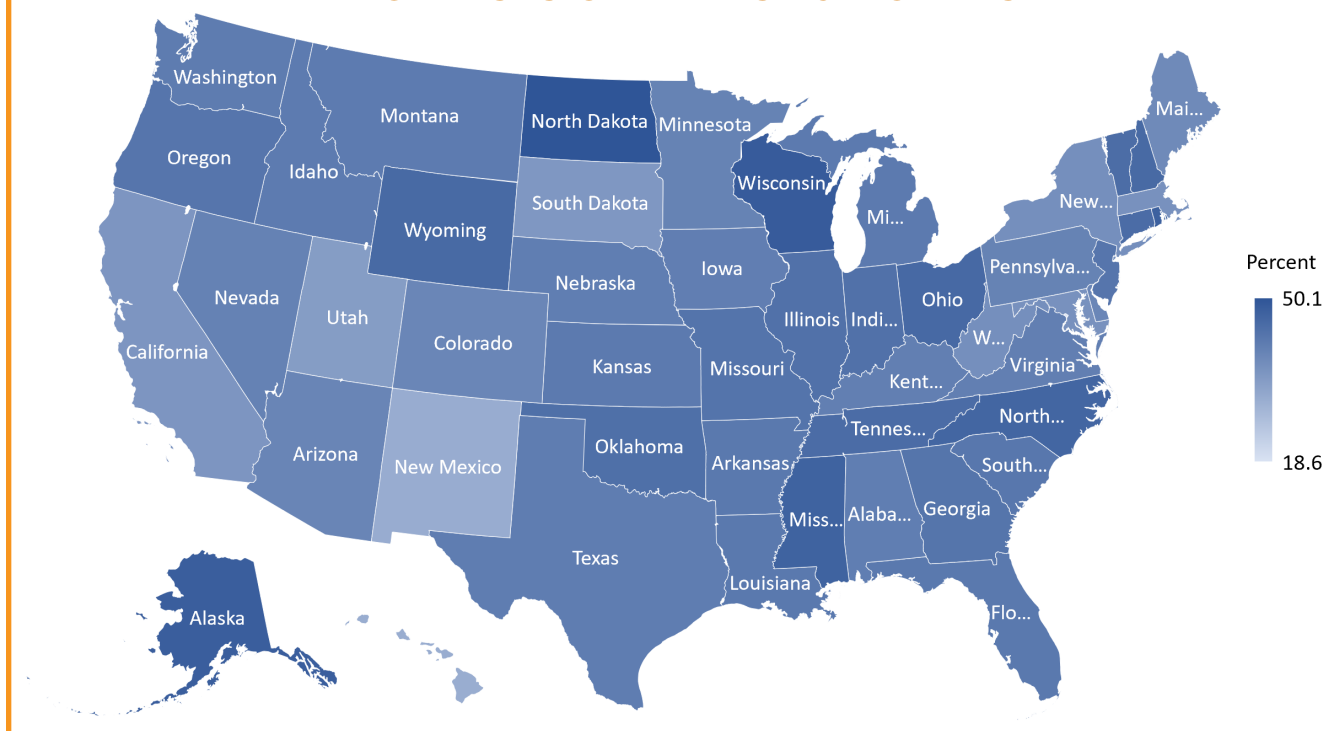
Source: US Bureau of Labor Statistics Seasonally adjusted.

#### US HIRING RATE BY SIZE



Source: US Bureau of Labor Statistics Seasonally adjusted.

## PERCENT OF BUSINESS EXPERIENCING LARGE PRICE INCREASES OVER PAST 6 MONTHS



### INFLATION CONCERNS ELEVATED; RISING BUSINESS COSTS

The Spring 2021 Score Card reported signs of inflation beginning to appear. At that time, the Federal Reserve Bank was confident that inflation was transitory and likely only affecting particular sectors of the economy. Since then, Chairman Powell has alerted inflation becoming more widespread and stickier than expected. His statements now assert that inflation may well be with us for longer than originally anticipated. As of late February 2023, U.S. headline inflation was 5.4%. Controversy surrounds as to when inflation might ease but many economists and investment analysts are now projecting today's supply-demand imbalances well into 2023. **Strong employment growth coupled with continuing inflation complicates economist and business interpretations as to what is causing the economy to manifest such apparent inconsistencies.** The 12-month inflation trend is pointing to an annualized rate well above the Federal Reserve target of 2% and as an effort to curb demand the Federal Funds Rate (FFR) has increased to 4.58% as of March 1, 2023. Further rate hikes anticipated by the Fed will likely take the FFR into 5% territory in 2023. What has

become apparent to MI small business owners is that while some inflation decline might be achievable by the end of 2023, they must adapt to continuing supply chain disruptions, delivery uncertainties and labor cost pressures for much of the year. As of this report date, a deflationary trend is not yet in sight.

Data on inflation's impact on Michigan's small business is not yet fully available but the latest published date of the Census Bureau Small Business Pulse Survey paints a troubling picture. 40.6% of the nation's small businesses experienced large/severe price increases over the previous half year as of mid-April 2022. In Michigan, small businesses experienced even more hardship, with 41.9% experiencing large/severe price increases. From the University of Michigan's monthly national survey of consumers in February 2023: 'Year-ahead inflation expectations rebounded to 4.1% this month, from 3.9% in January and 4.4% in December. Consumers continued to exhibit considerable uncertainty over short-run inflation, and thus their expectations may be unstable in the months to come. Long-run inflation expectations remained at 2.9% for the third straight month and stayed within the narrow 2.9-3.1% range for 18 of the last 19 months.'

As quoted in the Fall 2021 Score Card: *"Then there's inflation. Not a problem as long as firms can pass rising input costs (including wages) on to customers in higher selling prices. But if consumers become price-shy, then profits will be squeezed and firms will have to adjust*

*costs quickly, including labor costs."* Future focus must be on small business shortages and delays in needed supplies, rising labor costs and unpredictable pricing power.

## KEY COST CONSIDERATIONS: LABOR AND ENERGY

While facing rising costs in labor and energy, the quick data check below suggests Michigan's rate of increase in recent years falls below that of the U.S. Further in-depth analysis would determine what cost advantages Michigan small business may have, and against which states.

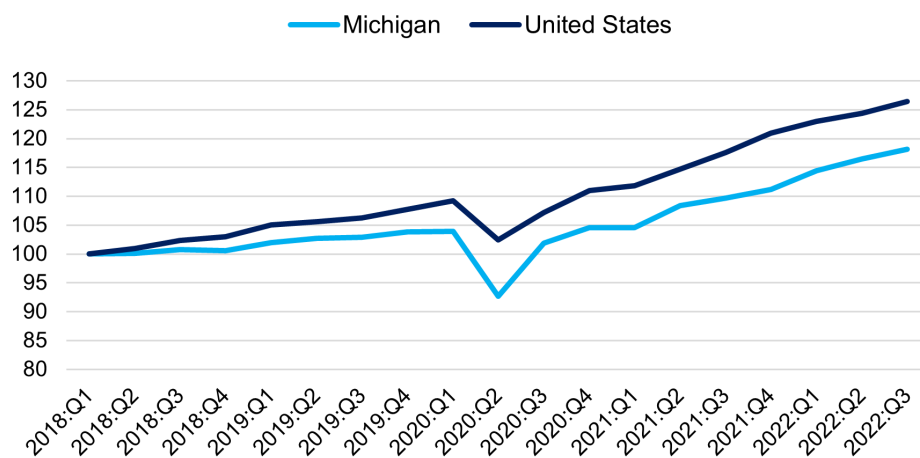
### Labor costs

Michigan labor costs have been increasing but continuing at a lower rate than in the U.S.

### Energy Costs

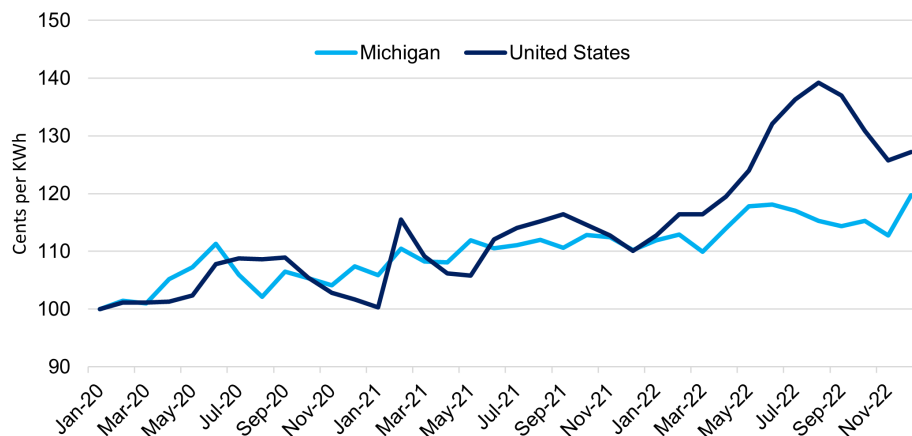
Michigan's electricity rate trajectory has been below the U.S. trend (measured in January 2020 prices), and less volatile.

### EMPLOYEE COMPENSATION (Q1 2018=100)



Source: US Bureau of Economic Analysis

### COMMERCIAL & INDUSTRIAL ELECTRICITY RETAIL PRICE (JAN 2020=100)



Source: EIA



## CHANGING WORKFORCE/TALENT ISSUES

As covered in previous Score Card editions, workforce issues have consistently been a top concern for small business. Last year's Score Card highlighted a twist: that the outright **supply of workers**, in addition to **skills**, plagues the viability of small business.

In an interview on March 2, 2023 at Bloomberg's Washington bureau, U.S. Commerce Secretary Gina

Raimondo stressed: "We can't hire enough, we can't hire fast enough, we can't hire people with the skills we need." In a fast changing, tech- savvy workplace, skill demand is outstripping supply. Additionally, the sheer availability of workers has become a challenge for small business. In Michigan, there are approximately **167 job openings for every 100 unemployed persons**. This in turn leads to stronger wage growth and higher worker mobility. In short, the labor market is HOT and defying recession forecasts.

# 10,135,438

Michigan's population  
in 2022, as of  
the U.S. Census



# -43,000

Michigan's change  
in population between  
2020 & 2022



30.6% of Michiganders hold a  
Bachelors degree or higher.  
33.7% in the U.S.



6.9% of Michiganders are  
foreign born, as of 2019.  
13.6% in the U.S.



5% of Michiganders have no  
health insurance, as of 2021.  
11.6% in the U.S.



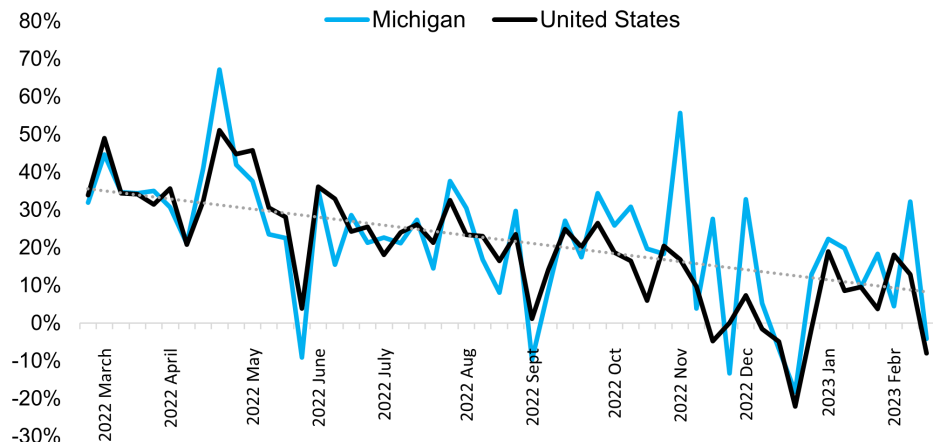
13.1% of Michiganders are  
in poverty, as of 2020.  
11.6% in the U.S.

## Changing Labor Supply vs Demand (pre- COVID to 2022)

As of December 2022, there were 350,000 jobs open in Michigan, yet there were less than 210,000 unemployed workers. Before COVID the primary workforce challenge was skills: "Where can I find the skilled workers I need?" Today the employer's dilemma is: "Where can I find warm bodies, and then how do I train them?"

However, while the beginning of 2022 showed strong job postings relative to pre-pandemic levels, with on average 30% higher job postings than in January 2020, Job Postings have continued to decline throughout the year in both Michigan and the nation. For the most part, Michigan's Job Postings have followed the national trend down since the pandemic outbreak but have performed slightly better than the nation in the second half of 2022.

## MICHIGAN JOB POSTINGS, RELATIVE TO JANUARY 2020

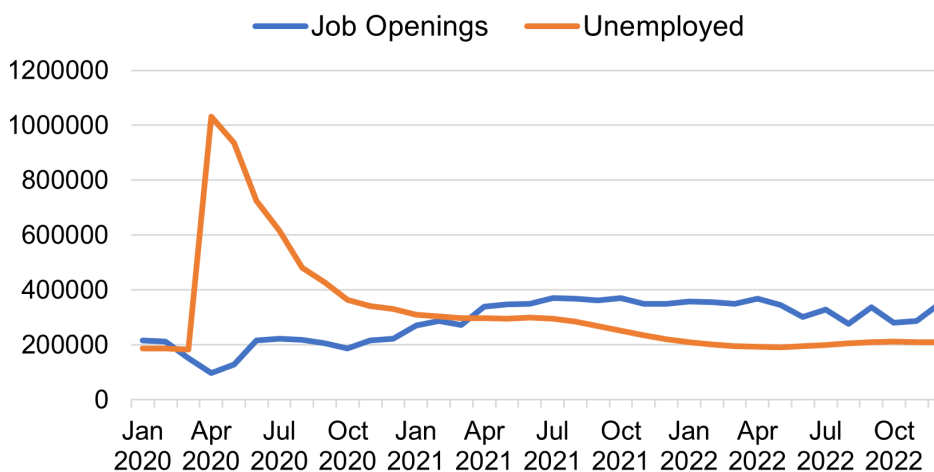


Source: Burning Glass Technology. Percent change relative to the first four complete weeks of 2020.

The stagnation of small business vitality noted earlier is in line with these trends in Job Postings for all Michigan business. In January 2023, U.S. and Michigan job postings were down 11% from the previous month, and down 38% and 36% respectively from last year. The change relative to the previous 12-month turned negative in September 2022.

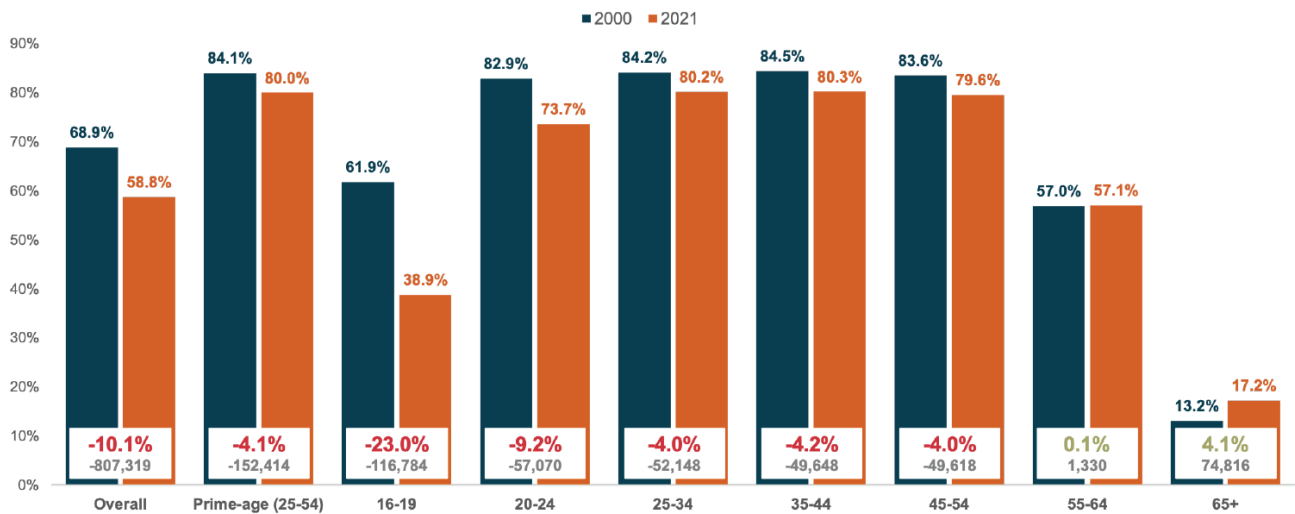
A good way to display the recent and current disconnects between job postings and worker supply is the graph below. A sharp drop in the number of unemployed workers followed a severe unemployment spike in April 2020. By March 2021, Job Openings equaled the unemployed workforce. Since then, Michigan has had more job openings than unemployed workers. This inadequate labor supply has become a drag on the overall economy and a major stress factor for small businesses. Worker shortages also contribute to stubbornly high inflation.

## MICHIGAN JOB OPENINGS VS. UNEMPLOYED WORKERS



Source: US Bureau of Labor Statistics

## LABOR FORCE PARTICIPATION RATE BY AGE GROUP MICHIGAN 2000-2020



Sources: US Bureau of Labor Statistics, Current Population Survey (CPS), Subnational Estimates

### Changing Labor Force Participation Rate, pre-COVID-2022

Not surprisingly, the mismatch between job creation and labor supply shows up in labor force participation.

Due to the COVID recession labor force participation (a measure of percent of working age adults either working or looking for work) declined markedly during the last half of 2020 and first half of 2021. On a positive note, 2022 levels have exceeded 2021 levels in all months.

### MICHIGAN LABOR FORCE PARTICIPATION RATE



Source: TalentFirst and Bureau of Labor Statistics, seasonally adjusted.

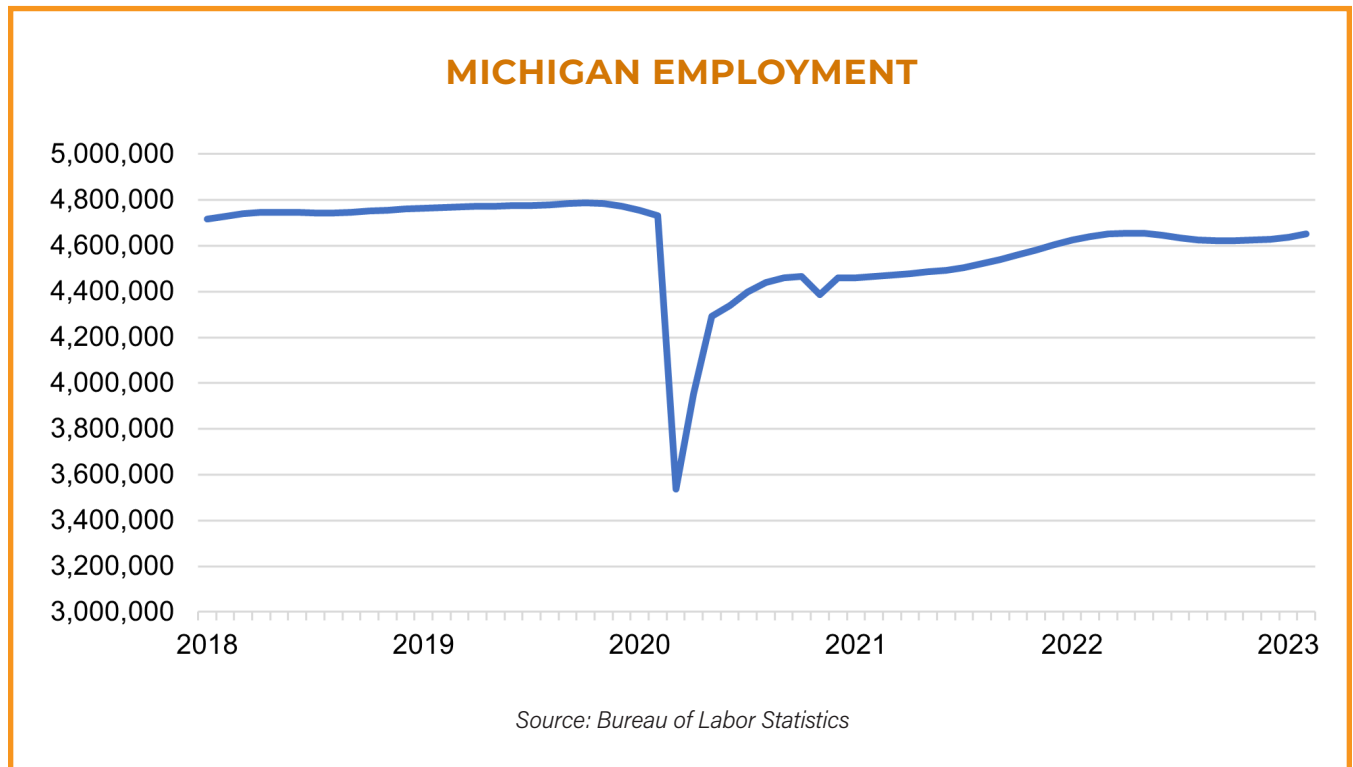
From a two-decade perspective, labor force participation by age has changed quite markedly. The chart below paints a Michigan workforce picture very different from twenty years ago. Labor force participation has

dropped substantially in the 16 to 24 age group and -4.1 % in the critical 'prime working age' group, age 25-54. Only in the 65+ age group has labor force participation increased.

### Changing Size of Workforce 2019 (pre-COVID)-2022

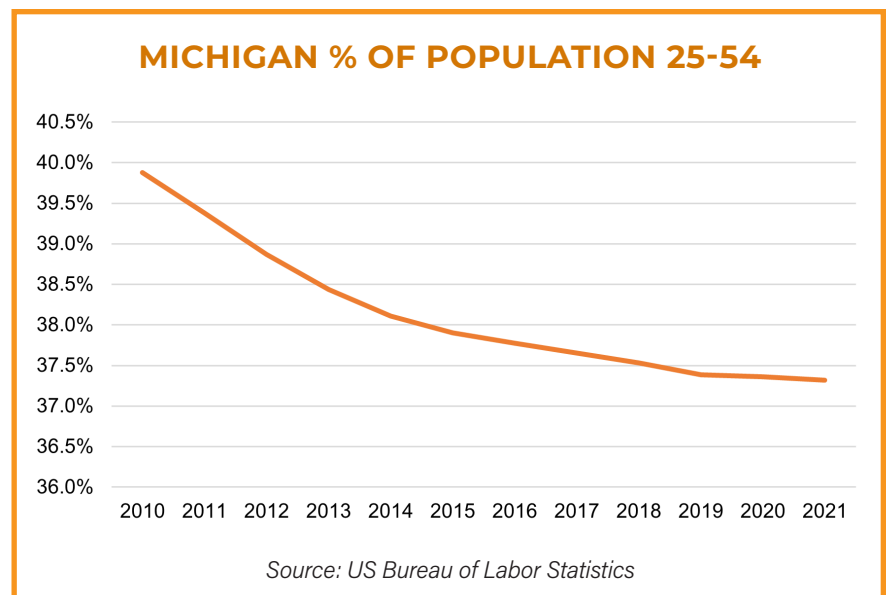
The number employed in Michigan declined 0.7% from Jan 2020 to Dec 16 2022 (U.S decline was 6.7%). The decline has been greatest in the low wage category with job quality improving as shown by a gain of 7.7%

in middle wage employment for Michigan versus -2.0 % for the US. The graph below shows an observable drop from pre- to post- COVID employment.

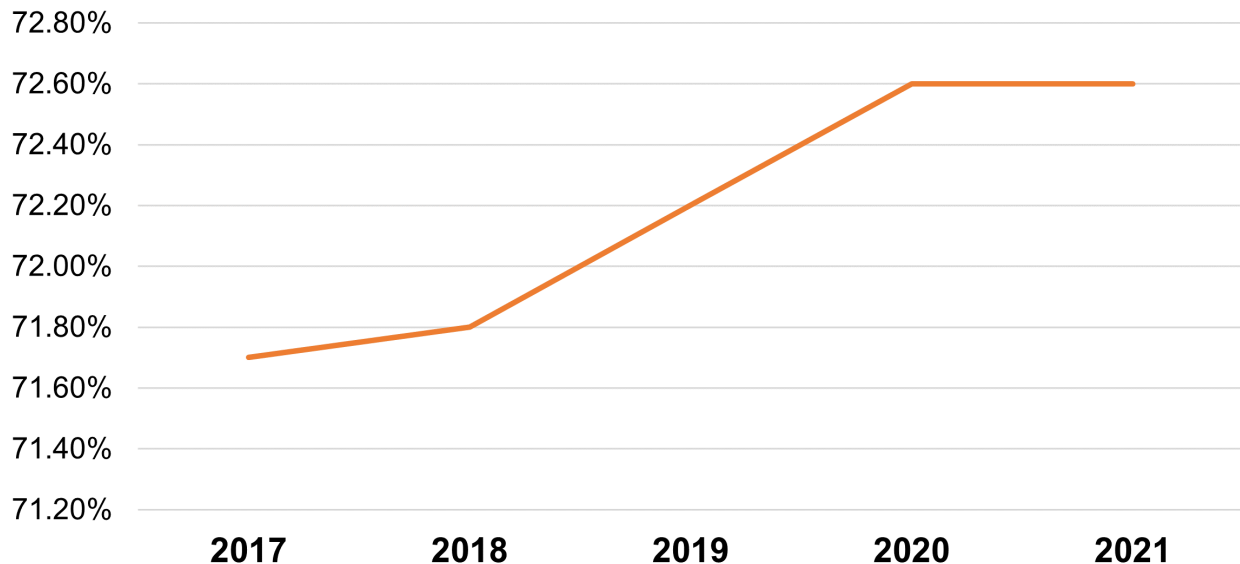


### Changing Michigan Working Age 2010-2020

Michigan businesses face the challenge that workers of prime working age (ages 25-54) have been on the decline, as a percent of the population, a 2.6 percentage point drop between 2010 and 2021, with some leveling off since 2019. Small business owners are increasingly aware that workers from different and varied demographics must be recruited and retained. These include older and younger workers, women returning to the workforce after the COVID years, and immigrants.



### WOMEN LABORFORCE PARTICIPATION RATE (20-64 YEAR OLD)

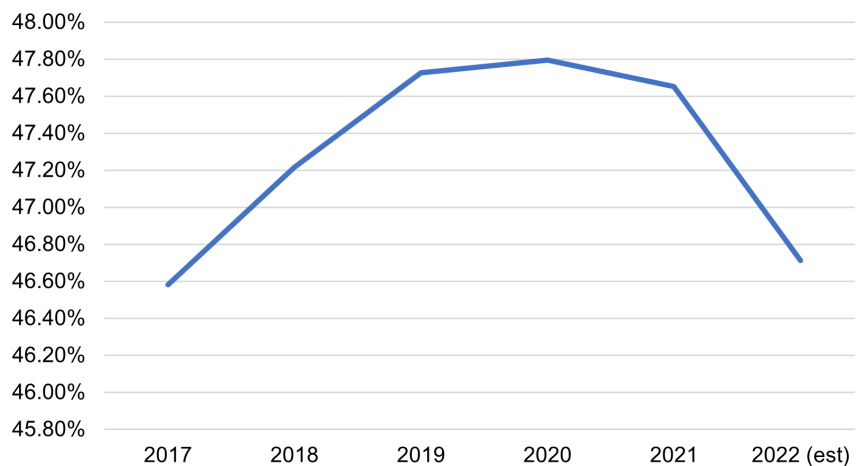


Source: US Census Bureau, ACS

### Changing Size of Female Workforce, 2019 (pre-COVID) to 2022

Due to pandemic executive orders and school closings in 2020, women in particular shifted work to home where possible. Quit rates increased as women reconnected to full-time family and community engagement. This has led to higher unemployment rates for women than men, a reverse from pre-COVID times. Furthermore, women have been slower returning to work, either full- or part-time. Key factors affecting a decision to return to work remain access to quality childcare, flexible work hours, and family leave arrangements.

### WOMEN % OF WORKFORCE IN MICHIGAN

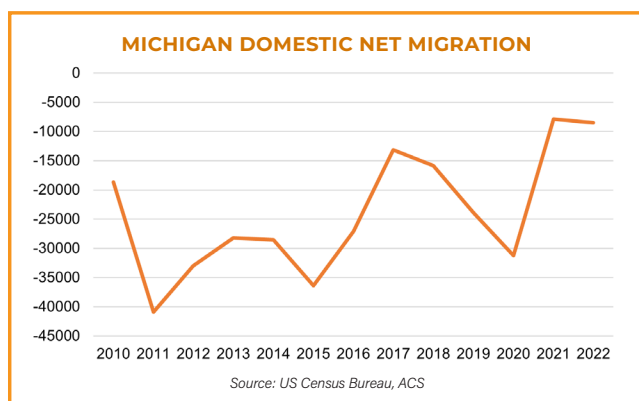


Source: US Bureau of Labor Statistics, CPS



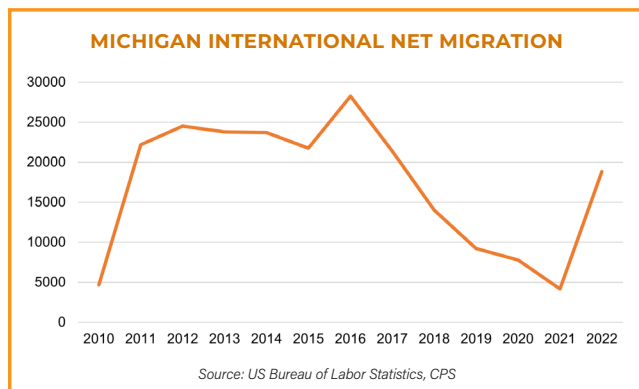
### Changing Domestic Migration (pre-COVID)-2022

The net domestic migration rate measured per 1,000 residents as the difference between in-migration to Michigan and out-migration from Michigan during each year since 2010. It is an overall indicator of the attractiveness of the state as individuals 'vote with their feet' on what they consider a preferable living and working environment. Net domestic migration for Michigan has improved through the past decade but remains negative, indicating that worker supply from out of state is not a promising worker supply.



### Changing Foreign Migration (pre-COVID)-2022

Silicon Valley has proven that highly skilled foreign workers can be an integral part of an innovation network. With states facing inevitable demographic shifts, attracting well-educated workers from beyond the U.S. becomes increasingly relevant. In recent years, this has become even more critical due to federal curtailment of the entry quota for holders of H1B visas. Michigan has become home to many endeavors of entrepreneurial immigrants, especially from the Middle East and south Asia. It ranks in the lower middle of the states in percent foreign born. From the graph below, international net migration has been falling since 2016 but saw a notable uptick in 2022.



### HOUSING AND REMOTE WORK; AN EVOLVING ISSUE FOR SMALL BUSINESS

Housing, journey to work and remote work set up a fast-changing set of considerations for small business owners/managers already dealing with a complex array of mainstream economic issues.

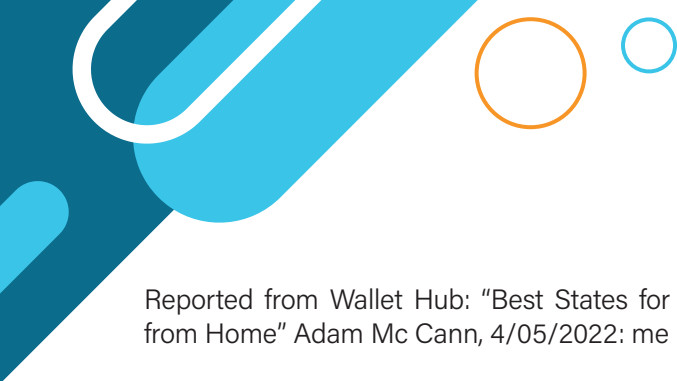
The Score Card has repeatedly observed how high Michigan ranks on Home Ownership. For much of the Score Card's 19 years, Michigan has ranked among the top ten states on home ownership, with 71.7% in 2021. Earlier Score Cards have observed: "A variety of studies point to the benefits of homeownership: increased economic stability, community vitality, even child learning. Homeownership is also important for many startup businesses, allowing entrepreneurs to use home equity as a source of early-stage funding."

Today homeownership has become more important for social equity and quality of life for low/moderate income households. In 2021 the Michigan State Housing Development Authority (MSHDA) released its first-ever Michigan Statewide Housing Plan in which it points out that Michigan will have a deficit of more than 150,000 affordable housing units by 2045. The plan sets as goals building and rehabbing at least 75,000 units of housing, more than half of which will be affordable.

Over the years, the Score Card has long made the connection between community 'sense of place' and entrepreneurship. Quality communities are a breeding ground for the entrepreneurial spirit. Not too infrequently, the home or garage is the initial locale of a next business start. Now boundaries between work place and work-from-home become even more blurred. The shift to remote work received a major boost from the pandemic. So much so that some workers today, especially women with children, are reluctant to return to the traditional office. On the other hand, with the pandemic largely over, a number of large corporations are requiring the workplace return to the office.

### Changes in Remote Work; Working from Home and hybrids, (pre-COVID)-2022

Enabled by mobility advancements in computing and communications, remote work accelerated quite dramatically throughout the pandemic. See further text in *Chapter 6 – Housing*. Reported in the 2021 Score Card, Michigan ranked mid-range for 'remote work'



Reported from Wallet Hub: "Best States for Working from Home" Adam Mc Cann, 4/05/2022: me

*During the COVID-19 pandemic, state governments ordered "non-essential" businesses to close their buildings, which led many businesses to adopt a work-from-home structure. While the country has now reopened due to the distribution of the vaccine, plenty of workplaces have kept that structure in place. In fact, around 20% of all professional jobs were remote as of the beginning of 2022.*

*While more and more businesses are embracing work-from-home positions, people who are allowed to work from home may not always have the best environment*

*for doing so. The best work-from-home conditions include low costs, reasonable comfort and a high level of security.*

*Exactly how easy it is to work remotely may depend on where you live. In order to find out the states that provide the best conditions for working from home, WalletHub compared the 50 states and the District of Columbia across 12 key metrics. Our data set ranges from the share of workers working from home to internet cost and cybersecurity. We also considered factors like how large and how crowded homes are in the state.t Hub*

For 2022, Wallet Hub reports Michigan as rank 27 in 'Best States for Working from Home'.

## Small Business. Big Impact.

- ✓ Networking at regional events
- ✓ Comprehensive benefits
- ✓ Pro-small business advocacy work
- ✓ Valuable compliance resources

## CHAPTER 6

# CRITICAL FOUNDATIONS FOR ENTREPRENEURIAL SUCCESS

### POST-COVID CRITICAL FOUNDATIONS FOR ENTREPRENEURIAL SUCCESS

In seeking to become one of the nation's leading entrepreneurial states, SBAM has sought, through this Score Card over 19 years, to know where Michigan stacks up against the other U.S. States. Looking forward it wants also to know if the state has the right ingredients for small business and entrepreneurial success. In the Spring 2021 Score Card, we presented a forward-looking framework for assessing the building blocks for an entrepreneurial state. We called these "Post-COVID Key Entrepreneurial Metrics to Watch." The text below uses these to present six categories of **Critical Foundations for Entrepreneurial Success** (CFES) to profile Michigan's position as "an entrepreneurial state" in the post-COVID economic environment. Our selection of the CFES categories stems from preparing state entrepreneurial score cards for 19 years and our review of economic growth literature. Below, for each CFES, we have selected one or two key metrics that highlight Michigan's current situation.

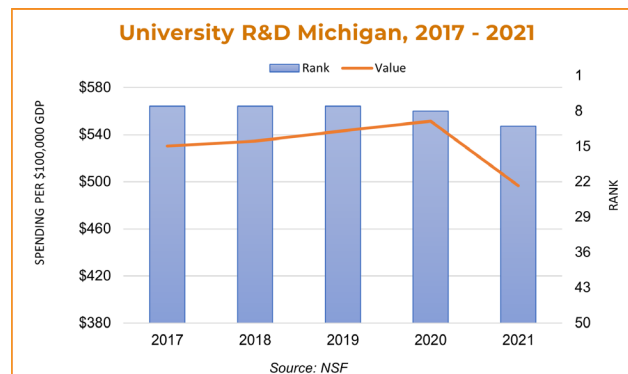
This methodology is far from perfect and will be refined in time, but we have concluded this is a good place to start to map a state's entrepreneurial economy profile, post-COVID.

The updated graphs for this year confirm our finding from the last two years that:

**While more strategic analysis is required, this preliminary scan of Critical Foundations for Entrepreneurial Success suggests Michigan possesses sound building blocks for post-COVID entrepreneurial growth. However, over the next 2-3 years, supportive policy and program actions will be necessary.**

### 1. Private Sector Innovation: Metric - University Research and Development

Michigan has historically had a strong technology R&D and talent base. Previous Score Cards have shown how the state continues to rank in the Top 10 in numerous R&D and high-tech workforce metrics. This is a critical economic competitive advantage for Michigan's entrepreneurs in a post COVID economy. The chart shows how University R&D spending in Michigan has maintained a top ranking despite a drop in spending in 2021. For this year, we switched from industrial to university R&D since there is no update past 2019 for industrial R&D at the time of publication.



Michigan's strong position here is in part because Michigan's public and private sectors invest heavily relative to most other states in several key areas that are critical to future technology-led entrepreneurial growth, including:

- R&D (both university-based and industry-based)
- Innovation (measured in patents per worker)
- STEM educated workers pre- and post-BS
- STEM and related 'knowledge' credentialing programs
- Excellence in graduate programs
- High tech employment (both mfg. and services high-tech)

## 2. Technology Workforce: Metrics - Physical Science and Engineering Workers; Technology and Technician Workers

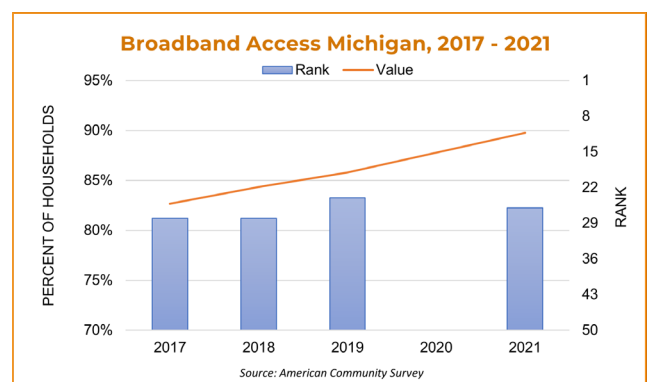
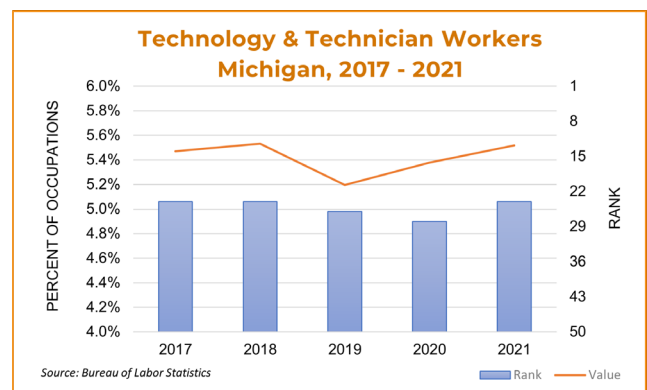
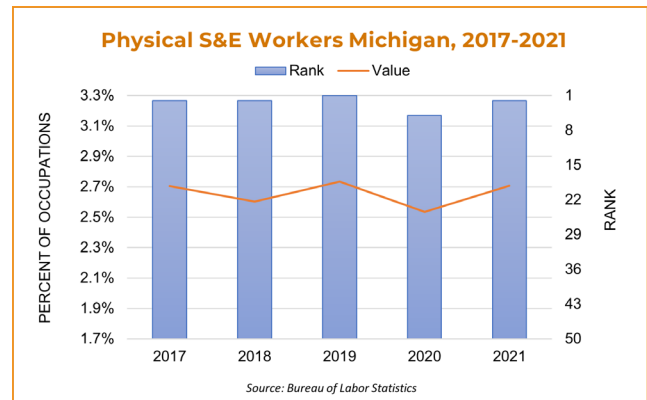
Information, knowledge, and ideas are critical assets for success in the innovation economy. Having a strong technology-oriented human capital base will be a necessity in the post-COVID economy. The graphs demonstrate that Michigan can capitalize on respective strong human capital assets as means to economic progress.

As shown in the top graph, over the last five years, after a drop in 2020, Michigan's Physical Science and Engineering workers as a percent of all workers has recovered, with the state returning to #2 ranking.

Many mistakenly focus exclusively on bachelor's degree attainment as a measure of a state's human capital quality. In fact, some of the most critical occupations for industry success lie in the often fast-growing mid-level categories like high-skilled tradespeople, technicians, and technologists. While still strong, Michigan experienced slippage in Technology and Technician workers between 2017 and 2019. 2020 and 2021 have seen, however, a comeback back to a pre-pandemic rank of 24. **Any weakening of this talent pool raises talent supply risks for Michigan's many future tech and non-tech growth companies.**

## 3. Digitization /Broadband: Metric – Population with 1+ GB internet Speed

Earlier Score Cards have reported that, relative to other states, Michigan's poorer highways, broadband, and air access, are all creating constricting drags on both Michigan's entrepreneurial and broader business sectors. Indeed, one could argue that the impacts on the entrepreneurial economy of Michigan's deteriorating infrastructure should be increasingly prominent in policy discussions, especially those discussions related to digital infrastructure, energy, and financing road repairs and international crossings. Important building blocks of the innovation economy and technology-based economic development are not only traditional/public works infrastructure but "virtual" infrastructure, information highways, and IT services. The ability to connect and communicate directly relates to the innovative and entrepreneurial capacity of a state.



The metric, percentage of households with broadband internet access, is a shorthand measure to show Michigan's situation is improving but given other states' performances, it stayed around average at a current rank of 26. These data are from the American Community Survey measure for percent of households with broadband internet subscriptions.

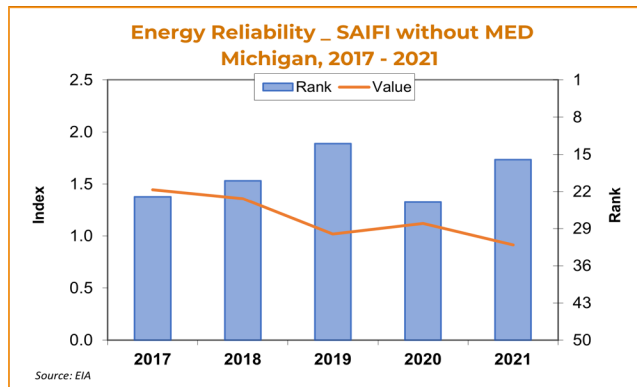


#### 4. Electrification (High Reliability): Metrics - System Average Interruption Frequency and System Average Interruption Duration

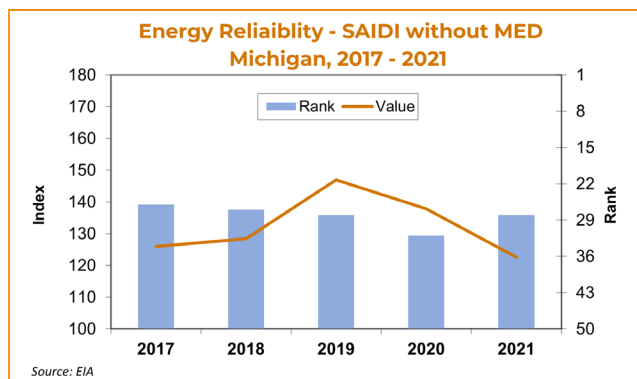
In an information technology world, reliable power distribution has become an increasingly important consideration in business attraction and retention. With the expansion of artificial intelligence, advanced logistics, and remote work the foundation is not only supply but also reliability. Electrical reliability can be tracked with two charts. First, the System Average Interruption Frequency (SAIFI) Index across all utility providers, which represents the average number of interruptions per customer. The second is SAIDI, System Average Interruption Duration Index, commonly measured as the total time duration of interruptions for the average customer across the state electric system during a predefined period. Both measures are widely used in the industry.

As shown below Michigan's Interruption Frequency metric ranks well while Interruption Duration deserves improvement.

##### FREQUENCY



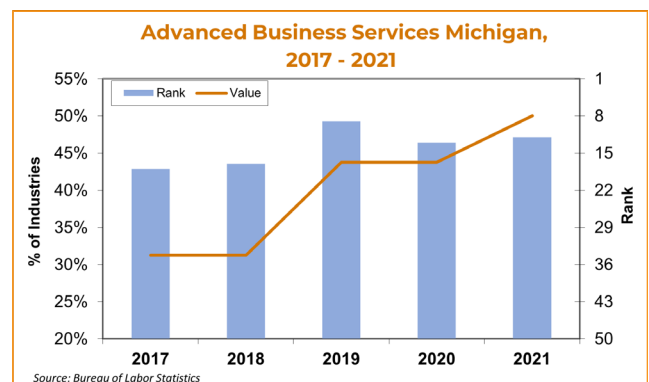
##### DURATION



(Note re MED: MED is an abbreviation for 'excluding major event days'. These are low frequency high impact events like major storms.)

#### 5. Advanced Business Services: Metric – Percent of Advanced Business Services

Advanced economies are characterized by the degree to which specialty small/mid-size businesses provide specialized 'producer services' to support complex production processes. Their lines of businesses range from specialized tech-intensive financial services (fin-tech) to frontier research labs to computer and cloud support. These businesses meet the needs of local/in-state larger business clients as well as those out of state.



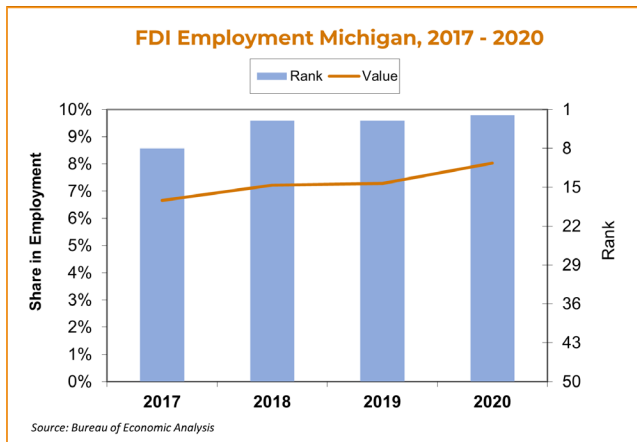
A Key CFES metric in this regard is the concentration and diversity of Advanced Business Services. This is measured as the percent of 16 different advanced business service categories that show a location quotient above one, i.e., that have a higher job concentration in Michigan than what is typical for the nation. As shown in the graph, this number is increasing in Michigan, along with the state's rank improving in 2019, while stagnating somewhat in 2020/21. Overall, these data indicate Michigan is growing a more diversified, robust mix of businesses for its next leg up.

#### 6. Internationalization: Metric – Workforce Share from Foreign Direct Investment

International business is a catalyst for growth. While global trade has softened in very recent years the world's economy becomes increasingly interdependent. The impact is not just increased trade. Large multinational firms locate production facilities across the globe including foreign direct investment (FDI) in Michigan. Foreign investment can be an important source of well-paying jobs. The chart gives a measurement of the share of employment in foreign-owned firms as a percentage of total employment. The chart shows year-to-year increases in the percentage of workers in Michigan who work for bank and non-bank

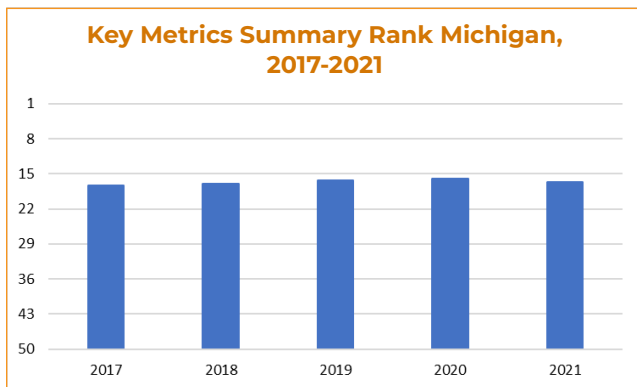


foreign-majority-owned companies. Michigan now ranks in the top five U.S. states. Note on 2021 data not yet available.



### Composite of all eight CFES Metrics

The aggregated scores of all eight CFES Metrics above provide a composite 'Summary Index' as shown below. Michigan's performance has stayed consistently at rank 16 to 17 through the last five years.



While more strategic analysis is required, this preliminary scan of Critical Foundations for Entrepreneurial Success suggests that Michigan possesses sound building blocks for post-COVID economic growth. However, supportive policy and program action will be required over the next 2-3 years.

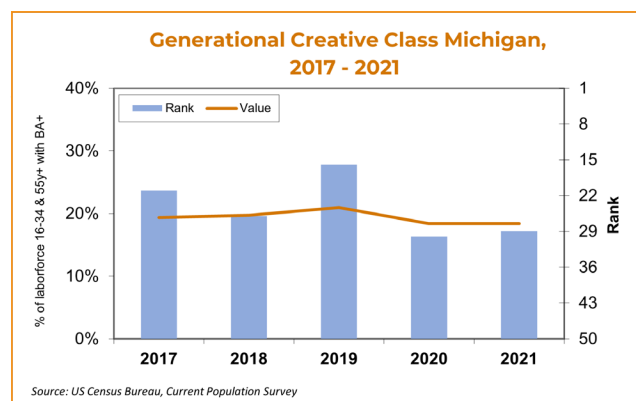
### Special Note: Quality of Life that continues to support and attract entrepreneurs

Previous Score Cards have noted that Michigan's Quality of Life attributes have been and continue to be impressive for an industrial state. Several placemaking/'Pure Michigan' strengths conducive to tech/entrepreneurial growth tie closely to community economic

vitality. Michigan's placemaking is grounded on the principle that entrepreneurs and the talent they need tend to locate in places that offer the amenities, social and professional networks, resources and opportunities that support thriving lifestyles. In short, growth businesses prosper in vibrant communities where entrepreneurs prefer to live.

Prior Score Card metrics point to several Michigan "Quality of Life" attributes that have held up well even through recessions, such as parklands and golf courses consistently scoring in the Top 15 states over the past decade. Additionally, Michigan residents enjoy relatively high homeownership rates and improving crime rates and urban cost of living. However, declines in water systems and clean air deserve watching. One sees the results of successful placemaking most readily in the urban centers like Detroit and Grand Rapids where young, skilled workers have been returning to find job opportunities and to live.

To sustain and strengthen an entrepreneurial economy some scholars argue for a strong presence of the 'creative class.' Generational Creative Class is defined as the percent of the labor force 16-34 and 55 years plus with bachelor's degree or higher. This metric gets at the breadth of talent of a state by combining baccalaureate educational attainment at both ends of the age spectrum. The 2020 Score Card reported Michigan moving up in rank to 21 in 2017 from a low rank of 40 in 2012 for the metric Generational Creative Class – indicating that efforts in placemaking have been paying off. However, a closer look at the attached updated bar chart may be showing slippage since 2019. Now at rank 29 (2021) Michigan ranks close to what it was in 2014/2015. For Michigan this and related metrics deserve closer examination in 2023.





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