

March 2023

The Economic and Demographic Outlook for Southeast Michigan through 2050: A Baseline and Four Alternative Scenarios



SEMCOG

SOUTHEAST MICHIGAN COUNCIL OF GOVERNMENTS

SEMCOG . . . *Developing Regional Solutions*

Mission

SEMCOG, the Southeast Michigan Council of Governments, is the only organization in Southeast Michigan that brings together all governments to develop regional solutions for both now and in the future. SEMCOG:

- Promotes informed decision making to improve Southeast Michigan and its local governments by providing insightful data analysis and direct assistance to member governments;
- Promotes the efficient use of tax dollars for infrastructure investment and governmental effectiveness;
- Develops regional solutions that go beyond the boundaries of individual local governments; and
- Advocates on behalf of Southeast Michigan in Lansing and Washington

The Economic and Demographic Outlook for Southeast Michigan through 2050: A Baseline and Four Alternative Scenarios

© SEMCOG 2023



Gabriel M. Ehrlich, Director

George A. Fulton & Saul H. Hymans
Directors Emeriti

University of Michigan, Ann Arbor
Department of Economics
611 Tappan Avenue
Ann Arbor, MI 48109-1120

lsa.umich.edu/econ/rsqe
734-764-2567

SEMCOG

Southeast Michigan Council of Governments
Information Center
1001 Woodward Avenue, Suite 1400
Detroit, MI 48226-1904
313-961-4266 • fax 313-961-4869
www.semcog.org • infocenter@semcog.org

Acknowledgements

This report was written by

Jacob T. Burton, Gabriel M. Ehrlich, Donald R. Grimes, Kyle W. Henson,
Daniil Manaenkov, and Michael R. McWilliams

University of Michigan

Table of Contents

Acknowledgements.....	i
Table of Contents.....	ii
List of Data Displays	iii
Introduction	1
U.S. Economic Outlook: The Conversion to Electric Vehicles	3
Forecast for Southeast Michigan through 2050.....	6
Alternative Scenarios for Southeast Michigan through 2050	20
Conclusion	33
References	35
Appendix.....	36

List of Data Displays

Figures

U.S. Light Vehicle Fleet by Power Type	3
U.S. Employment in Motor Vehicles, Bodies, and Parts Manufacturing	4
Detroit Three's Share of the Light Vehicle Market.....	5
Southeast Michigan's Share of U.S. Real GDP.....	6
Southeast Michigan's Population.....	7
Components of Southeast Michigan's Population Growth	8
Southeast Michigan's Population by Age Category	10
Southeast Michigan Employment by Employment Type	11
Southeast Michigan Employment (BEA Measure)	13
Employment in Southeast Michigan	14
Southeast Michigan's Share of U.S. Employment in Motor Vehicle, Bodies, and Parts Manufacturing	17
Real Personal Income per Capita, United States and Southeast Michigan.....	18
The Effect of Reduced International Migration on Domestic Migration in Southeast Michigan	21
The Effect of Reduced International Migration on Total Population in Southeast Michigan	22
The Effect of Reduced International Migration on Employment in Southeast Michigan	23
Accelerated Growth of Professional Services Jobs in Southeast Michigan.....	24
The Effect of Accelerated Growth of Professional Services Jobs on Total Employment in Southeast Michigan	25
The Effect of Accelerated Growth of Professional Services Jobs on Total Population in Southeast Michigan	26
The Effect of Faster Adoption of Electric Vehicles on Employment in Motor Vehicles, Bodies, and Parts Manufacturing in Southeast Michigan if Michigan Maintains its Market Share	27
The Effect of Faster Adoption of Electric Vehicles on Total Employment in Southeast Michigan when Michigan Maintains its Market Share.....	28
The Effect of Faster Adoption of Electric Vehicles on Total Population in Southeast Michigan when Michigan Maintains its Market Share.....	29
The Effect of Faster Adoption of Electric Vehicles on Employment in Motor Vehicles, Bodies, and Parts Manufacturing in Southeast Michigan when Michigan Also Loses Market Share	30
The Effect of Faster Adoption of Electric Vehicles on Total Employment in Southeast Michigan when Michigan Also Loses Market Share	31
The Effect of Faster Adoption of Electric Vehicles on Total Population in Southeast Michigan when Michigan Also Loses Market Share	32

Tables

Southeast Michigan Employment Growth by Selected Industry Groups	15
Baseline Population Forecast by Age Group, Southeast Michigan.....	36
Baseline Employment Forecast by Industry Sector, Southeast Michigan.....	37

Introduction

Since the early 1990s, the University of Michigan has produced seven sets of long-term economic and demographic forecasts (1994, 1998, 2003, 2008, 2012, 2017, and 2022) for the Michigan Department of Transportation (MDOT), the Metropolitan Planning Organizations (MPOs), and the State Regional Planning Organizations. In recent years, we have also prepared reports for the region spanned by the seven member counties of the Southeast Michigan Council of Governments (SEMCOG), alongside the statewide reports that we produce for MDOT. SEMCOG's seven member counties are Livingston, Macomb, Monroe, Oakland, St. Clair, Washtenaw, and Wayne Counties. We refer to the region comprising those counties as "Southeast Michigan" throughout this document. The report summarizes the methods used and the broad results for our most recent outlook for the region, produced in 2022. We also consider four alternative scenarios that are of particular interest to Southeast Michigan, which result in different economic trajectories and outcomes for the region.¹

We developed a set of forecasts for the state as a whole and for each county, the city of Detroit, and the balance of Wayne County. The individual county-level results can be summed to form a forecast for any region. The last year of historical data in the model used to produce the forecasts is 2019, while the forecast period runs through 2050.² Forecasts are provided for each year through 2025 and in five-year intervals from 2025 through 2050; they include population, employment, the labor force participation rate, personal income, households, and Gross Domestic Product for each county and for the state. The forecasts were developed using a version of the REMI TranSight model (REMI, 2021), together with a methodology for developing household forecasts designed by the University of Michigan in cooperation with MDOT.

Some features of the forecasts are as follows:

- The population forecasts are subdivided into eleven age cohorts for both males and females.
- Population change is divided into its major components: natural change (difference between births and deaths), net domestic migration (differentiated between those aged 65 or more and those aged 64 or less), and net international migration.
- The employment forecasts are based on the Bureau of Economic Analysis (BEA) series and are broken out into seventy-one divisions, consistent with the North American Industrial Classification System (NAICS) for defining industry categories. The forecasts include a detailed breakout of manufacturing industries to accommodate MDOT's truck and commodity modeling activities.
- Personal income is partitioned into eight major subcategories plus total personal taxes and

¹ Portions of this report draw from previous versions and from our 2022 report for MDOT, which is available on the RSQE website at: <https://lsa.umich.edu/econ/rsqe/special-reports.html>.

² The historical data reflects the values that were initially released by the government agency and do not incorporate subsequent data revisions.

disposable income.

- Total output (sales) is categorized into seventy industries (state and local government activity is combined into one industry).
- Gross Domestic Product is distributed among four final demand categories.
- The labor force participation rate is calculated for thirteen age categories.
- The household forecasts cover the number of households as well as the population in households and group quarters. They included projections of the distribution of households by size of household, age of household head, category of income, number of vehicles, with/without children status, and with or without persons 65 or older status.

The statewide and individual county-level forecasts can be requested from the Bureau of Transportation Planning at MDOT. Because of the density of these forecasts, in number of regions, number of years, and number of indicators per region, it is not possible to present the detailed results in this summary report. Instead, we summarize here the general process and trends that characterize these forecasts for the United States and for Southeast Michigan.

A full discussion of the models that we use as well as our baseline national forecast can be found in our original report for MDOT (Burton et al., 2022a). In what follows, we reproduce our forecast and our discussion of the electric vehicle market due to its importance to Southeast Michigan. We then present our economic and demographic forecasts for the region, followed by a summary of four alternative scenarios.

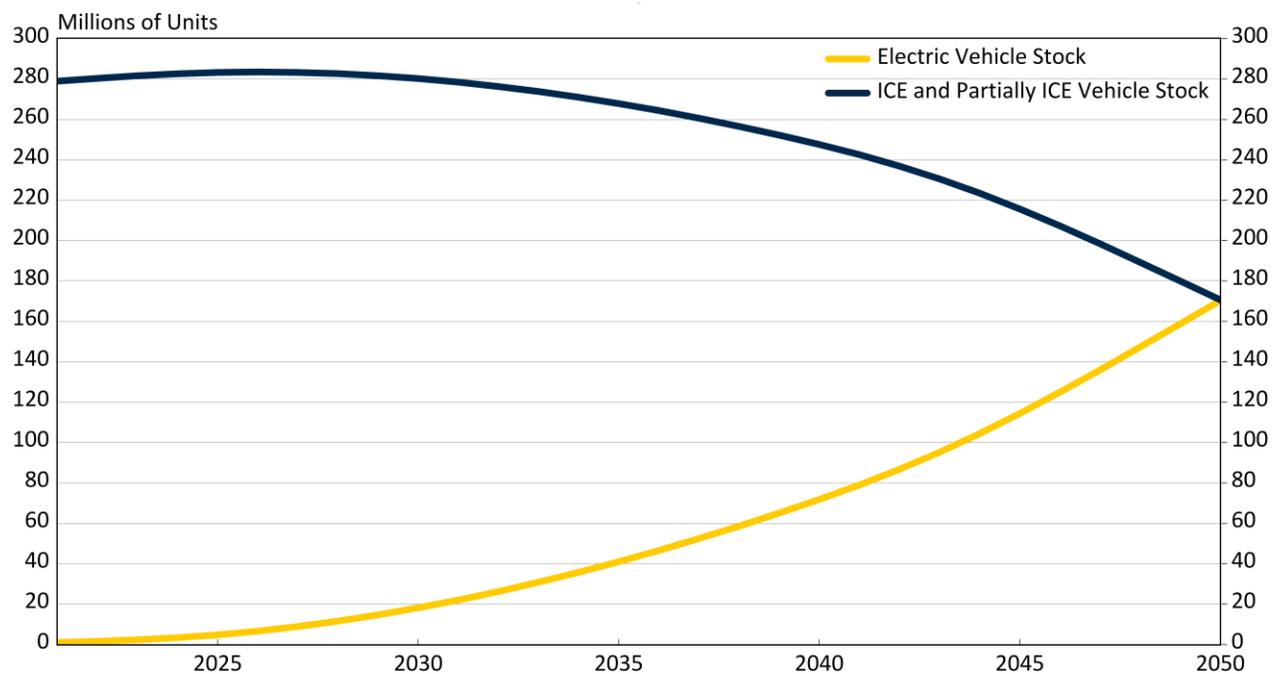
The four alternative scenarios were selected in consultation with SEMCOG staff and reflect our joint views about how alternative paths could change the outlook for the region. Two of the scenarios involve a faster adoption of electric vehicles than we assume in our baseline forecast. In one alternative scenario, Michigan is successful in retaining its market share of motor vehicle production; in the second scenario, Michigan is unsuccessful in retaining its market share of motor vehicle manufacturing as we rapidly shift toward electric vehicles. A third scenario assumes that Michigan is more successful in attracting jobs in the professional and technical services industry than we project in our baseline forecast. In the fourth scenario, we assume that international migration to the region is about one-quarter less than what we expect in our baseline forecast.

U.S. Economic Outlook: The Conversion to Electric Vehicles

The widespread adoption of electric vehicles (EVs) will have a dramatic effect on employment in motor vehicle manufacturing (and ancillary services that provide repair and maintenance services to motor vehicles) and to establishments that manufacture and sell diesel fuel and gasoline. Most of this transition will reduce the demand for workers because electric vehicles have many fewer parts than traditional internal combustion engine (ICE) vehicles. The introduction of EVs, however, will also require a major increase in capital spending on manufacturing plants and charging infrastructure, which will increase employment in construction and capital equipment manufacturing industries. There will also be an associated increase in battery manufacturing, which is currently considered a part of the electrical equipment manufacturing industry.

We anticipate that there will be a relatively slow adoption of EVs in the United States. We project that about 9 percent of new light vehicle sales will be fully electric vehicles in 2025, increasing to 24 percent of new vehicles sales in 2030, and finally reaching 100 percent of new vehicle sales in 2050. Because of the long and increasing operational life of new motor vehicles, we expect that ICE or partially ICE vehicles will continue to account for the majority of the U.S. vehicle fleet through 2050, as shown in Figure 1.

Figure 1
U.S. Light Vehicle Fleet by Power Type

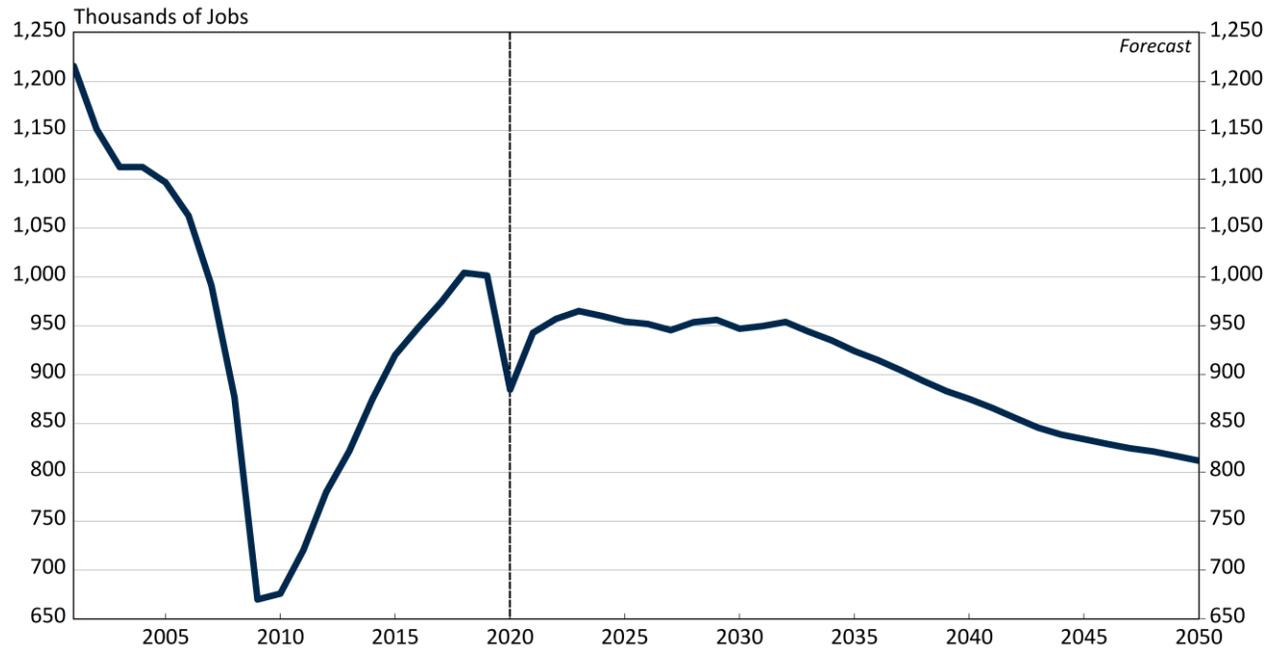


The relatively slow adoption of EVs that we anticipate means that they will have a relatively minor impact on employment in retail trade and motor vehicle repair and maintenance services until the end of this decade. In fact, the introduction of EVs will initially help to sustain employment in motor vehicle manufacturing facilities, as shown in Figure 2, as companies continue to produce both types of vehicles in separate plants. We expect that U.S. employment in motor vehicle and parts manufacturing

will peak in 2023 at 964,978 and will decline slowly through 2032, when employment will register 953,776. The rate of decline will accelerate after 2032, but we expect employment will still stand at 811,665 by 2050.

Figure 2

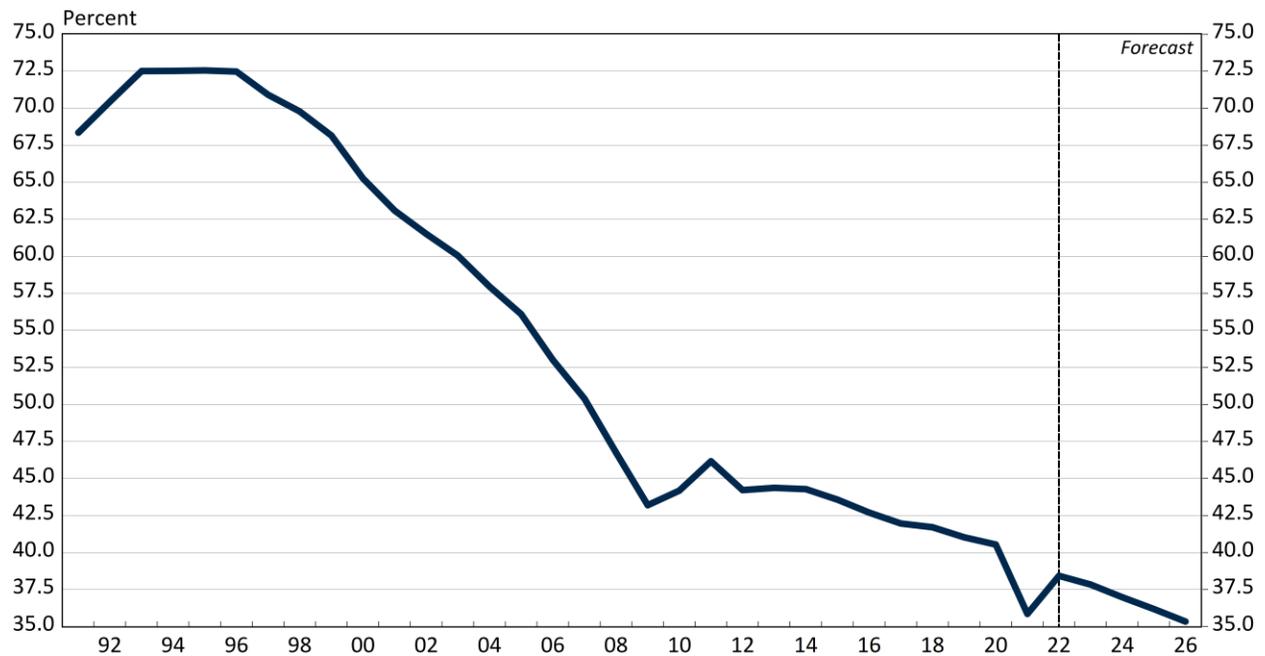
U.S. Employment in Motor Vehicles, Bodies, and Parts Manufacturing



If the introduction of electric vehicles occurs more quickly than we anticipate, then the job loss in motor vehicle and parts manufacturing would occur sooner and be larger than we have forecast. For example, if electric vehicles were to account for 100 percent of new light vehicle sales by about 2040, we believe that this would reduce motor vehicle manufacturing employment by approximately 30 percent. That decline would bring motor vehicle manufacturing employment down to about 675,000 by 2050. Compared to our baseline forecast, there would also be larger job losses in motor vehicle repair and maintenance services and retail trade.

Arguably more important to the Michigan economy than the adoption of EVs is how successful the Detroit Three auto manufacturers are in selling EVs. Figure 3 shows that the market share of the Detroit Three fell sharply between 1996 and 2009, from 72 percent to 43 percent. The Detroit Three’s share of the market then declined more gradually, to 41 percent in 2019 before dipping to 36 percent in 2021 amid the microchip shortage that has plagued the auto industry in the wake of the COVID-19 pandemic.

Figure 3
Detroit Three's Share of the Light Vehicle Market



We have assumed that the Detroit Three are successful in making the transition to electric vehicles. We project that their market share will rebound from the microchip shortage in the short run before declining to 35 percent by 2026. It then hovers around that level through the remainder of the forecast. If the Detroit Three's market share were to fall further, however, it would have an adverse impact on motor vehicle manufacturing employment in Michigan.

Forecast for Southeast Michigan through 2050

Current conditions locally as well as anticipated future trends nationally portend moderate growth for Southeast Michigan’s population and labor market over the next thirty years. We should recognize from the outset that long-term forecasts are intended to identify economic trends, not to predict movements in the business cycle. These forecasts are also unable to capture major one-time events for which there is no prior knowledge, such as pandemics, wars, or terrorist attacks. With these caveats in mind, we now review the headline items for our local forecast.

Figure 4
Southeast Michigan’s Share of U.S. Real GDP



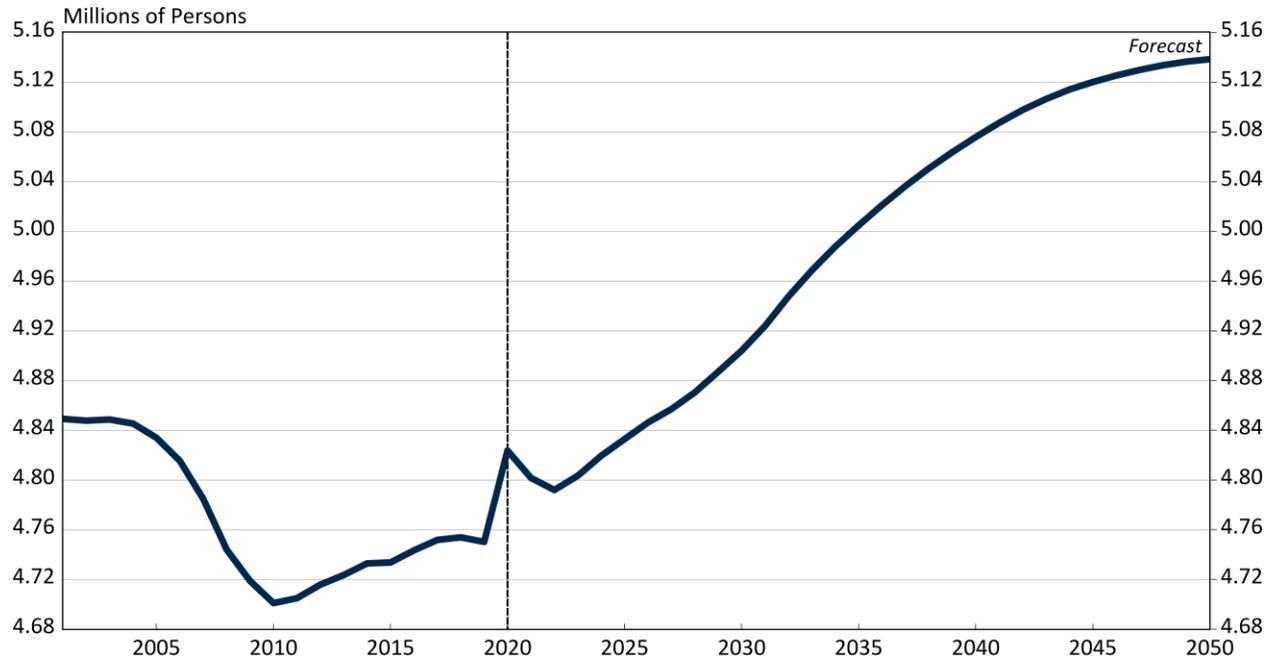
Southeast Michigan’s Real GDP

Average annual growth in U.S. real GDP is forecast to slow from 2.02 percent between 2001 and 2019 to 1.75 percent between 2019 and 2050. In contrast, Southeast Michigan’s real GDP accelerates from 0.86 percent per year between 2001 and 2019 to 1.65 percent per year between 2019 and 2050. The acceleration in growth in Southeast Michigan reflects the bounce-back from the weak performance of the local manufacturing sector, and especially motor vehicle manufacturing, during the first decade of the 2000s. Although our projection of accelerating real GDP growth in Southeast Michigan alongside slowing growth nationally may seem like a reversal of fortune, the region’s projected growth from 2019 to 2050 is still forecast to lag the national rate. Figure 4 shows that Southeast Michigan’s share of US GDP fell to 1.37 percent in 2020 because of the COVID recession. It then recovers to a post-COVID peak of 1.45 percent in 2032 before slowly declining to 1.39 percent in 2050 (compared to 1.43 percent in 2019).

Southeast Michigan’s Population

We consider first our forecast of the region’s total population trajectory, which will impose a speed limit on the area’s employment growth in the long run. Figure 5 shows history and our forecast for the path of total population in Southeast Michigan from 2001 to 2050. Data from 2001 to 2021 come from the U.S. Census Bureau and the Bureau of Economic Analysis, and the extension through 2050 is our forecast.³ Appendix Table 1 presents our forecast for total population, children, and adults.

Figure 5
Southeast Michigan’s Population



Southeast Michigan’s population declined at an average rate of 0.4 percent per year between 2003 and 2010. The population resumed growing in 2011, peaking at 4.833 million in 2019. In 2020 and 2021, the region’s population declined by 9,100 and 22,300, respectively, as the COVID-19 pandemic reduced births and international migration and increased deaths. We expect that Southeast Michigan’s population will decline by an additional 9,500 people in 2022, after which the population will begin growing again in 2023.⁴

We are forecasting that Southeast Michigan’s population will return to 2019 levels in 2025 and will continue to grow through 2050, albeit at a diminishing rate after 2040. That pattern contrasts with our state-wide forecast, which sees Michigan’s population peaking in 2046 and then declining through 2050. We project that the population in Southeast Michigan will reach 5.139 million in 2050, 6.3 percent higher than in 2019. Between 2020 and 2050, we are forecasting that Southeast Michigan’s population will grow at an average rate of 0.21 percent per year, compared to growth of 0.15 percent per year in Michigan and 0.44 percent per year in the United States

³ See, for example, U.S. Census Bureau (2021).

⁴ The Census Bureau’s December 2022 population estimate indicates that Michigan’s population declined by 3,400 people in 2022. Given the lingering impact of COVID-19, we would expect a slightly larger decline in Southeast Michigan, as shown in our forecast.

So, what underlies Southeast Michigan’s slow growth relative to the nation in the decades to come? Figure 6 breaks out the annual change in total population into its primary components: natural change (births minus deaths) and net migration (the number of in-migrants minus the number of out-migrants). Total net migration consists of domestic migration (movements to or from locations in the United States outside of Southeast Michigan for persons aged 65 or older and for persons aged 64 or less) and international migration (movements to or from foreign countries). Note that Figure 6 does not show domestic migration of those aged 64 or less in the year 2020, because these values include the adjustment necessary to hit the 2020 population estimates.

Between 2010 and 2019, Southeast Michigan gained an average of 5,464 people per year, which is the sum of the average natural increase (10,633 per year), international migration (14,012 per year), outmigration of the existing population aged 65 or more (4,445 per year), and outmigration of the existing population aged 64 or younger (14,737 per year). Over this period, the population gain due to natural growth and international migration tended to decline, while the population loss from the outmigration of those aged 65 or older slowly increased. The migration of the population 64 and younger is sensitive to economic conditions, and as the region’s economy improved through the decade, the net out-migration of this population group fell sharply. Still, without international migration, Southeast Michigan’s population would have been declining in every year.⁵

Figure 6
Components of Southeast Michigan’s Population Growth

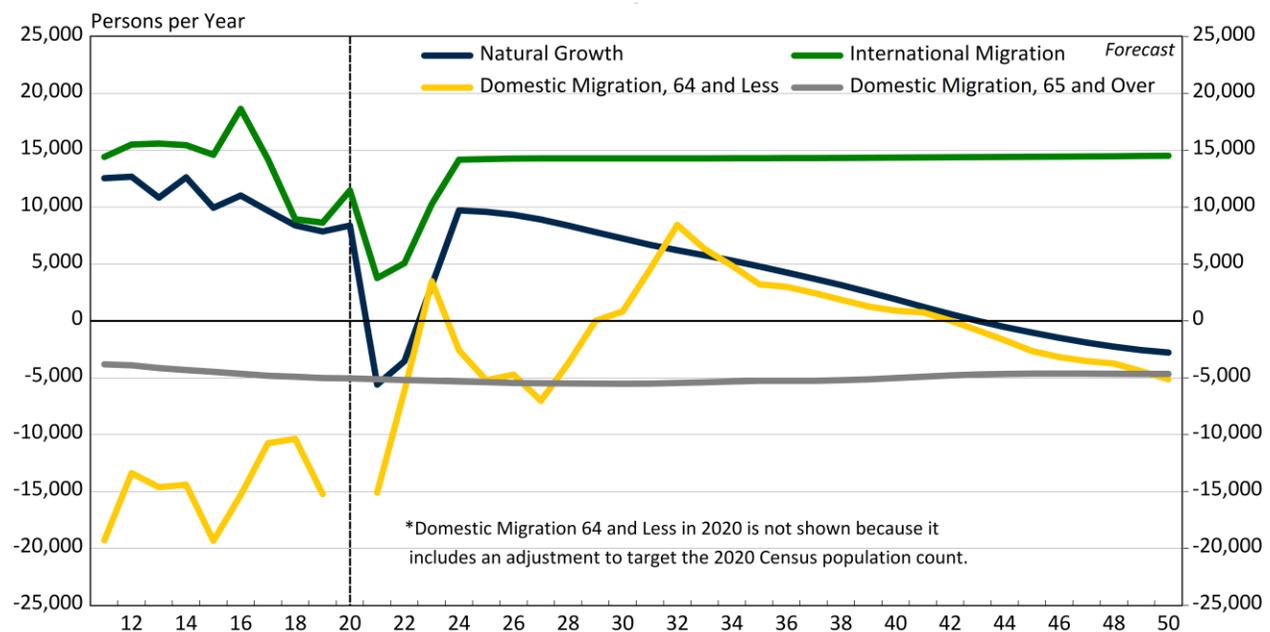


Figure 6 shows that we had projected international immigration to the region to fall dramatically in 2021 to only 3,780. We also projected natural population change to shift from growth to a decline of 5,600 as the number of deaths exceeded the number of births. We expected Southeast Michigan to

⁵ That assessment may change when the Census Bureau revises the components of population change data for this decade.

continue to suffer net out-migration of existing residents (20,160) at an even faster rate than in recent years, as people moved to less urbanized areas amid the COVID-19 pandemic.⁶

The COVID-19 pandemic is also expected to reduce Southeast Michigan's population in 2022, as deaths continue to exceed births (-3,541), international immigration remains weak (5,090), and we lose people from net domestic migration (-11,323). The region returns to population growth in 2023 as the number of births exceeds the number of deaths (3,124), international migration picks up to 10,276, and net domestic migration falls to only -1,754.

Population growth then returns to more normal patterns in 2024. The number of births (54,836) exceeds the number of deaths (45,108) by 9,728 that year. The number of births is forecast to remain roughly constant, at about 55,000 per year between 2024 and 2040. After 2040, the number of annual births in Southeast Michigan is expected to decline modestly, to 52,690 by 2050. The number of deaths is forecast to increase by about 400 per year, growing from 45,108 in 2024 to 55,463 in 2050. The number of deaths is forecast to exceed the number of births starting in 2044, so that natural population growth once again becomes natural population decline. Natural population growth falls to -2,773 in 2050. Unlike during the COVID-19 pandemic period, however, this time the change will be durable.

Net international migration to Southeast Michigan in 2024 is forecast to total 14,191, or 1.3 percent of total expected US international migration. This share remains constant from 2024 to 2050 in our forecast and is only slightly smaller than the region's 1.4 percent share of the total U.S. population in 2024. In the rest of the state of Michigan, the share of international migrants (0.7 percent) is expected to be much less than the balance of the state's share of the U.S. population (1.6 percent).

Migration of the population aged 65 and older is concentrated in the younger members of this cohort. Thus, the net out-migration of this population group slowly increases from 5,322 in 2024 to 5,515 in 2030 as the youngest Baby Boomers turn 65. The net out-migration of this population cohort then slows to 4,658 in 2050. While Southeast Michigan does much better than the balance of the state in attracting international migrants, it suffers a relatively high net outmigration of the domestic population aged 65 and older. Southeast Michigan loses some retirees to elsewhere in the state in addition to losing retirees to other states.

The migration of the population 64 and younger tends to ebb and flow with the health of the local labor market and the relative differences in wage rates between the region and nation. Between 2024 and 2030, Southeast Michigan's domestic outmigration of the population aged 64 or less is forecast to average 3,195 persons per year. That forecast represents a much lower number of young domestic out-migrants compared to the region's recent history. Between 2029 and 2042, the region is forecast to see positive domestic in-migration of the population aged 64 or less, as the local economy enjoys a period of tight labor markets and high relative wages. The region is forecast to start losing domestic migrants aged 64 or less once again starting in 2043.

Both international migration and domestic migration are projected to be much stronger in the post-2023 period than the region has seen in the past couple of decades. The cause of the slowing population growth in the area over the next 30 years will be the downshift in natural population growth, which reverses from contributing an increase of 9,728 residents in 2024 to a decrease of 2,773 in 2050.

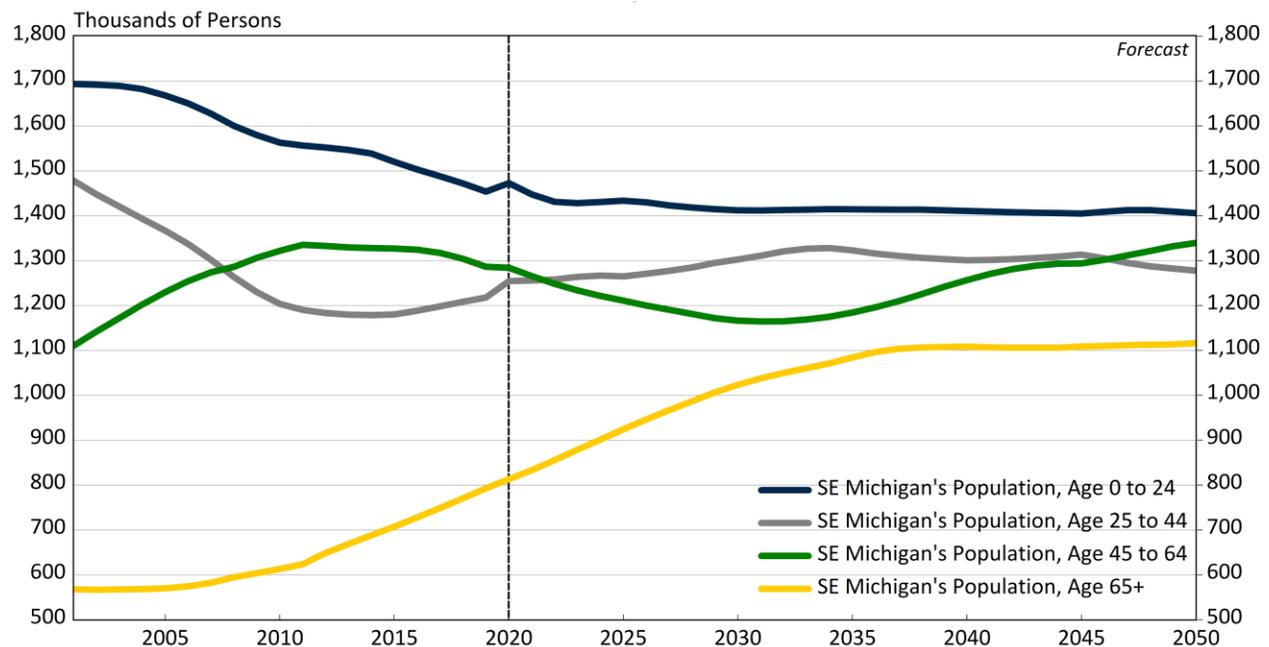
⁶ The data for 2021 in Figure 6 come from our projections. Census Bureau estimates released in March 2022 show net international immigration to the region of 2,526, a natural population decline of 4,175, and net domestic out-migration of 21,307 residents.

These population trends result in a dramatic aging of Southeast Michigan’s population over the next 30 years. Figure 7 shows that the number of residents aged 24 and younger declined by 90,163 between 2010 and 2020. It is expected to continue to decline by a cumulative 66,969 residents over the next 30 years, a much slower rate than in the recent past. The share of Southeast Michigan’s population that is aged 24 or younger, which declined from 33.2 percent in 2010 to 30.5 percent in 2020, is nonetheless forecast to fall to only 27.4 percent in 2050. The region’s K-12 schools and colleges and universities have faced declining enrollments for the past decade, and they will continue to face this challenge for the foreseeable future.

Southeast Michigan’s population aged 25 to 44 grew by 50,730 residents between 2010 and 2020. It is forecast to grow by another 73,568 residents by 2034, when it reaches its peak. The region’s population aged 25 to 44 then steadily declines through 2050. As a share of the area’s total population, the 25- to 44-year-old group increases from 26.0 percent in 2020 to 26.6 percent in 2034, before falling back to 24.9 percent in 2050.

The 45- to 64-year-old group’s population moves in a mirror image of the 25-to-44 group’s. The population aged 45 to 64 declined by 37,970 residents between 2010 and 2020. It continues to decline through 2031, resulting in the cumulative loss of 119,582 people in only 11 years. This cohort then adds population through 2050. As a share of Southeast Michigan’s total population, the 45- to 64-year-old group declines from 26.6 percent in 2020 to 23.6 percent in 2031, before rebounding to 26.1 percent in 2050.

Figure 7
Southeast Michigan’s Population by Age Category



Southeast Michigan’s population aged 65 or more (senior residents) grew by 200,142 residents between 2010 and 2020. The population of seniors in Southeast Michigan is expected to continue to grow rapidly through 2037, cumulating to a gain of 290,159 over seventeen years. After 2037, however, the region’s senior population is forecast to grow much more slowly, with cumulative growth

of only 12,800 residents between 2037 and 2050. This cohort's share of the area's total population grows from 16.9 percent in 2020 to 21.9 percent in 2037, before slipping to 21.7 percent in 2050. In Florida in 2021, the population aged 65 and older accounted for 21.1 percent of the population; Southeast Michigan's senior share of the population will pass Florida's current share in 2032.

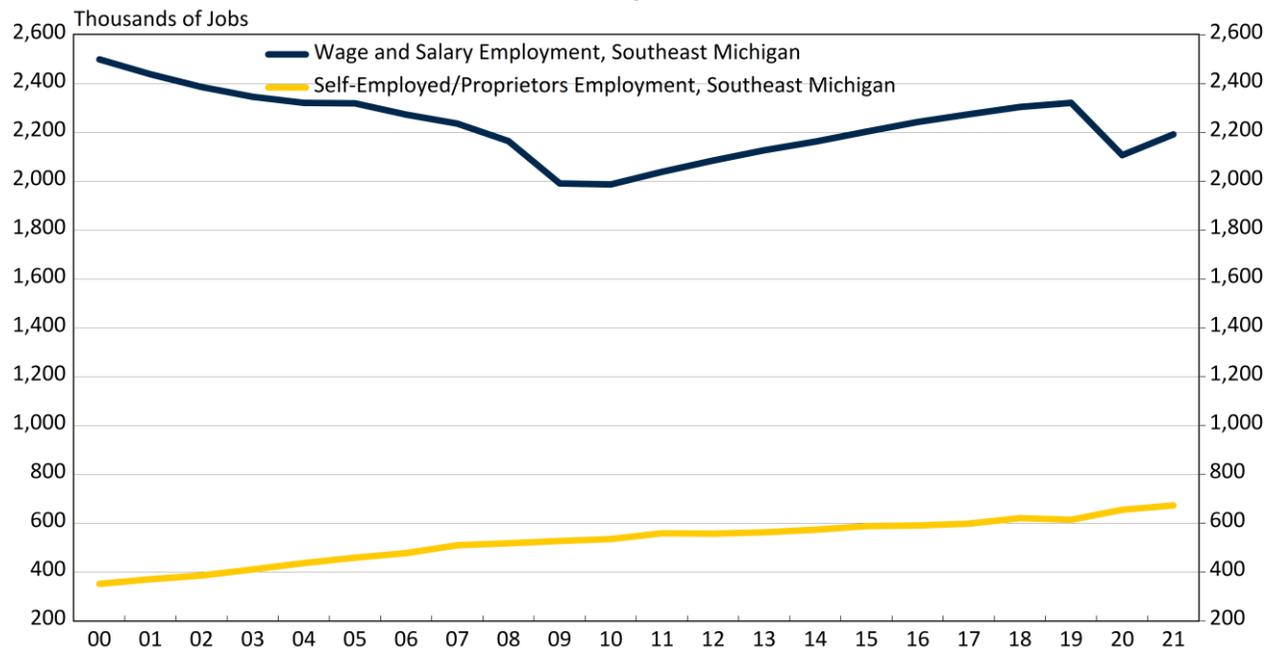
We are forecasting that Southeast Michigan's total population will grow by a cumulative 6.5 percent between 2020 and 2050. We forecast that the national population will grow by 14.5 percent in the same period. Southeast Michigan's relatively slow population growth will put a particularly acute strain on the region's labor supply between 2020 and 2028. The region's population aged 25 to 64 declines by 72,177 in that time, which will make it increasingly difficult for employers to find workers. These demographic trends will have an important influence on economic trends in the region.

Southeast Michigan Employment

The Bureau of Economic Analysis (BEA) estimates that between 2000 and 2010, Southeast Michigan lost 327,888 jobs.⁷ Between 2010 and 2019, region gained 413,113 jobs, leaving it 85,225 jobs (3.0 percent) above its 2000 level. Southeast Michigan accounted for over 90 percent of the 92,388 net new jobs added in the state of Michigan between 2000 and 2019.

Figure 8

Southeast Michigan Employment by Employment Type



⁷ Throughout this report, the employment data are the measure published by the U.S. Bureau of Economic Analysis (U.S. Bureau of Economic Analysis, 2018), and as such, include the self-employed/proprietors, farm workers, and military personnel. The BEA count of proprietors is from the IRS count of individuals filing business tax returns.

The region's job growth between 2000 and 2019 stemmed primarily from self-employed/proprietor's jobs, which grew by 262,772 jobs over the period. In contrast, Southeast Michigan's wage and salary employment in 2019 remained 177,547 jobs short of its year-2000 level, as shown in Figure 8.⁸ The state of Michigan overall remained 148,757 wage and salary jobs shy of its year-2000 employment level in 2019. Therefore, all of the net loss of wage and salary jobs in the state occurred in Southeast Michigan. In the state of Michigan as well as nationally, there was a sharp shift from wage and salary jobs to proprietor's jobs during the first 19 years of this century. That shift was more pronounced in Southeast Michigan than elsewhere in the state. In the year 2000, 12.3 percent of all BEA employees in Southeast Michigan were proprietors. By 2019, this share had increased to 20.9 percent. Statewide, proprietors also accounted for 20.9 percent of BEA employment in 2019, up from 14.9 percent in 2000.

Wage and salary jobs tend to pay much better than self-employment on average. In 2019, the average wage and salary job in Southeast Michigan paid \$60,993, plus an additional \$13,461 in employer-paid benefits (including the employer's share of social security taxes). Thus, the total compensation for an average wage and salary worker in 2019 came to \$74,454. In contrast, the average earnings for a proprietor in 2019 totaled only \$30,470. As employment has shifted from wage and salary jobs to self-employment, workers have suffered a substantial drop in their incomes.⁹

Unfortunately, the pandemic recession reversed the area's employment gains from the previous decade, at least temporarily. Southeast Michigan lost 214,540 wage and salary jobs in 2020. Despite that loss, the region actually gained 40,505 self-employed/proprietors, producing a total loss of 174,075 jobs for the year. Similarly, the state overall added 72,259 self-employed/proprietors jobs in 2020 while losing 397,974 wage and salary jobs.¹⁰ The recently released BEA data for 2021 shows that the region is well on its way to recovering these lost jobs. Southeast Michigan gained 103,091 jobs in 2021, including 84,898 wage and salary jobs and 18,193 self-employed/proprietors (we did not have this data when we generated the forecast in this report—we predicted a job gain of 89,035 in 2021). We forecast that the region will add an additional 97,463 jobs in 2022.¹¹

Figure 9 shows history through 2019 and our forecast from 2020 through 2050 for Southeast Michigan's total employment as reported by the BEA in its November 2020 release, which we used in our forecasting.¹² We project that the region will add 69,983 jobs in 2023 and 34,264 in 2024, putting employment that year 0.9 percent above 2019 levels. We anticipate that Southeast Michigan will add another 26,390 jobs in 2025 and 25,811 jobs in 2026.¹³ We project job gains to slow drastically after

⁸ The data in Figure 8 is from the November 2022 BEA release.

⁹ Some example occupations that include a large share of self-employed workers include real estate agents, barbers, truck drivers, and farmers, as well as taxi and ride-sharing drivers. After deduction of expenses, workers in some of these jobs report negative income on their business tax returns, which lowers the overall average wage among the self-employed.

¹⁰ For self-employed/proprietors jobs, these numbers reflect a very large upward revision compared to the original data for 2020 released in November 2021. The initial data showed a loss of self-employed/proprietors jobs, while the new data shows a substantial gain in these jobs.

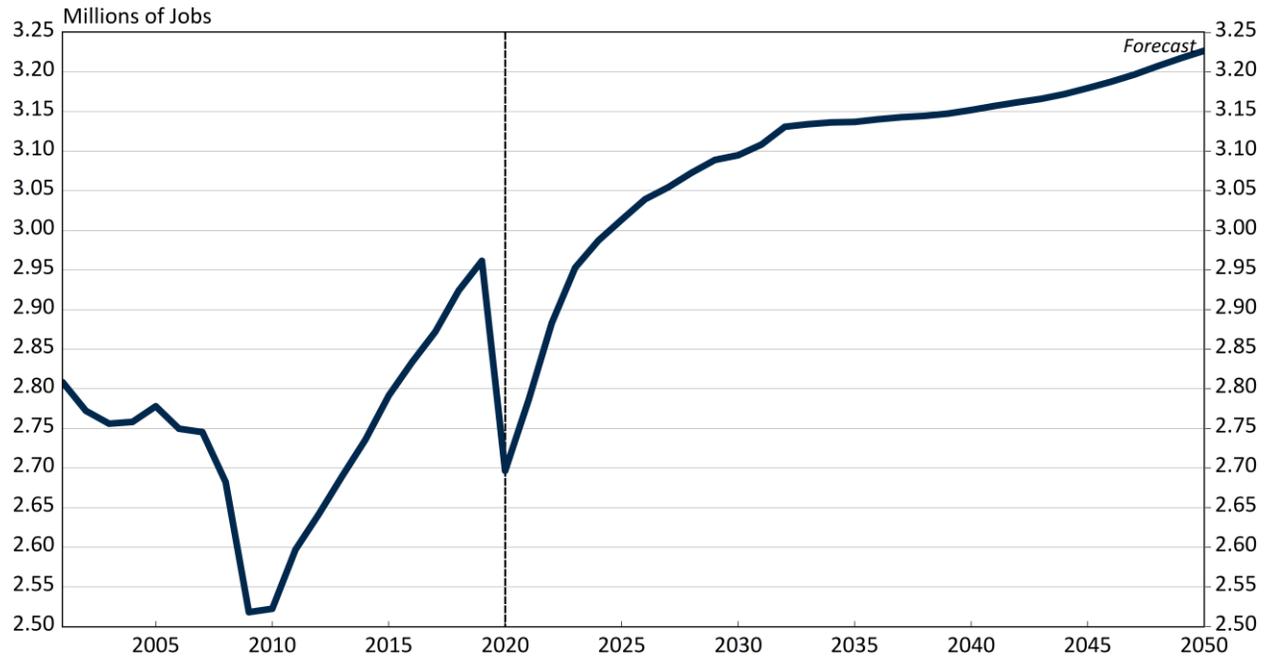
¹¹ We do not distinguish between wage and salary and self-employed/proprietors jobs in our forecast.

¹² The data revisions, which substantially increased employment in 2020 above our forecast values shown here, will gradually fade away over the next few years. Consequently, our view of the region's long-run employment is unchanged.

¹³ Recall that these jobs include self-employed/proprietors, and that these types of jobs have tended to grow much more quickly than wage and salary jobs.

2026. From 2026 to 2050, we forecast that employment in Southeast Michigan will grow by an average of only 7,811 jobs per year. Our forecast implies that total employment in the region will increase by 265,193, or 9.0 percent, from 2019 to 2050. We project that national employment will grow by 14.9 percent over the same period.

Figure 9
Southeast Michigan Employment (BEA Measure)



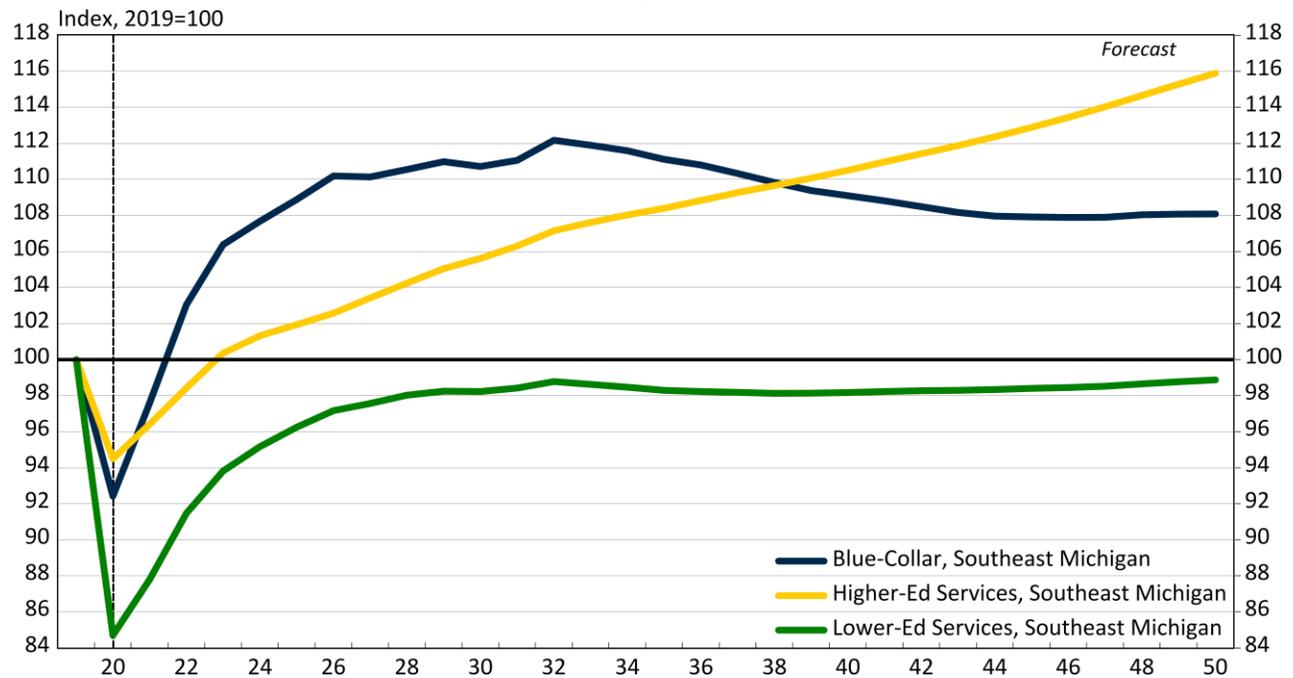
We expect the region’s economic performance to be uneven across industries. In Figure 10, we show industry employment in three industry categories: blue-collar industries, lower-educational attainment services industries, and higher-educational attainment services industries.¹⁴ Each of these industry groups is indexed so that the level of employment in 2019 is set equal to 100.

The blue-collar industries recover the most quickly from the COVID-19 recession, exceeding 2019 employment levels by 3.1 percent in 2022. Regional employment in blue-collar industries is expected to continue growing through 2032, when employment is forecast to exceed 2019 levels by 12.2 percent. Blue-collar employment then slowly declines through 2050, to a level 8.1 percent (53,371 jobs) higher than in 2019.

¹⁴ Blue-collar industries include farming, forestry and fishing, mining, construction, manufacturing, and transportation, trade and utilities except for retail trade; lower-educational attainment services industries include retail trade, administrative support services, leisure services, and other private services industries; higher-educational attainment services industries include information; financial activities, professional and technical services; corporate headquarters, education and health services, and government.

Figure 10

**Employment in Southeast Michigan
Blue-Collar, Higher-Education Services, and Lower-Education Services Industries**



Southeast Michigan’s employment in higher-educational attainment services industries is expected to recover to 2019 levels in 2023. Employment in these industries then grows steadily through 2050, at an average annual rate of 0.53 percent, cumulating to a job gain of 222,011 (15.9 percent) compared to 2019 levels.

Lower-educational attainment services industries in Southeast Michigan suffered the most severe job loss in 2020, with employment falling by 15.3 percent. We project job growth in this group of industries to be relatively rapid in 2021 and 2022, but the hole they are digging out of is so deep that their employment will remain 8.5 percent lower in 2022 than in 2019. Job gains in these industries slow after 2022, and employment flattens out after 2027 to 1–2 percent below 2019 levels. In 2050, employment in the low educational attainment services industries is expected to total 10,189 jobs (1.2 percent) below 2019 levels.

Table 1 shows the average annual employment change between 2019 and 2050 by major industry group. Additional industry detail is provided in Appendix Table 2. Total employment in Southeast Michigan is forecast to grow 0.28 percent per year between 2019 and 2050. The fastest-growing major industry is expected to be the construction industry, which is forecast to grow by 0.66 percent per year as the area catches up on needed infrastructure and expands the electric power grid to support electric vehicles. The construction industry also has notoriously slow productivity growth, so that growth in real activity comes disproportionately from higher labor input rather than from greater labor efficiency. If productivity growth picks up in the construction industry, then employment growth is likely to be smaller than we have forecast.

Table 1

Southeast Michigan Employment Growth by Selected Industry Groups

Employment by Selected Industry Groups	Average Annual Percent Change, 2019–2050
Construction	0.66%
Transportation, Warehousing, Wholesale Trade, and Utilities	0.63%
Private Education and Health	0.62%
Administrative Support and Waste Management	0.54%
Information, Financial Activities, Professional Services, and Management of Companies	0.52%
Leisure and Hospitality	0.17%
Government	0.15%
Other Private Services	0.14%
Other (non-Transportation Equipment) Manufacturing	-0.10%
Natural Resources, Mining, and Agriculture	-0.30%
Motor Vehicle Manufacturing	-0.61%
Retail Trade	-0.91%
<i>Addenda:</i>	
Total Jobs	0.28%

Regional employment in transportation, wholesale trade, utilities, and warehousing is expected to grow by 0.63 percent per year. Much of that growth reflects the ongoing expansion of e-commerce. Within this major industry category, employment in couriers and package delivery services is forecast to grow by 1.67 percent per year, and employment in warehouses by 2.20 percent per year between 2019 and 2050. Conversely, the growth of e-commerce leads to job losses in retail trade, in which employment is forecast to decline by 0.91 percent per year between 2019 and 2050.

The third fastest-growing major industry is expected to be private education and health care services, which we think will grow by 0.62 percent per year on average. A major driver of growth in this industry is the rapid projected growth in the senior population, which tends to consume high levels of health care services.¹⁵

Motor vehicle manufacturing is also expected to see a relatively large loss of jobs, with employment declining by 0.61 percent per year between 2019 and 2050. Those losses are likely to be even larger if EV adoption occurs more quickly than we anticipate. Manufacturing outside of motor vehicle manufacturing is also forecast to lose jobs over this period, but at a slower pace than auto manufacturing (-0.10 percent per year). Note that even though the manufacturing sector is forecast to lose jobs, the high rate of productivity growth in manufacturing industries means that output in these industries will be growing. Real GDP in manufacturing in Southeast Michigan is forecast to grow from \$44.8 billion in 2019 to \$68.3 billion in 2050 (both measured in 2012 dollars). Furthermore, the value

¹⁵ The private education and health care sector only includes employment found in privately-owned firms, and most of it (87 percent), is in health care. Public education and health care are classified as part of the government industry group.

of output (or shipments) in manufacturing is forecast to grow from \$169.5 billion in 2019 to \$254.4 billion in 2050 (again both measured in 2012 dollars).¹⁶

The large industry group that includes information, financial activities, professional and technical services, and corporate headquarters is the heart of the knowledge economy. It is also a well-paying group of industries, with average earnings per worker of \$81,261 in 2019 in Southeast Michigan. That was nearly 25 percent higher than the \$65,515 average earnings per worker across all industries in Southeast Michigan in 2019.¹⁷ We are forecasting that employment in this group of industries will grow almost twice as quickly as total employment in the region between 2019 and 2050, 0.52 percent per year vs. 0.28 percent per year. Nationally, however, this group of industries will be growing even more rapidly, at 0.65 percent per year. Furthermore, this group of industries is better paid nationally, with average earnings per worker of \$85,915 in 2019.

Government employment is forecast to grow by only 0.15 percent per year. Maintaining government services will be a challenge for all parts of the public sector in the decades to come.

Given its importance to Southeast Michigan's economy, we now take a deeper dive into the motor vehicle and parts manufacturing industry.¹⁸ In the year 2001, employment in motor vehicle and parts manufacturing in the region totaled 202,836 jobs. Figure 11 shows that regional employment accounted for 16.7 percent of all motor vehicle and parts manufacturing employment in the United States at that time. During the first decade of this century, employment in motor vehicle and parts manufacturing declined both nationally and in Southeast Michigan. The decline was much more severe in Southeast Michigan, as employment fell to 71,945 by 2009, or 10.7 percent of national industry employment.

As the Detroit Three's market share stabilized, Southeast Michigan's employment in motor vehicle manufacturing slowly rebounded to 112,775 in 2019, or 11.3 percent of the national level. Motor vehicle manufacturing employment in the region then fell to 96,274 in 2020 amid the COVID-19 pandemic, but we estimate that employment picked up to 102,230 in 2021. We project that it will rebound further to 109,361 in 2022 and will return to 2019 employment levels (113,842) in 2023. The job gains in motor vehicle manufacturing are a bit stronger in Southeast Michigan than in the country as a whole, so that by 2023, the region accounts for 11.8 percent of U.S. employment in the industry. Employment in Southeast Michigan then slowly grows over the next nine years, as electric vehicle production increases while traditional internal combustion engine vehicles continue to account for the vast majority of sales. Southeast Michigan's employment in motor vehicle manufacturing peaks at 115,475 in 2032, when the area's share of national industry employment also peaks at 12.1 percent.

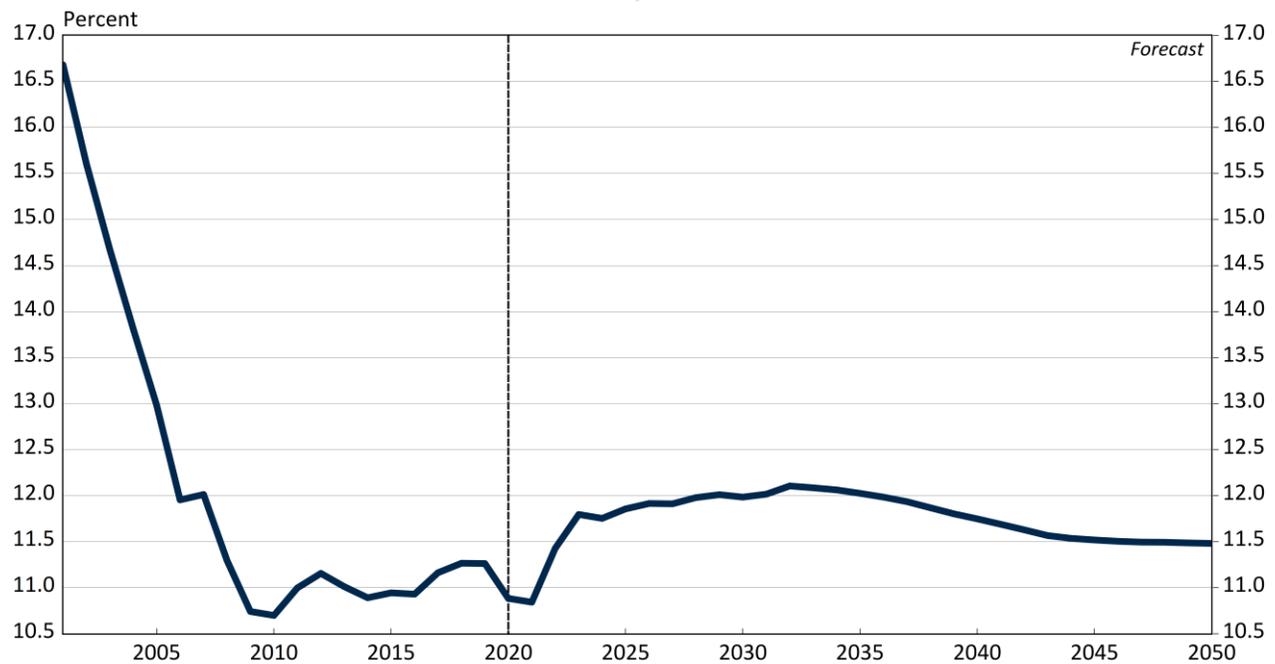
¹⁶ The value of output/shipments includes the value of purchased materials and services used in manufacturing the product, in addition to the GDP or value added needed to produce the product.

¹⁷ Average earnings per worker is the sum of wages and salaries, employer paid benefits, and proprietor's income divided by total BEA employment, which includes proprietors.

¹⁸ The manufacturing industry only includes jobs at production facilities. White-collar jobs in pre-production, including research, development, design, and other engineering functions, are classified as professional services in our data from the federal government. Likewise, workers at corporate headquarters are designated as headquarters employees, even if the employer is a manufacturing firm such as General Motors or Ford.

Figure 11

Southeast Michigan's Share of U.S. Employment in Motor Vehicle, Bodies, and Parts Manufacturing



The increasingly rapid shift from ICE vehicle sales to EV sales after 2032 leads to a decline in regional motor vehicle manufacturing employment, which ends our forecast at 93,201 in 2050. Southeast Michigan's share of national employment falls to 11.5 percent in 2050, slightly above its share in 2019 (11.3 percent). We have assumed a relatively slow shift to EVs and that the Detroit Three will maintain roughly the same market share in 2050 as we project them to have in 2026. A more rapid shift toward electric vehicles would have an adverse effect on motor vehicle manufacturing employment in Southeast Michigan, as would any loss of market share by the Detroit Three. On the other hand, if the Detroit Three were to gain market share, then Southeast Michigan's loss of motor vehicle manufacturing jobs after 2032 could slow.

Southeast Michigan Personal Income

Personal income is another important dimension of Southeast Michigan's economic profile. Inflation-adjusted (real) personal income per capita is a convenient measure of regional economic well-being. A region's standard of living can rise even in the face of sluggish employment growth if residents' incomes are rising sufficiently. Figure 12 displays real personal income per capita (measured in 2012 dollars) for Southeast Michigan and the United States. The area's income data has been adjusted to account for its slightly lower cost of living than the national average.

Figure 12

Real Personal Income per Capita, United States and Southeast Michigan

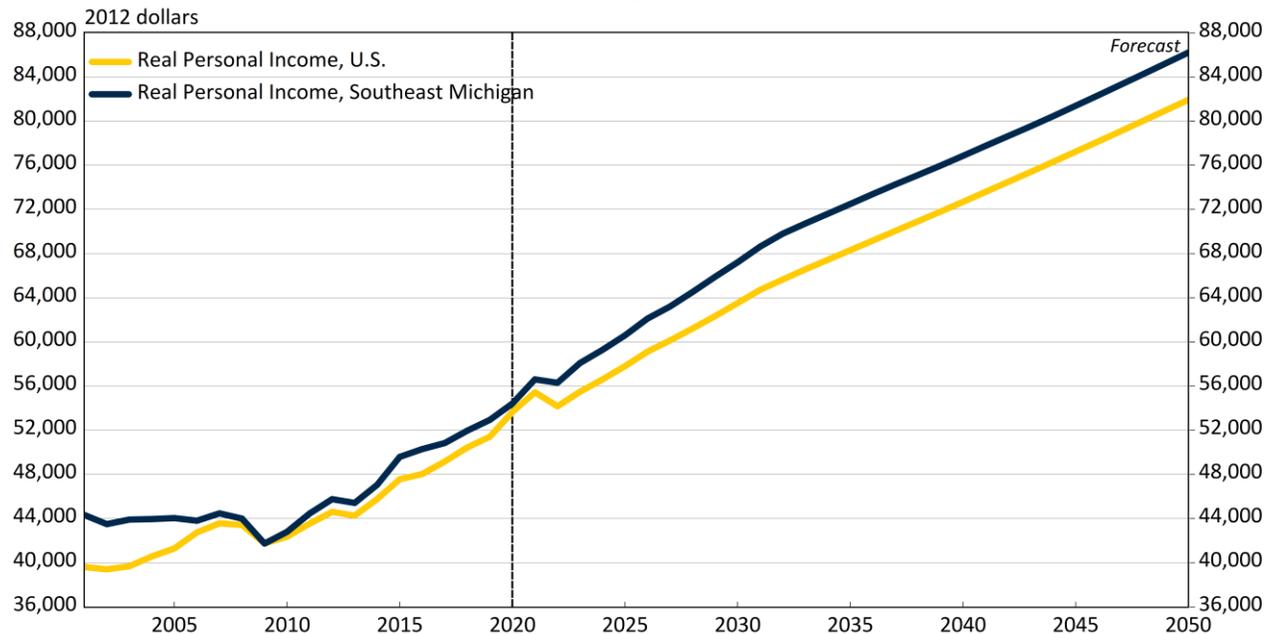


Figure 12 illustrates that Southeast Michigan’s real income has tended to be higher than the national average. In 2001, real personal income per capita in the region exceeded the US average by \$4,709, or 11.9 percent. Between 2001 and 2009, this advantage disappeared, as national real personal income per capita increased by a cumulative 5.4 percent, while in Southeast Michigan it fell by 5.8 percent.¹⁹ Between 2009 and 2016, Southeast Michigan partially recovered its lost income advantage, as regional real personal income per capita grew by 2.7 percent per year, outpacing the average pace of 2.0 percent per year nationally. After 2016, real income again grew more slowly in Southeast Michigan than the nation, so that by 2019, real personal income per capita in Southeast Michigan stood \$1,520, or 3.0 percent, above the U.S. average.

Real personal income per capita increased by 4.3 percent in the U.S. and by 2.8 percent in Southeast Michigan in 2020. That growth reflected large Federal government transfer payments, including stimulus checks and expanded unemployment insurance benefits. With further stimulus in 2021, real income grew by 3.3 percent in the U.S. and by 4.0 percent in Southeast Michigan. We are forecasting a decline in real personal income per capita in 2022 as stimulus recedes and inflation picks up.²⁰

We project that real personal income per capita will start growing again in 2023, both in Southeast Michigan and in the United States. Over the entire 2019 to 2050 period, we are forecasting that real personal income per capita will grow by 1.5 percent per year nationally and by 1.6 percent per year in Southeast Michigan. The area’s comparatively faster income growth is expected to occur in the first

¹⁹ The measure is adjusted for inflation using the Personal Consumption Expenditure Deflator for the United States and the local version of this measure for states and counties, which is embodied in the REMI model (REMI, 2021).

²⁰ In fact, inflation is currently running much hotter than we had forecast. Consequently, the decline in real personal income per capita this year will likely be larger than we had projected.

13 years of the forecast period. By 2032, Southeast Michigan's real personal income per capita is forecast to reach a level 6.3 percent above the U.S. average. Thereafter, the area's position slips a bit relative to the nation. By 2050, real personal income per capita in Southeast Michigan is expected to stand 5.2 percent above the U.S. level.

Alternative Scenarios for Southeast Michigan through 2050

We now turn to four alternative scenarios for Southeast Michigan. The four alternative scenarios were identified and structured with the assistance of SEMCOG staff. Three of these four alternative scenarios lead to a lower level of employment and population in Southeast Michigan by 2050, and one leads to a higher level of employment and population. That distribution corresponds to our general assessment of the region's long-run outlook relative to our baseline forecast—there is more downside risk than upside opportunity. Still, we believe that our baseline forecast remains the most likely outcome.

We did not change our national forecast in any of the four scenarios; however, we did introduce the change in assumptions in all counties in Michigan, including those outside Southeast Michigan, so that we could capture the feedback effect from the outstate areas on the region. We introduced the changes to the baseline assumption in all four alternative scenarios starting in 2024, which is when we believe that the state will have fully recovered from the economic and demographic turmoil caused by the COVID-19 pandemic and returned to the pre-pandemic growth path.

The four alternative scenarios are:

1. A reduction of international migration to Michigan by about a quarter.
2. Increased growth in professional and technical services industry employment in Michigan to match the U.S. growth rate between 2019 and 2050.
3. Quicker adoption of electric vehicles, with Michigan retaining the same share of motor vehicle manufacturing employment as under the baseline forecast.
4. Quicker adoption of electric vehicles, with Michigan losing motor vehicle manufacturing employment share compared to the baseline forecast.

We now summarize the aggregate difference between these alternative scenarios and the baseline forecast.²¹

Reduction in International Migration to Michigan Scenario

In this alternative scenario, we assume that annual net international migration to Southeast Michigan from 2024 to 2050 averages roughly the pace the region experienced from 2001 to 2010. In the baseline forecast, net international migration is forecast to average 22,425 per year to Michigan and 14,359 per year to Southeast Michigan from 2024 to 2050. In this alternative scenario, international migration is reduced by about 24 percent, to 16,970 per year in Michigan and 10,877 per year in Southeast Michigan. Figure 13 illustrates domestic and international migration to Southeast Michigan in our baseline forecast and alternative scenario.

Our forecast procedure examines how Southeast Michigan's demographic and economic outcomes respond to these changing assumptions. No other variables or inputs were directly changed, and all

²¹ We have provided SEMCOG staff with much more detail on the alternative scenarios.

of the responses to this change in international migration were generated endogenously by the model. Under this alternative scenario, Southeast Michigan loses 3,442 international migrants in 2024 compared with the baseline forecast. Our modelling predicts that this decline will be partly offset by a reduction in net domestic outmigration of 493 people. The total population loss in Southeast Michigan, including the endogenous change in natural population growth (fewer births), is projected to be 2,992 in 2024.

Figure 13
The Effect of Reduced International Migration on Domestic Migration in Southeast Michigan

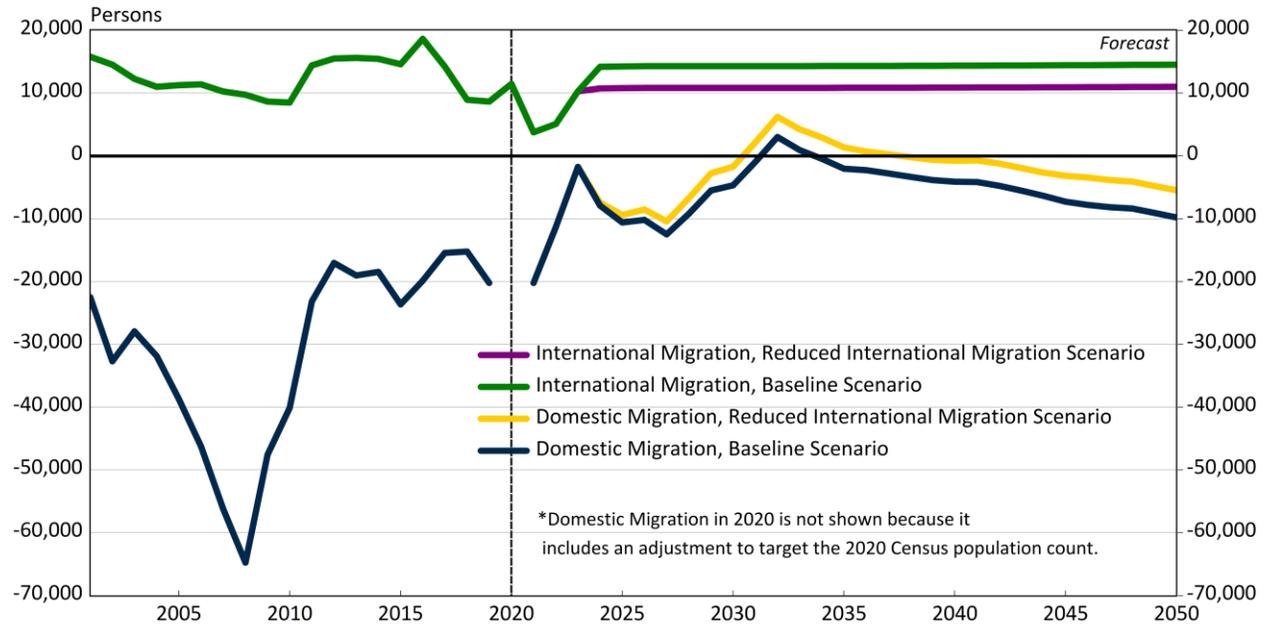
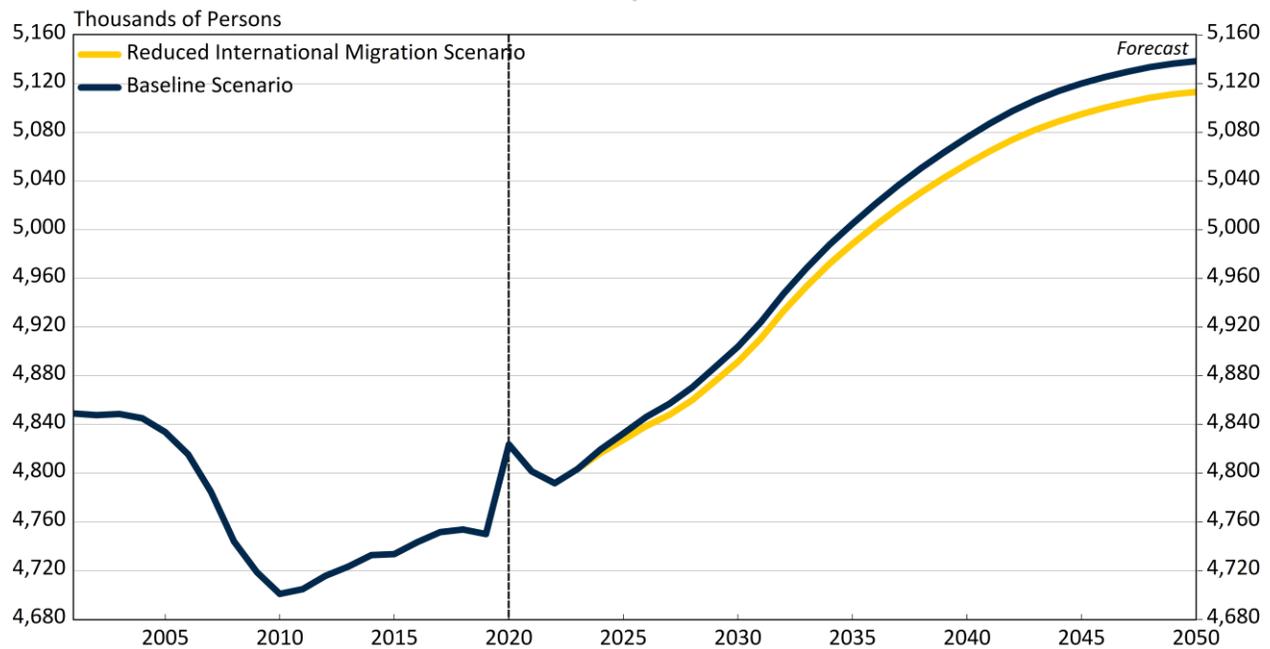


Figure 14 illustrates the path of Southeast Michigan’s population through 2050 under our baseline forecast and our reduced international migration scenario. The partially offsetting change in net domestic migration carries over to the rest of the forecast period. From 2024 to 2050, the cumulative reduction in the number of net international migrants to Southeast Michigan totals 94,027. However, net domestic outmigration declines in response, so that the region’s net population loss is limited to 25,274 residents by 2050.

Figure 14

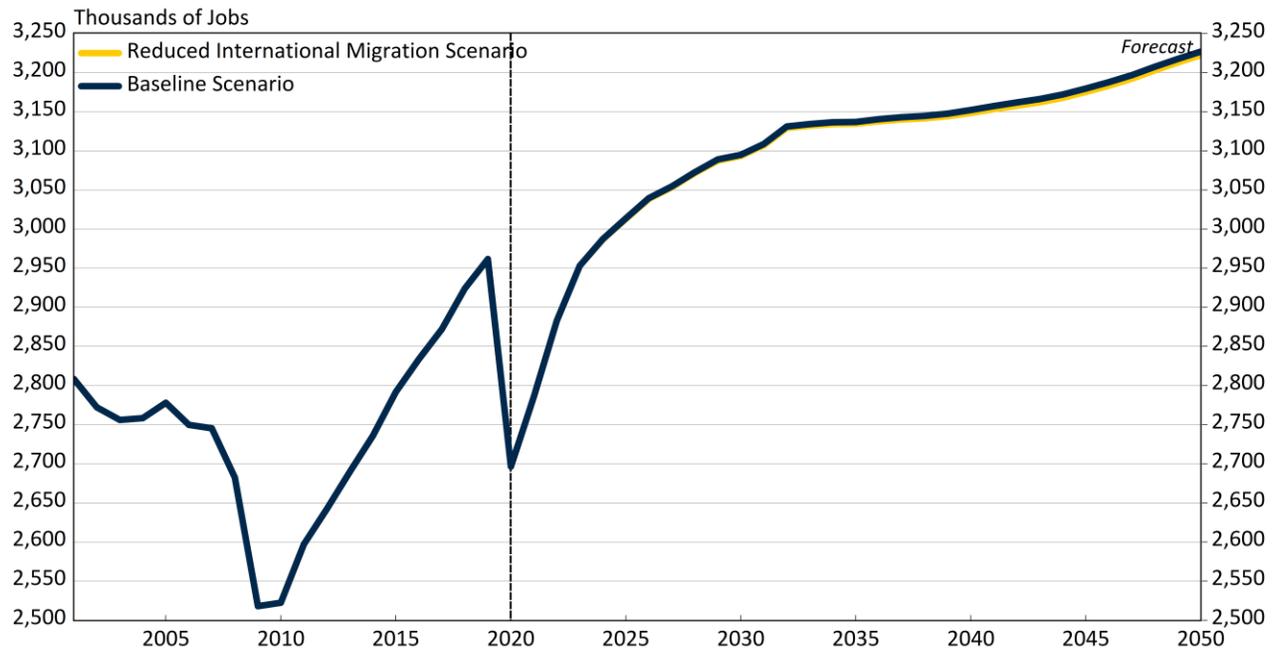
The Effect of Reduced International Migration on Total Population in Southeast Michigan



The offsetting domestic migration response also limits the reduction in international migration's effect on regional employment. Nonetheless, the reduction in international migration results in fewer jobs in our community as the decline in the labor force results in an increase in relative wages. Southeast Michigan loses 466 jobs relative to the baseline forecast in 2024. Figure 15 shows that job losses increase over time, reaching a total of 4,585 by 2050. These employment effects are relatively small. Note that if we had alternatively considered a reduction in international migration nationwide, rather than only in Michigan, the losses in population and employment in Southeast Michigan would have been larger, as the endogenous change in net domestic migration would have been muted.

Figure 15

The Effect of Reduced International Migration on Employment in Southeast Michigan

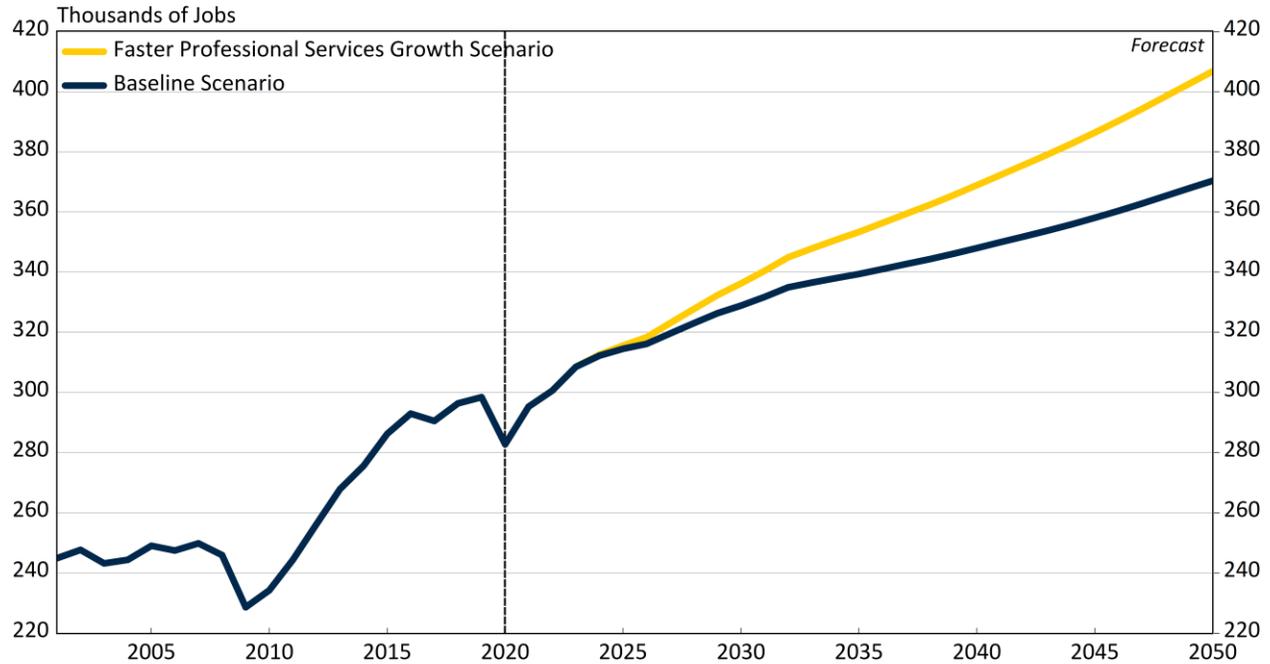


Increase in Jobs in Professional and Technical Services in Michigan Scenario

In our baseline forecast, employment in professional and technical services is forecast to grow by an average rate of 0.65 percent per year in Michigan and 0.70 percent per year in Southeast Michigan between 2019 and 2050. Nationally, jobs in this industry are forecast to grow by an average rate of 0.95 percent per year over the same period. In this alternative scenario, we increased growth in professional services proportionally in all counties in Michigan so that statewide growth of professional services jobs matched U.S. growth between 2019 and 2050. This alternative forecast scenario entailed increasing the number of jobs in professional and technical services by 50,001 in Michigan and 36,387 in Southeast Michigan region by 2050. Figure 16 displays the paths of regional employment in professional and technical services in the baseline forecast and alternative scenario.

Figure 16

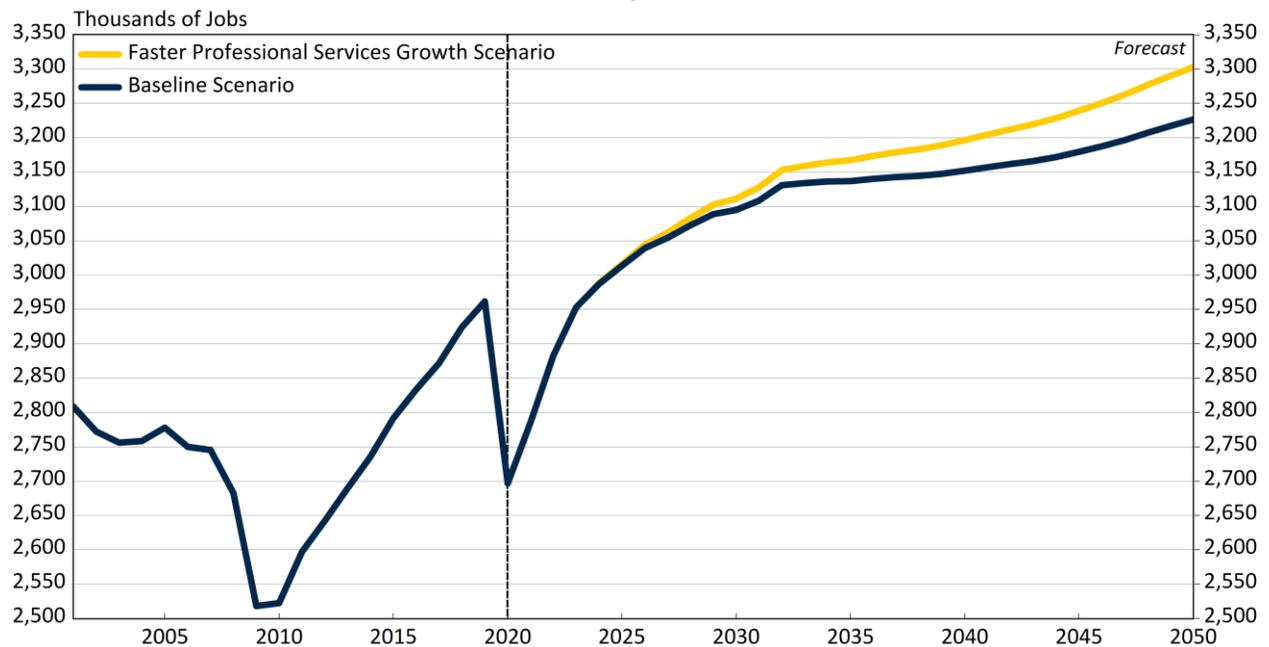
Accelerated Growth of Professional Services Jobs in Southeast Michigan



Because of “spin-off effects,” Southeast Michigan’s total job count in this alternative scenario increases by more than the increase in professional services employment. Figure 17 shows the paths of total regional employment under the two scenarios. Total employment in Southeast Michigan increases by 76,323 jobs relative to the baseline forecast by 2050, or 2.4 percent. The percentage increase in jobs in professional and technical services is nonetheless larger than the percentage increase in total jobs. Therefore, Southeast Michigan’s location quotient for the professional and technical services industry in 2050 rises from 1.36 in the baseline forecast to 1.46 under this alternative scenario.

Figure 17

The Effect of Accelerated Growth of Professional Services Jobs on Total Employment in Southeast Michigan

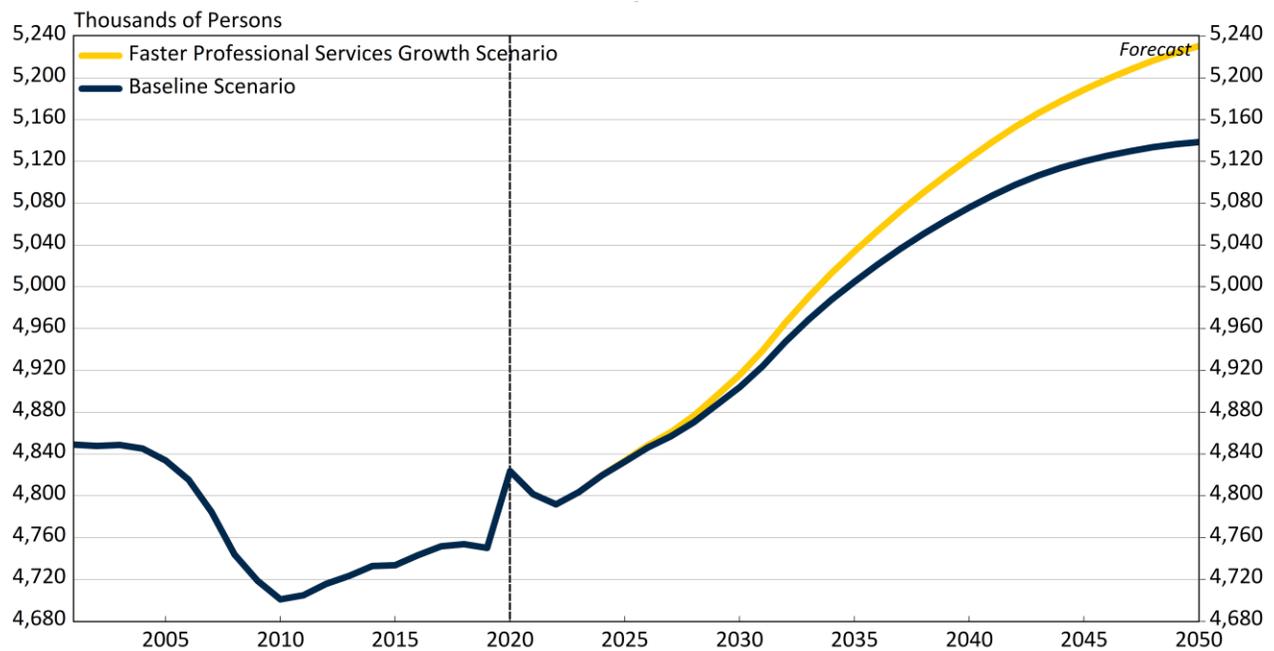


In this scenario, Southeast Michigan is among the winners in the race for additional knowledge economy jobs. The region has been slowly losing this race over recent history, a trend that is expected to continue in the baseline forecast. In 2001, the location quotient for the professional and technical services industry in Southeast Michigan was 1.41. By 2019 it had edged down to 1.39, and, as noted, it is forecast to slip to 1.36 by 2050 in the baseline forecast.

The additional job growth in Southeast Michigan between 2024 and 2050 helps to stem the net out-migration of domestic residents, thus causing the region's population to grow by an additional 92,042 residents, or 1.8, percent by 2050. Figure 18 displays the paths of regional population under the alternative scenario relative to the baseline forecast.

Figure 18

The Effect of Accelerated Growth of Professional Services Jobs on Total Population in Southeast Michigan



Faster Adoption of Electric Vehicles Scenario

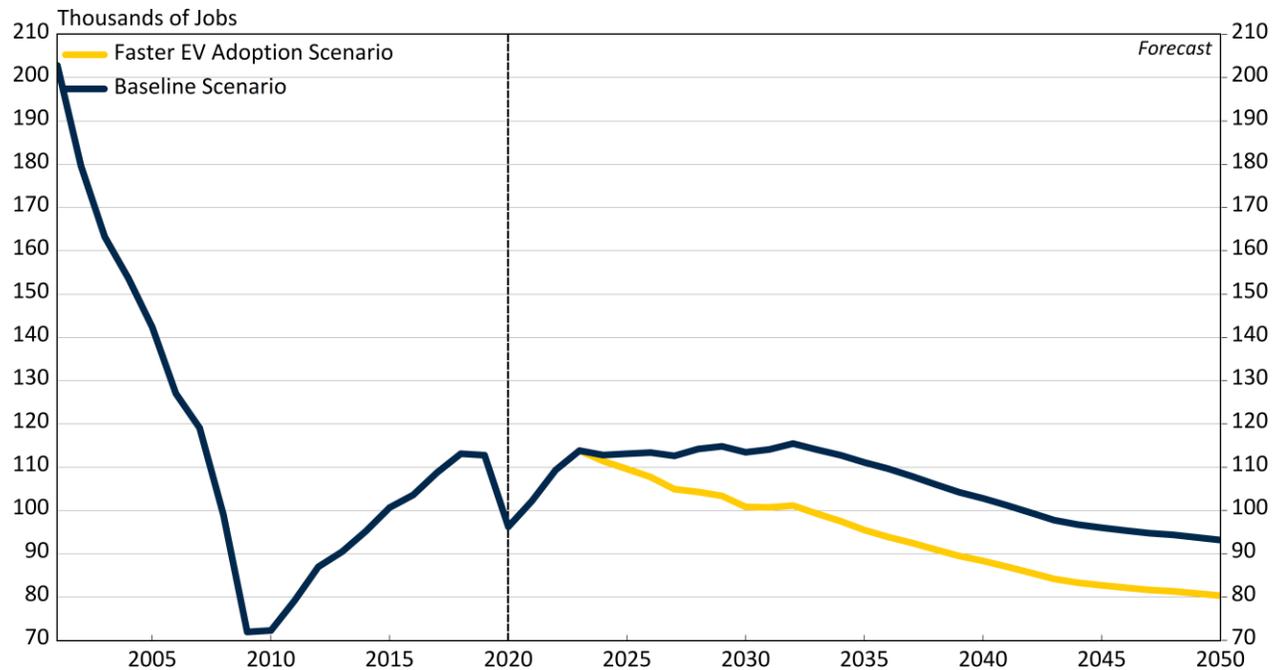
Our baseline scenario anticipates that it will take until roughly 2050 for all new vehicle sales in the United States to switch over to fully electric vehicles. In this alternative scenario, we assume that the shift occurs more quickly, so that all new vehicle sales are fully electric vehicles by about 2040. Despite that rapid transition, we assume that Michigan is able to maintain the same share of motor vehicle manufacturing employment as in our baseline forecast.²²

Under this scenario, employment in motor vehicles, bodies, and parts manufacturing in the U.S. would decline by 30 percent in 2050 relative to 2019. In this scenario, total U.S. industry employment comes to 700,840 jobs in 2050, versus 811,665 jobs in the baseline forecast. Employment in Michigan in motor vehicle, bodies, and parts manufacturing would decline by a similar proportion, from 148,952 jobs in 2050 in the baseline forecast to 129,591 in this scenario. In Southeast Michigan, year-2050 employment in motor vehicles, bodies, and parts manufacturing would decline from 93,201 jobs in the baseline forecast to 80,338 in this alternative scenario, as shown in Figure 19.

²² We examine how a change in the Detroit Three’s share of the total market would affect Southeast Michigan’s long-run trajectory in the fourth alternative scenario that we consider.

Figure 19

The Effect of Faster Adoption of Electric Vehicles on Employment in Motor Vehicles, Bodies, and Parts Manufacturing in Southeast Michigan if Michigan Maintains its Market Share



Because each job in the regional motor vehicle manufacturing industry supports several additional jobs in the region, the loss of the additional 12,863 motor vehicle manufacturing jobs locally costs Southeast Michigan a total of 72,786 jobs (2.3 percent) in 2050, as shown in Figure 20. In fact, the job loss is dramatic throughout the forecast period, with 64,328 lost jobs by the year 2030.

The loss of jobs results in an increase of domestic out-migration from the region. Consequently, under this faster electric vehicle adoption scenario, the population in Southeast Michigan would be 113,000 residents (2.2 percent) smaller in 2050 than under the baseline scenario, as shown in Figure 21.

Figure 20

The Effect of Faster Adoption of Electric Vehicles on Total Employment in Southeast Michigan when Michigan Maintains its Market Share

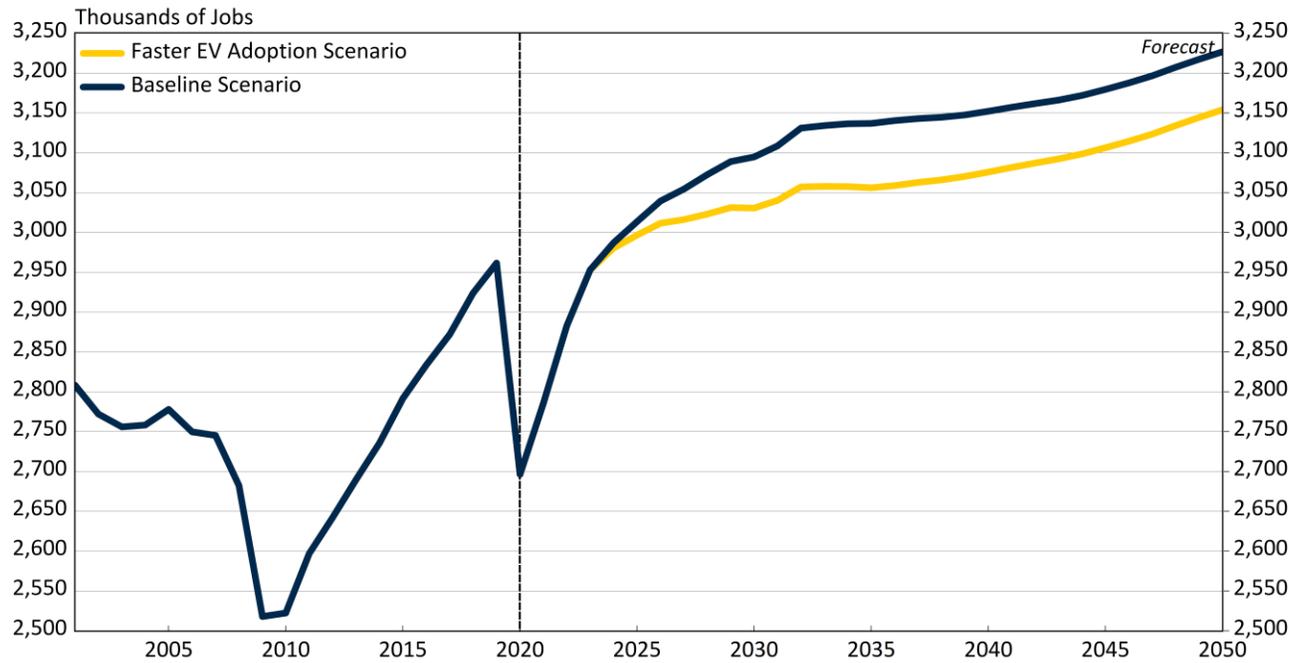
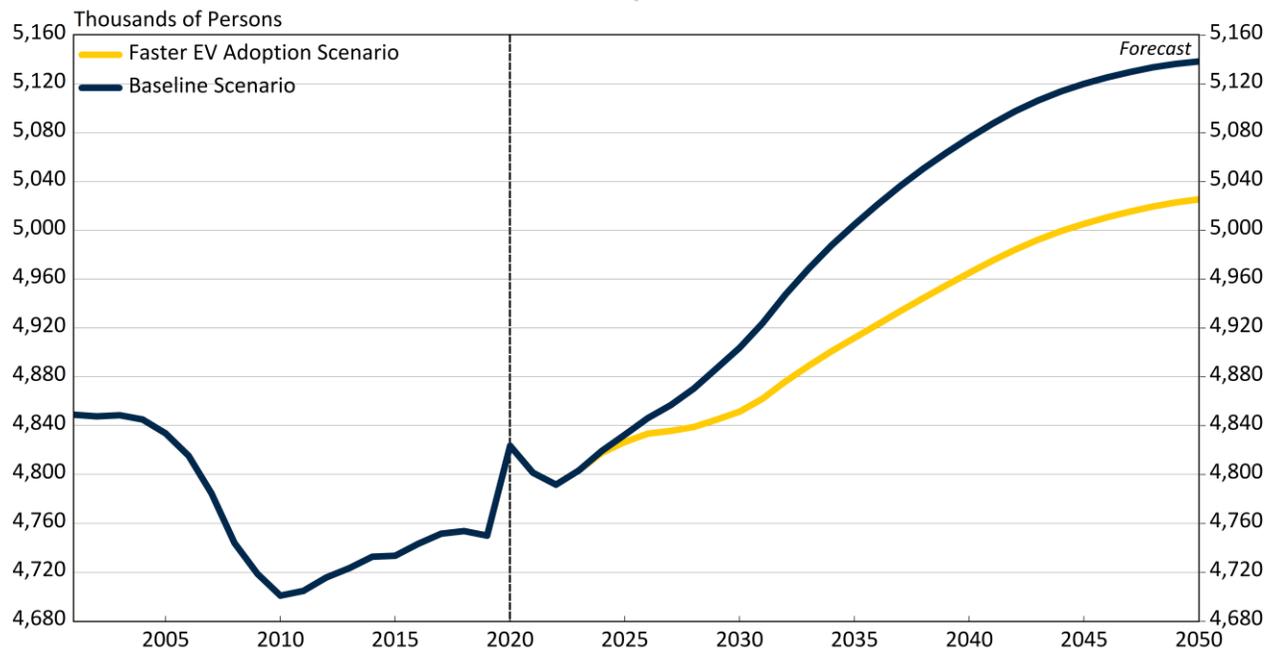


Figure 21

The Effect of Faster Adoption of Electric Vehicles on Total Population in Southeast Michigan when Michigan Maintains its Market Share



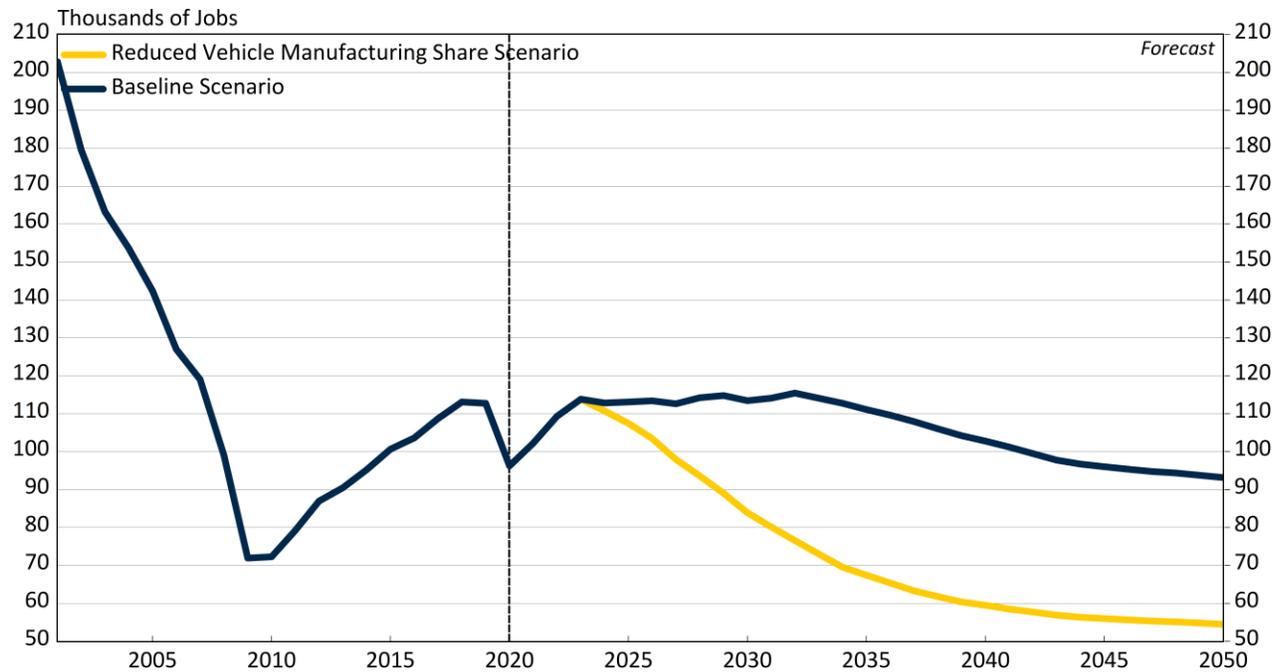
Faster Adoption of Electric Vehicles and Michigan Losses Share Scenario

Our final alternative scenario builds upon the previous one. We continue to assume that the shift to electric vehicles occurs more quickly with solely fully electric vehicle sales by about 2040. As in the previous scenario, national employment in motor vehicles, bodies, and parts manufacturing declines by 30 percent in 2050 relative to 2019. In this scenario, however, we also assume that Michigan is relatively unsuccessful in making the transition to electric vehicles.

Specifically, we assume that Michigan’s share of U.S. motor vehicle, bodies, and parts manufacturing declines by about the same amount as it lost in the first decade of this century. Michigan’s share of national industry employment in this scenario falls from 18.1 percent in 2019 to 12.5 percent in 2050. In this scenario, Southeast Michigan’s share of U.S. motor vehicle, bodies, and parts manufacturing falls from 11.3 percent in 2019 to 7.8 percent in 2050. Michigan, and especially Southeast Michigan, would remain an important part of motor vehicle manufacturing industry, but a significantly smaller one.

Figure 22

The Effect of Faster Adoption of Electric Vehicles on Employment in Motor Vehicles, Bodies, and Parts Manufacturing in Southeast Michigan when Michigan Also Loses Market Share



Employment in motor vehicle, bodies, and parts manufacturing in Southeast Michigan is projected to decline from 112,775 jobs in 2019 to 93,201 by 2050 in the baseline scenario and to 54,496 by 2050 in this final scenario, which features a substantial loss of market share by the Detroit Three in addition to a more rapid transition to electric vehicles. Figure 22 displays the paths for motor vehicle manufacturing employment in the region through 2050 under the baseline forecast and this final alternative scenario.

The loss of 38,705 jobs in motor vehicle manufacturing in Southeast Michigan in this scenario relative to the baseline forecast produces a total employment decline of 215,908 (6.7 percent) by 2050, as shown in Figure 23. Under this scenario, Southeast Michigan would lose jobs between 2026 and 2035, as electric vehicle sales accelerate at the expense of local jobs. Employment would begin to grow slowly again in 2036, but by 2050, total employment in the region would only be 1.7 percent higher than it was in 2019, thus wiping out most of the employment growth anticipated in the baseline forecast.

Figure 23

The Effect of Faster Adoption of Electric Vehicles on Total Employment in Southeast Michigan when Michigan Also Loses Market Share

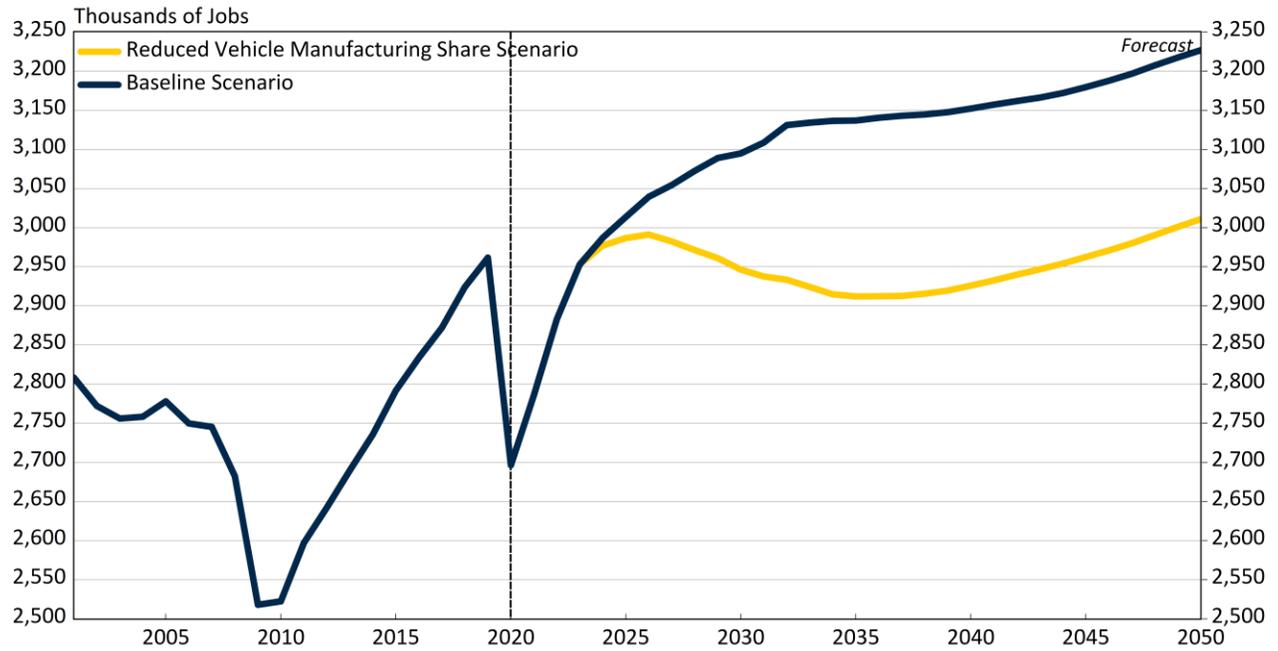
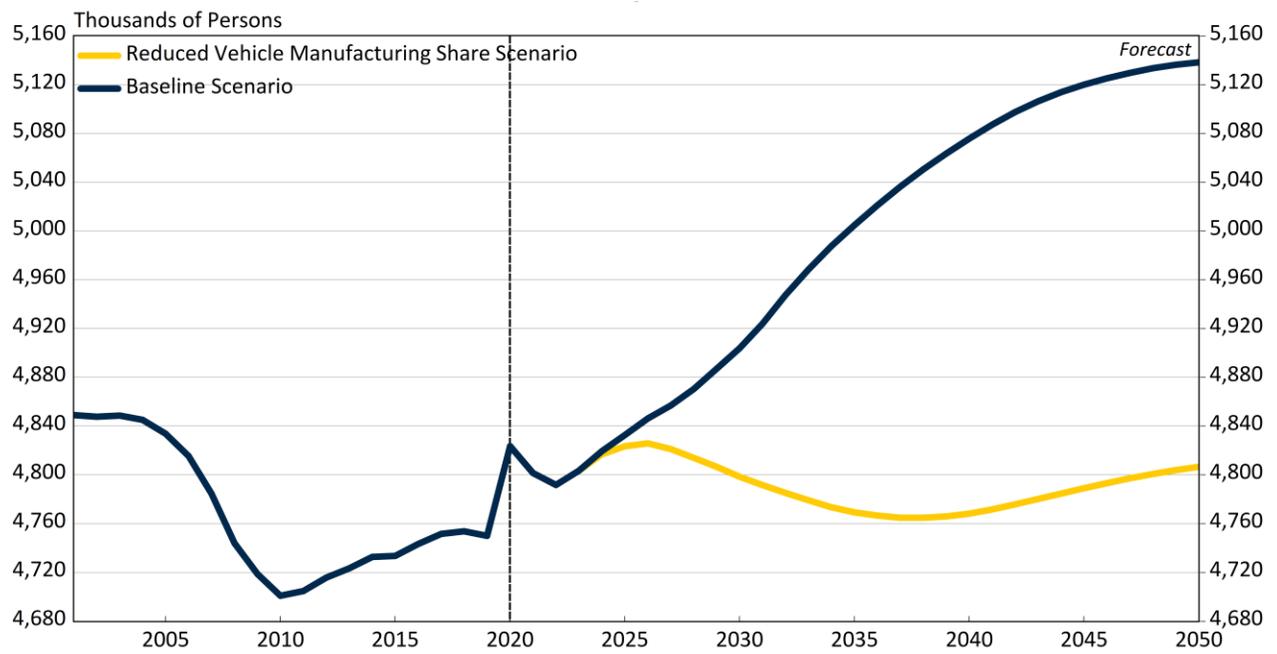


Figure 24 shows that in this alternative scenario, Southeast Michigan’s population would be 331,781 residents (6.5 percent) smaller in 2050 than is forecast in the baseline scenario. In fact, in this downbeat scenario, the region’s population would be smaller in 2050 than it was in 2020.

Figure 24

The Effect of Faster Adoption of Electric Vehicles on Total Population in Southeast Michigan when Michigan Also Loses Market Share



Conclusion

When we last produced our long-range demographic and economic forecast for Southeast Michigan in 2017, we could not have predicted the turbulence of the COVID-19 pandemic, recession, and subsequent recovery. While the recovery is ongoing in our communities, the major near-term risk has shifted from the pandemic itself to high inflation and the possibility of a new recession as the Federal Reserve tries to cool off the economy. Looking beyond the current prospects for the business cycle, though, the longer-term challenges facing Southeast Michigan's are similar in many ways to the challenges confronting us in 2017.

Despite our projection that Southeast Michigan's population will continue to grow over the next three decades, growth is expected to be modest and to lag the national pace by a significant margin. What is more, we expect regional population growth to slow substantially over the course of our forecast due to a gradual decline in natural population growth. Deaths begin to exceed births in Southeast Michigan in 2044, and the region's natural population growth remains negative through 2050. Although we expect net domestic migration of the working age population to boost the region's population during the middle years of our forecast, that source of growth also subsides in later years as workers leave the region for opportunities elsewhere. That means that much of the population growth we can achieve in the long run will be determined by the number of international migrants we can attract. If international migration is lower than we anticipate, as considered in our alternative scenarios, population growth would be even slower than we have projected.

Demographic fundamentals represent a speed limit for the region's economic growth. Although we expect employment in Southeast Michigan to increase over the forecast, the region's share of total U.S. employment will continue to decline. Labor shortages will continue to pose a challenge in the near term as the region's population aged 25 to 64 is expected to decline by 72,000 residents between 2020 and 2029. That means that employers are likely to face a difficult time finding workers over the remaining part of the decade. On the bright side, we project Southeast Michigan's real personal income per capita to increase by an average of 1.6 percent per year between 2019 and 2050, a bit faster than in the nation overall, due to the tight labor market that we anticipate.

We expect Southeast Michigan's motor vehicle manufacturing sector to be largely successful in making the transition to electric vehicle manufacturing, thereby maintaining its share of U.S. employment. Still, in level terms, we forecast Michigan's employment in motor vehicle manufacturing to decline by 2050 due to EV's lower labor requirements. How soon and how much will be determined by how quickly the industry shifts to electric vehicles and how successfully the Detroit Three automakers make the switch. If the transition to electric vehicles happens more quickly than we project, the region can expect much slower employment and population growth. If Southeast Michigan also loses market share to other states, the region could struggle to achieve any employment or population growth at all through 2050.

Outside the auto industry, we expect the region's economy to diversify moderately as jobs in the knowledge economy expand almost twice as quickly as total employment between 2019 and 2050. Unfortunately, the region still lags the nation in terms of growth in this sector. If, on the other hand, Southeast Michigan, can keep pace with national growth in the professional and technical services sector, the region could draw in workers and experience stronger growth than we have forecast both in terms of population and employment. Our focus in Southeast Michigan is often on preserving our storied history in the auto industry, and for good reason, but the region has much to gain if it can simultaneously establish itself as a hub of the knowledge economy.

While our long-term demographic and economic outlook for Southeast Michigan is not as sunny as we would hope, it is important to be honest about the challenges facing our communities. The combination of demographic pressures from the dramatic aging of our population with economic pressures from the transition to electric vehicles presents serious hurdles for both the state and region. Maintaining international migration and our share of the U.S. auto manufacturing market are of first-order importance, but so are efforts to expand the local knowledge economy while also retaining and investing in the workers of the future.

References

- Burton, Jacob T., Ehrlich, Gabriel M., Grimes, Donald R., Henson, Kyle W., Manaenkov, Daniil, and McWilliams, Michael R. (2022a). "The Economic and Demographic Outlook for Michigan Through 2050," Research Seminar in Quantitative Economics, University of Michigan. Release Date: July 29, 2022.
- Burton, Jacob T., Ehrlich, Gabriel M., Grimes, Donald R., and McWilliams, Michael R. (2022b). "The Michigan Economic Outlook," Research Seminar in Quantitative Economics, University of Michigan. Release Date: May 27, 2022.
- REMI (2021). TranSight Model 4.5. Retrieved from <https://www.remi.com/model/trans-sight/>
- U.S. Bureau of Economic Analysis (2018). "Employment," Retrieved from <https://www.bea.gov/resources/learning-center/what-to-know-employment>
- U.S. Census Bureau (2021). "Annual Estimates of the Resident Population for the United States, Regions, States, District of Columbia, and Puerto Rico: April 1, 2020 to July 1, 2021 (NST-EST2021-POP)," Population Division. Release Date: December 2021.
- U.S. Census Bureau (2022a). "Annual Estimates of the Resident Population for Selected Age Groups by Sex for Michigan: April 1, 2020 to July 1, 2021 (SC-EST2021-AGESEX-26)," Population Division. Release Date: June 2022.
- U.S. Census Bureau (2022b). "Estimates of the Components of Resident Population Change by Race and Hispanic Origin for the United States: April 1, 2020 to July 1, 2021 (NC-EST2021-COMP)," Population Division. Release Date: June 2022

Appendix

Table 2

Baseline Population Forecast by Age Group, Southeast Michigan

	2010	2020	2030	2040	2050	Change, 2020-2050	Percent Change, 2020-2050
Total Population	4,700,951	4,823,689	4,904,007	5,075,897	5,138,535	314,846	7%
Under 18	1,125,558	1,035,976	974,654	992,196	978,437	-57,540	-6%
18 and over	3,575,393	3,787,713	3,929,352	4,083,701	4,160,099	372,386	10%

Table 2

Baseline Employment Forecast by Industry Sector, Southeast Michigan

	2010	2019	2030	2040	2050	Change, 2019-2050	Percent Change, 2019-2050
Total Employment	2,522,496	2,961,769	3,095,012	3,152,120	3,226,962	265,193	9%
Farm	6,648	7,129	7,009	6,961	6,944	-185	-3%
Forestry, fishing, & hunting	1,442	2,300	2,025	1,989	1,939	-361	-16%
Mining	5,849	2,824	2,823	2,524	2,273	-551	-19%
Utilities	8,249	10,047	9,439	9,209	8,884	-1,163	-12%
Construction	95,476	127,201	152,524	154,606	155,770	28,569	22%
Manufacturing	204,633	284,767	290,603	271,526	260,011	-24,756	-9%
Wholesale trade	91,117	100,196	105,456	108,703	108,919	8,723	9%
Retail trade	251,950	271,930	241,713	217,749	204,589	-67,341	-25%
Transportation & Warehousing	68,137	125,209	160,510	164,208	168,304	43,095	34%
Information	41,399	40,634	41,105	40,191	40,997	363	1%
Finance & Insurance	117,791	146,791	160,577	165,691	171,487	24,696	17%
Real estate, Rental & Leasing	122,041	150,744	149,733	153,994	156,953	6,209	4%
Professional & Technical Services	234,273	298,491	328,933	348,026	370,429	71,938	24%
Management of Companies	36,176	56,911	66,889	69,907	74,354	17,443	31%
Administrative, Support, & Waste Services	184,473	193,515	198,868	213,614	228,585	35,070	18%
Educational services (private)	51,542	54,293	54,972	57,713	59,552	5,259	10%
Health care & Social Assistance	332,665	363,627	381,858	411,459	446,460	82,833	23%
Arts, Entertainment, & Recreation	53,694	60,648	60,990	61,965	62,347	1,699	3%
Accommodation & Food Services	169,338	208,535	216,750	220,248	221,379	12,844	6%
Other Services	146,189	170,612	170,944	175,124	178,151	7,539	4%
Federal Civilian	33,974	32,182	33,220	33,895	34,523	2,341	7%
Federal Military	9,924	8,469	7,846	7,546	7,274	-1,195	-14%
State Government	91,757	99,539	101,322	104,340	105,943	6,404	6%
Local Government	163,759	145,175	148,904	150,932	150,894	5,719	4%

**SEMCOG Officers
2022-2023**

Chris Barnett
Chairperson
*Supervisor,
Orion Township*

Pauline Repp
First Vice Chair
*Mayor,
Port Huron*

Mandy Grewal
Vice Chairperson
*Supervisor,
Pittsfield Township*

Gwen Markham
Vice Chairperson
*Commissioner,
Oakland County*

Eric Sabree
Vice Chairperson
*Treasurer,
Wayne County*

Donald Hubler
Immediate Past Chair
*Trustee,
Macomb Intermediate
School District*

Amy O'Leary
Executive Director