

THE ECONOMIC OUTLOOK FOR LIVINGSTON COUNTY IN 2021–2023

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Introduction: Background on Livingston County's Economy

We are pleased to present RSQE's first-ever forecast of the Livingston County economy in this report. In what follows, we will discuss the county economy's historical trends along with our forecast for various economic indicators, covering the years 2021–2023. Our forecast includes projections of employment levels by sector, the county's unemployment rate, local inflation, as well as real wages. This year's report, of course, also must include an assessment of the pandemic-induced recession of the past year, its effects on Livingston County's economy, and its implications for the recovery moving forward. Before we get to those topics, however, we would like to begin this inaugural report with a broader discussion of Livingston County's economic background and significance.

In 2019, the estimated population of Livingston County was 191,995 people.¹ While not as populous as some of its neighbors in Southeast Michigan, Livingston County occupies an opportune space between Lansing, Flint, Ann Arbor, and Detroit, giving its residents access to a range of professional opportunities in the region. Data published by the Southeast Michigan Council of Governments (SEMCOG) show that 56 percent of Livingston's employed population worked outside of the county in 2016, the largest percentage of the seven-county SEMCOG region.² The county's amenities and proximity to the region's metropolitan areas make it a desirable place to live. The median value of owner-occupied units in Livingston County in 2019 was \$274,200, well above the median of \$169,600 in Michigan overall and the second-highest level in the state.³ Furthermore, Livingston County had the highest median household income in

¹ United States Census Bureau, Population Estimates Program, accessed at <https://data.census.gov>.

² See the "Community Profiles" data at <https://semcog.org/community-profiles>

³ American Community Survey, 1-Year Estimates, Table DP04.

Michigan in 2019 at \$86,512, compared with \$59,584 across the state and \$65,712 in the United States as a whole.⁴

The above-average wealth of Livingston is partly explained by the county's high educational attainment levels. As of 2019, 36 percent of Livingston County residents 25 and older had at least a bachelor's degree, compared with 30 percent statewide.⁵ Livingston County residents also tend to be older and less racially and ethnically diverse than the state average. The median age in Livingston County was 43.7 years in 2019 compared with 39.8 years across Michigan, and while 21.8 percent of Michigan residents described themselves as non-white or multi-racial in 2019, that figure was only 3.5 percent in Livingston County.⁶

Livingston County contained 63,450 payroll jobs in 2019, roughly 1.5 percent of the statewide total.⁷ That proportion was lower than Livingston's 1.9 percent share of Michigan's population, which is not surprising given the share of residents commuting outside of the county. Compared with the state, Livingston County has a greater share of jobs in goods-producing sectors, particularly construction and transportation equipment manufacturing, a lesser share in government, and an equal share in service-providing sectors. Within the service sector, the county has relatively more jobs in retail trade as well as leisure and hospitality, but it has relatively fewer jobs in business services and education and health services.

Partly due to these differences, Livingston County's average wage across all payroll jobs was \$45,812 in 2019, significantly less than the state average of \$54,972. Livingston's average wage in 2019 ranked 23rd across all counties in the state and was the lowest in the SEMCOG

⁴ American Community Survey, 1-Year Estimates, Table S1901.

⁵ American Community Survey, 1-Year Estimates, Table S1501.

⁶ American Community Survey, 1-Year Estimates, Table DP05.

⁷ U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages.

region, a stark contrast to the state-leading median household incomes found within the county.⁸ Those differences suggest that many of Livingston's highest earners make their careers outside of the county borders.

Still, Livingston County managed an average unemployment rate of only 3.3 percent in 2019, compared with 4.1 percent in the state as a whole and 3.7 percent in the nation.⁹ Furthermore, the labor force participation rate in 2019 was 3 percentage points higher in Livingston County than the state overall (64.9 percent vs 61.9 percent).¹⁰ Livingston's relatively tight labor market in 2019 was, in part, a result of its exceptional payroll job growth over the previous decade. Between 2009 and 2019, Livingston's payroll job count expanded by 51.6 percent, compared with 14.5 percent for Michigan as a whole. Growth was especially pronounced in Livingston's goods-producing sectors, which swelled by 73.9 percent between 2009 and 2019, but the private service-providing sectors also experienced rapid growth of 52 percent over the same period.

Livingston's excellent record during the expansion of the 2010's provides a refreshing counter-example to the more modest growth experienced by most regions during that period. With this background, we now turn to a discussion of shared prosperity in Livingston County, the current state of its economy, the effects of the pandemic over the past year, and the recovery currently underway.

Shared Prosperity in Livingston County

Figure 1 shows average household income for residents of Livingston County compared with residents in Michigan for the years 2012–2019. The average income measure shown is

⁸ U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages.

⁹ U.S. Bureau of Labor Statistics, Local Area Unemployment Statistics.

¹⁰ American Community Survey, 1-Year Estimates, Table S2301. Typically, we use the BLS Local Area Unemployment Statistics for the state estimate, but for consistency in this case, we compare Livingston with U.S. and Michigan using only data from the ACS.

adjusted for household size and differences in cost of living in various parts of the state as described in our report for the Southeast Michigan Council of Governments, [Evaluating Shared Prosperity in Southeast Michigan, 2012–2018](#).¹¹ All income figures are adjusted to be expressed in 2019 inflation-adjusted dollars.

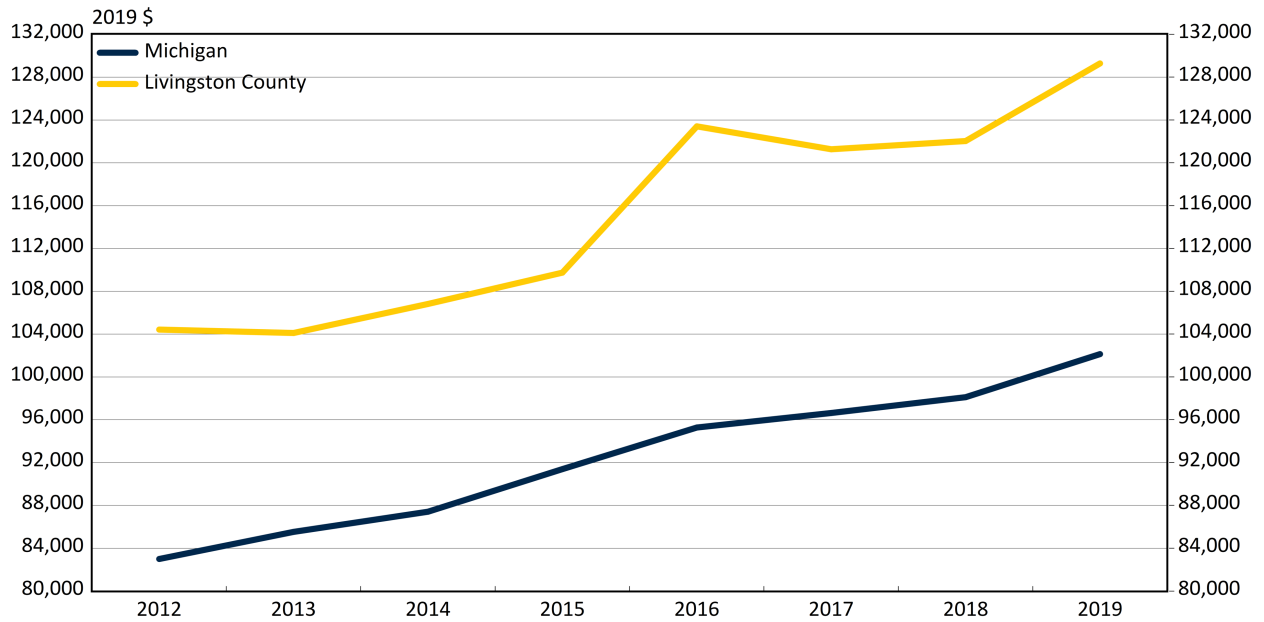
Livingston County’s affluence relative to Michigan overall is readily apparent. The average adjusted income in Livingston County is significantly higher than in the rest of the state. Between 2012 and 2019, the average annual, inflation adjusted, three-person equivalent household income grew from \$104,000 to \$129,000, an increase of nearly one-quarter. The average annual, inflation adjusted, three-person equivalent household income of Michigan residents increased at a similar rate over that time, from \$83,000 to \$102,000.

The prosperity of Livingston County is also apparent in the relatively low proportion of residents living in lower-income households. Table 1 shows the proportion of residents living in lower-, middle-, and upper-income households for Livingston County and Michigan broken down by race and ethnicity.¹² In 2019, 13 percent of all Livingston County residents lived in lower-income households which is significantly lower than the 28 percent of Michigan residents living in lower-income households.

¹¹ We made two modifications to our methodology from the methodology used in the Evaluating Shared Prosperity report. First, to adjust for cost of living, we use the BEA’s Regional Price Parity index but do not adjust for differences in PUMA-level housing costs within the same Metropolitan Statistical Area (MSA). Second, we classify lower-, middle-, and upper- income households based on the national median cost-of-living and household-size adjusted income rather than the national median income of three person households.

¹² We define the threshold between lower- and middle- income households to be two-thirds the median three-person equivalent household income in the United States, adjusted for local cost of living and household-size. We define the threshold between middle- and upper- income households to be twice the adjusted national median income. Those thresholds were \$51,000 and \$153,000 for a three-person household in 2019. The thresholds were \$41,600 and \$124,900 for a two-person household and \$29,400 and \$88,300 for a single-person household. Our data do not allow us to precisely estimate the share of lower-, middle-, and upper- income residents for other racial or ethnic groups besides non-Hispanic Whites due to limited sample sizes.

Figure 1
Average Three-Person Household Income in Livingston County and Michigan



Although economic disparities exist across racial and ethnic groups within Livingston county, those disparities are smaller than in Michigan overall. While 13 percent of non-Hispanic Whites live in lower-income households in Livingston County, 21 percent of non-White or White Hispanic residents live in lower-income households. This disparity is much wider statewide, where a full 42 percent of non-White or White Hispanic residents live in lower-income households. Thus, although economic disparities exist within Livingston County, the relatively high income in the county is reflected in fewer lower-income residents compared with the state across demographic groups.

Table 1
Population in Lower-, Middle-, and Upper-Income Households by Race and Ethnicity,
Livingston County and Michigan, 2019

	Lower-Income Population	Middle-Income Population	Upper-Income Population
Michigan			
All races/ethnicities	28%	53%	19%
Non-Hispanic White	23%	57%	20%
All other races/ethnicities	42%	44%	14%
Livingston County			
All races/ethnicities	13%	59%	27%
Non-Hispanic White	13%	59%	28%
All other races/ethnicities	21%	59%	20%

Note: some totals do not sum to 100 percent because of rounding.

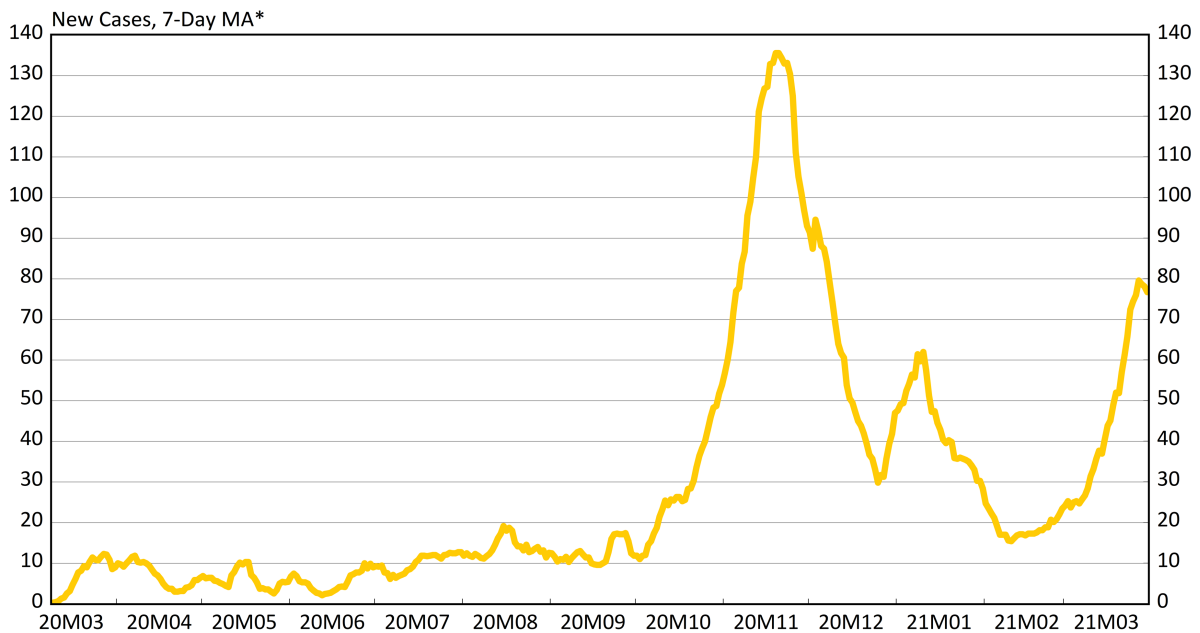
Current State

Livingston County's economy has recovered substantial ground from the losses it suffered at the beginning of the COVID-19 recession, but there is more work to be done. The county's economy performed slightly worse than the state of Michigan's in 2020; the number of jobs in the county declined by 12 percent in 2020, whereas the number of jobs in Michigan fell 9.6 percent. We believe that the main reason why the recession affected the county's employment level more severely is due to its larger reliance on goods-producing industries and service-providing sectors such as retail trade and leisure and hospitality. On the bright side, we expect that the county will recover more quickly than the state between 2021 and 2023.

The future path of the pandemic will play the most important role in determining how quickly the economy recovers. Figure 2 shows that the seven-day moving average of new confirmed cases of COVID-19 in Livingston County fell from 135 new cases on November 19th to 47 new cases as of March 20th. Nevertheless, the explosion of new cases statewide this spring is cause for substantial concern. Fortunately, the county's pace of vaccinations has been

accelerating, with 23,449 doses administered through March after 11,335 doses were administered in February. We are optimistic that the pace of vaccinations will continue to increase in the near future with the recent authorization of Johnson & Johnson’s single-shot vaccine. The new vaccine as well as expanded vaccination eligibility is expected to help curb the third wave that both the county and the state are experiencing.

Figure 2
New Cases of COVID-19 in Livingston County



Source: MDHHS as of 04/06/2021

*Data is subject to revisions

Figure 3 shows the seasonally adjusted monthly unemployment rates in Michigan and Livingston County. Even though the county did not experience its first major wave of COVID-19 until November 2020, its unemployment rate peaked at 21 percent in April 2020 as private precautions and statewide restrictions forced the economy into a deep recession. As the first wave of COVID-19 in the state began to recede and the public health situation improved, employment among Livingston residents recovered briskly during the summer. The recovery slowed down towards the end of 2020, but the county’s unemployment rate had fallen to 5 percent by January 2021.

Figure 3
Monthly Unemployment Rates in Michigan and Livingston County

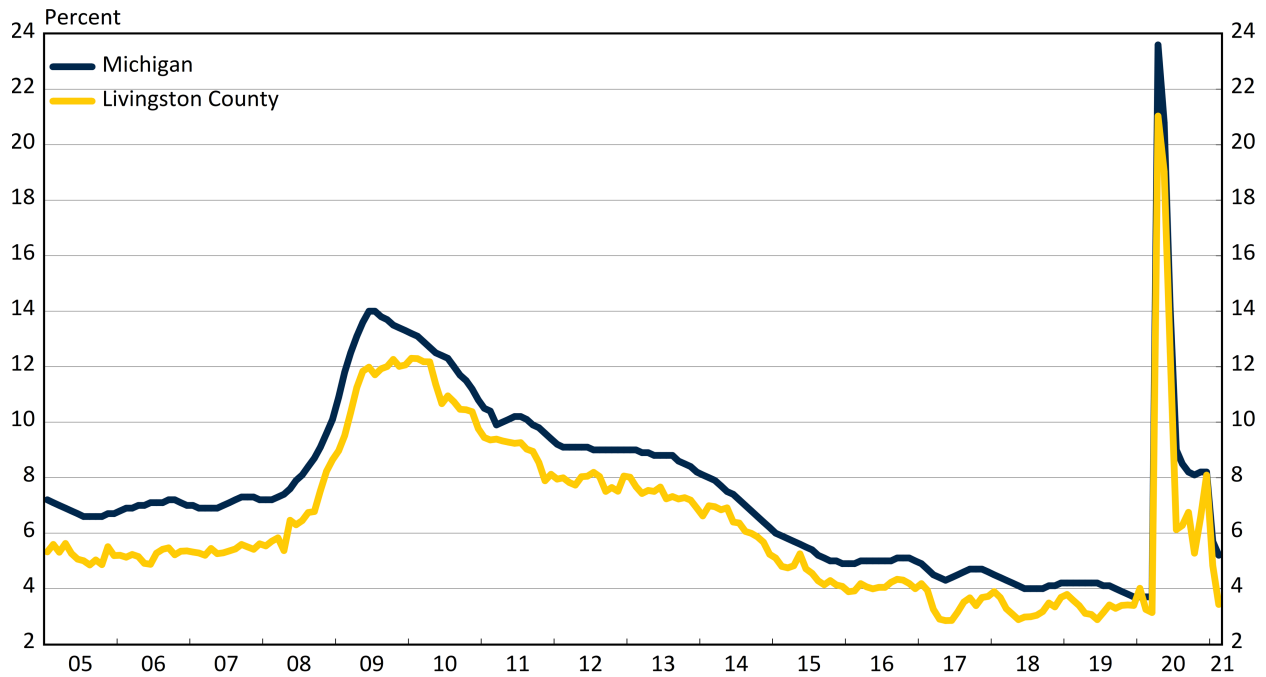
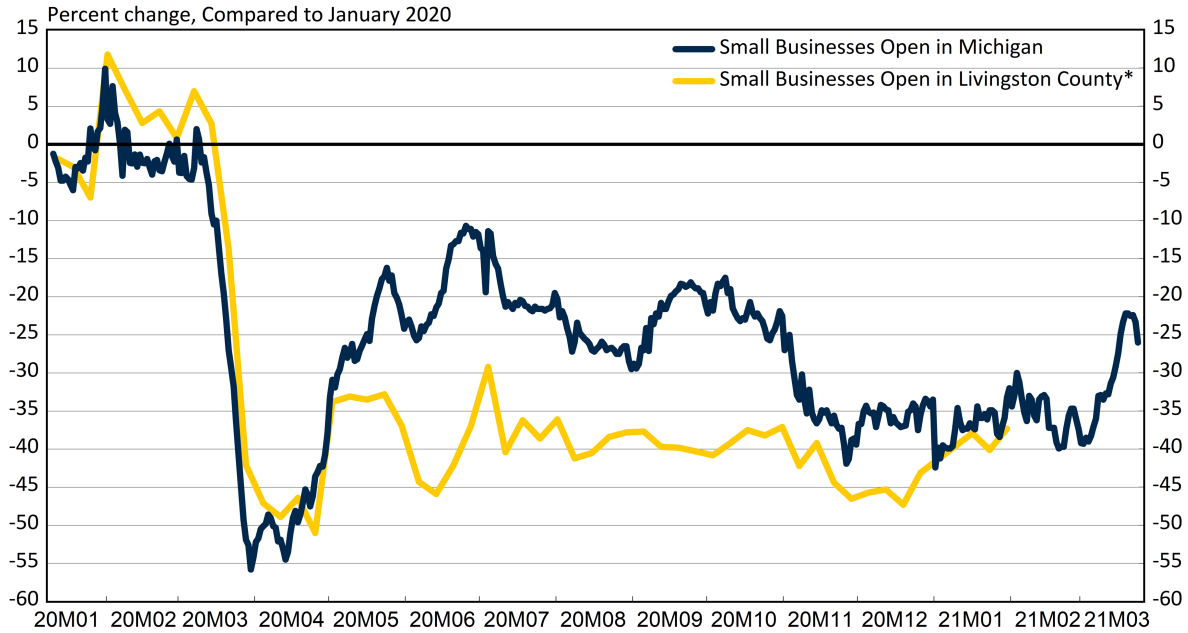


Figure 4 compares the proportions of small business locations in Michigan and Livingston County that were closed on any given day, relative to their January 2020 averages. The small business closure rate in the county stabilized around 39 percent in September and October 2020, but as the severity of the county's first COVID-19 wave increased in November, the small business closure rate in the county rose by 5 percentage points. We anticipate a strong economic recovery this spring as the public health situation improves, vaccinations accelerate, and the warmer weather lures people outdoors.

Figure 4
Small Business Closures in Michigan and Livingston County



Source: Womply via Opportunity Insights

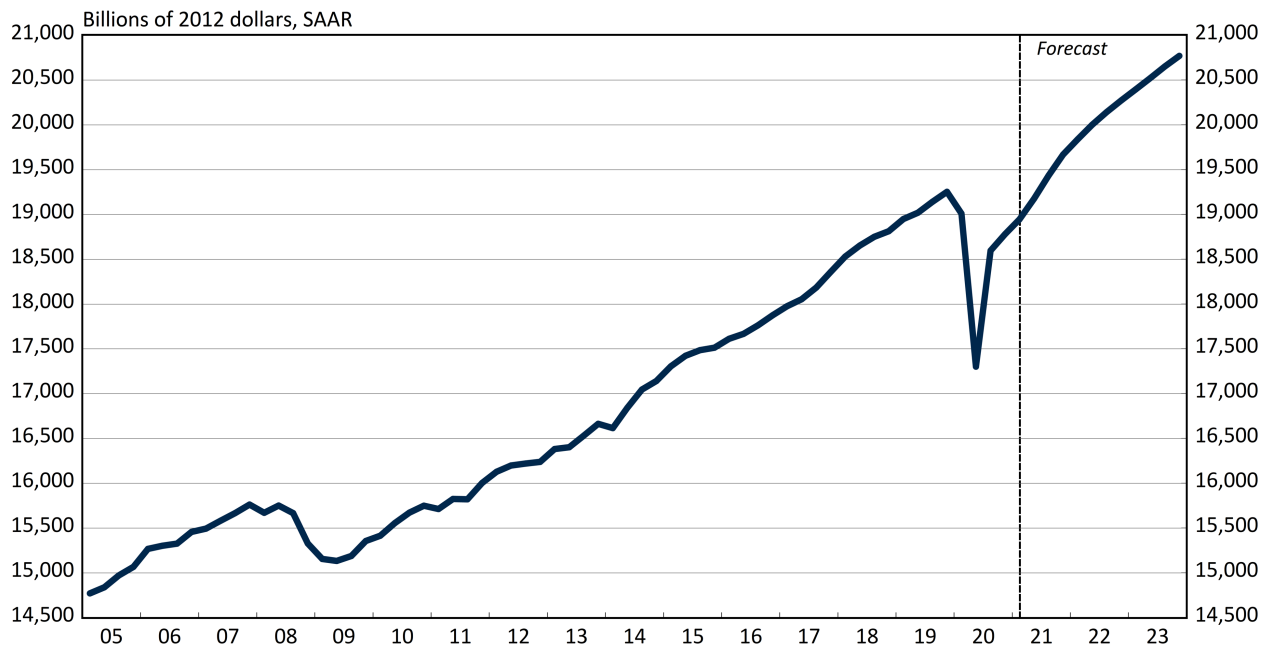
*Interpolated data from 12/27/2020 to 01/15/2021

We expect progress against the COVID-19 pandemic to allow economic activity to return largely to normal by this fall, leading to a vigorous economic recovery. We forecast that Livingston County's unemployment rate will decline to an average of 3.5 percent in 2023, which would be only 0.2 percentage points higher than its level in 2019. There are several reasons for our relatively optimistic forecast. Our first, and most important, reason is the rapid improvement in the public health situation that we expect. Our second reason is the aggressive economic policy response to the recession. The \$900 billion fiscal relief package that Congress passed in December 2020, together with the \$1.9 trillion American Rescue Plan passed this month should also jumpstart the recovery. We suspect many people will be surprised by the strength of the economic recovery after the COVID-19 pandemic subsides.

National Outlook 2021–2023

Figure 5 displays our baseline forecast for the level of U.S. real GDP through 2023.¹³ Perhaps surprisingly, the pandemic-related turmoil led to an annual real GDP decline of only 3.5 percent in 2020, as unprecedented federal fiscal support insulated the economy from a more severe contraction. We expect real GDP to return to its pre-pandemic level by mid-2021 as the pandemic continues to subside and the \$1.9 trillion spending package in the recently passed American Rescue Plan helps to support the economy. Our forecast translates to annual real GDP growth of 4.8 percent in 2021. Real GDP growth moderates to 3.9 percent in 2022 and 2.6 percent in 2023 as the effects of the federal spending and stimulus wear off.

Figure 5
U.S. Real Gross Domestic Product



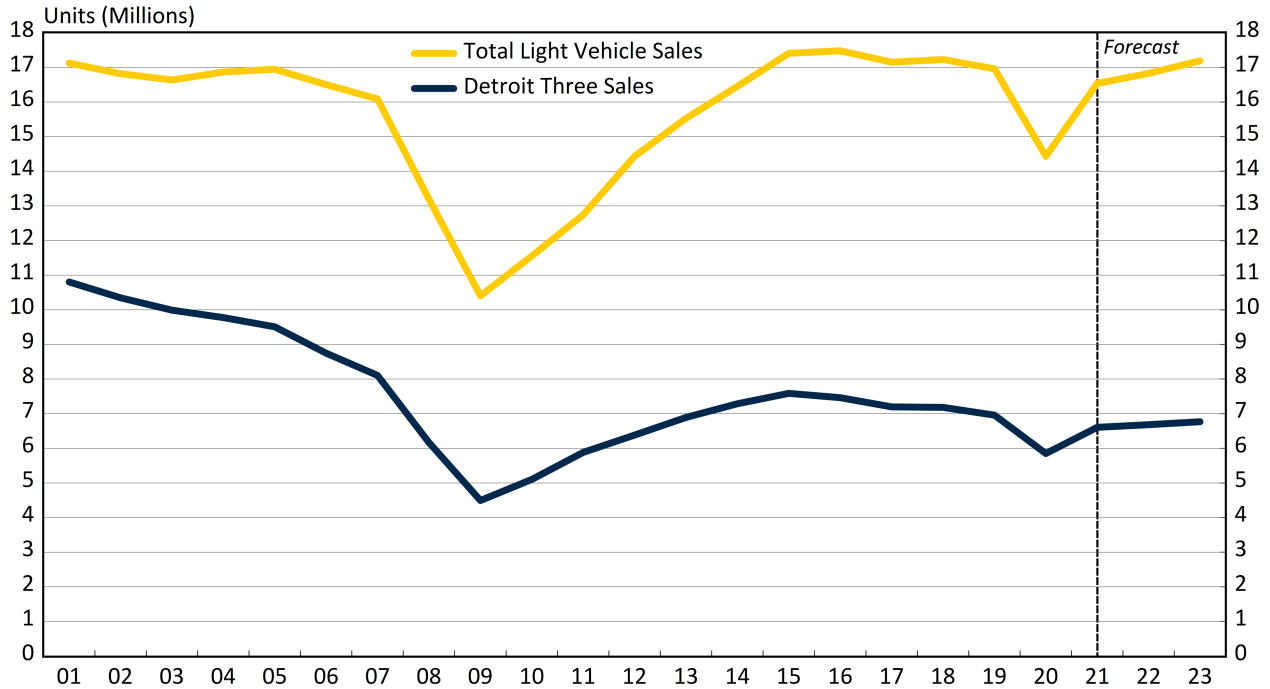
¹³ Gross Domestic Product (GDP) comprises all of the goods, services, and structures produced in the economy. Real GDP is adjusted for price inflation to be expressed in chained 2012 dollars.

Figure 6 shows our forecast for national and Detroit Three light vehicle annual sales. Total vehicle sales fell from 17 million in 2019 to 14.4 million in 2020, with the bulk of that loss occurring in the second quarter of last year. We are forecasting light vehicle sales to rebound to 16.5 million units this year, 16.8 million units in 2022, and 17.2 million units in 2023. Although our projected sales pace for 2021 remains 2.5 percent below pre-pandemic levels, we consider our forecast to lean a bit toward the optimistic side in light of the many uncertainties surrounding the automotive industry such as the ongoing semiconductor shortage.

Our baseline forecast assumes that the shortage of semiconductors will have a limited effect on Michigan's recovery, but the shortage does pose a serious downside risk to the state's auto industry. The shortage has already caused slowdowns at the Detroit Three automakers, but we continue to expect production in Michigan to be less affected than elsewhere. We believe the Detroit Three automakers will prioritize truck and large SUV production at the expense of smaller vehicles, both because the larger vehicles are more profitable and because it will be more difficult to make up production for those models in the future. That logic should favor production in Michigan, although if the shortages intensify, there is a risk that the state's auto industry could suffer more than we are forecasting.

Detroit Three sales fell from just under 7 million units in 2019 to 5.9 million units in 2020, and we do not expect a full recovery during our forecast period. As the pandemic subsides and consumers regain their confidence, we are predicting sales to nudge up to 6.6 million units this year, to 6.7 million units in 2022, and to 6.8 million units in 2023. Despite those gains, we expect the Detroit Three's share of total national sales to continue its downward trend from the past decade, falling from 40.5 percent in 2020 to 39.4 percent by 2023.

Figure 6
Total U.S. vs. Detroit Three Light Vehicle Sales



Livingston County Outlook: 2021–2023

Our economic outlook for Livingston County through 2023 encompasses unemployment, employment, inflation, and real wages. As described above, 2019 was, in aggregate, a great year for household income in Livingston County and in the state of Michigan. It was also a great year in the labor market. From the bottom of the Great Recession in the summer of 2009, Livingston County enjoyed over ten years of economic growth, cumulating to 21,586 job additions from calendar year 2009 to 2019. The county’s employment growth rate of 4.2 percent per year substantially exceeded the U.S. and Michigan average rates of 1.4 percent per year over the same period.

Unemployment Rate

Perhaps the best way to visualize the benefits from Livingston's pre-pandemic economic expansion is to look at the unemployment rate in Livingston County and Michigan since 2001 as shown in Figure 7. Michigan's unemployment rate fell from 13.6 percent in 2009 to an average of 3.9 percent in 2019, while the unemployment rate in Livingston County declined from a peak of 11.3 percent in 2009 to a low of 3.3 percent in 2019.

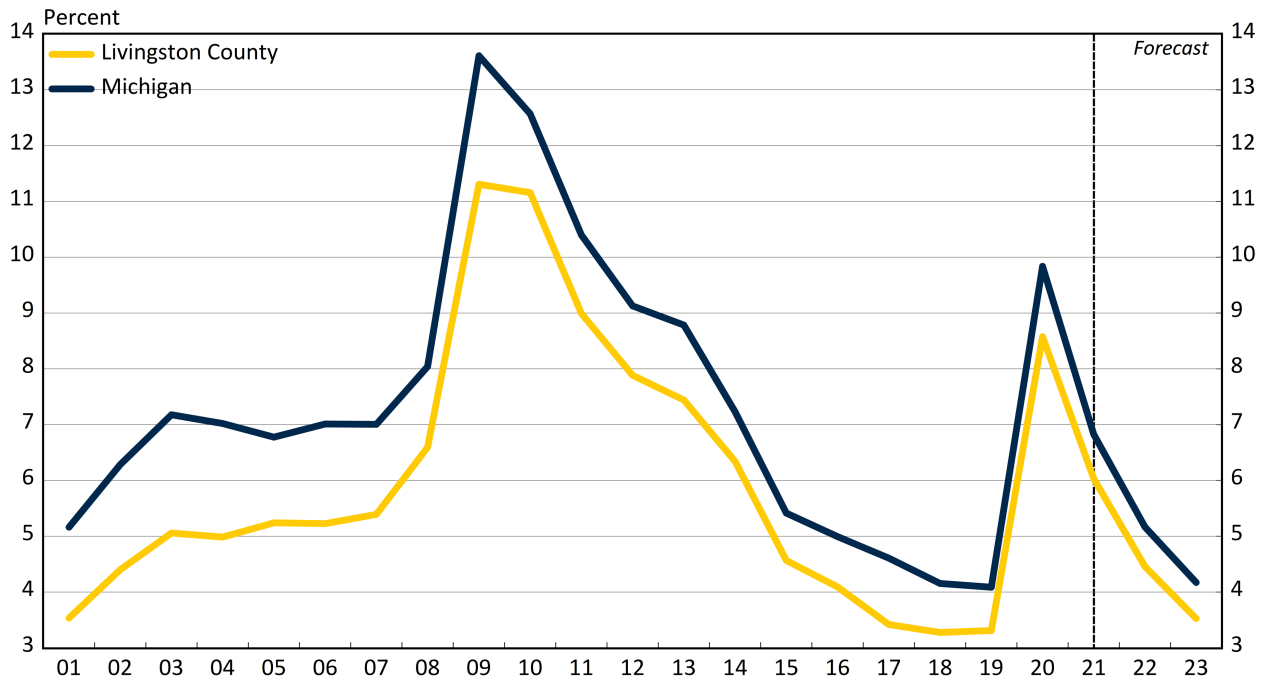
Then came the COVID-19 recession, which caused an unprecedented jump in the unemployment rate in April of 2020, to 23.6 percent statewide and 21.0 percent in the county.¹⁴ The recovery from the recession started vigorously in the summer of 2020, before retrenching in the fall in response to a resurgence of COVID-19 cases. The annual average unemployment rate for 2020 was 8.6 percent in Livingston County and 9.8 percent statewide.¹⁵ In our forecast we expected the unemployment rate in both the state and county to flatten out in the first quarter of 2021; it now appears that the unemployment rate actually declined in the first quarter.

The economic recovery is forecast to pick up speed in the second quarter of 2021, driving the unemployment rate down to 6.0 percent for the year in Livingston County and 6.8 percent in Michigan. By the end of 2023, the unemployment rate in the state of Michigan is forecast to be 4.2 percent, only 0.1 percentage points higher than the rate in 2019. As noted previously, we are forecasting that Livingston County's unemployment rate in 2023 will average 3.5 percent. Thus, measured by the unemployment rate, both Livingston County and the state of Michigan are expected to essentially recover to their pre-pandemic levels by 2023. We would not be surprised if the unemployment rate returned to 2019 levels even more quickly than that.

¹⁴ The county data published by the Bureau of Labor Statistics is not seasonally adjusted, but we have a procedure to estimate seasonally adjusted data and these numbers for both the state and Livingston County are seasonally adjusted.

¹⁵ This report was prepared prior to the March 2021 benchmark revisions to the unemployment data. Figure 8 presents the historical data as it informed our forecast.

Figure 7
Unemployment Rate in Michigan and Livingston County

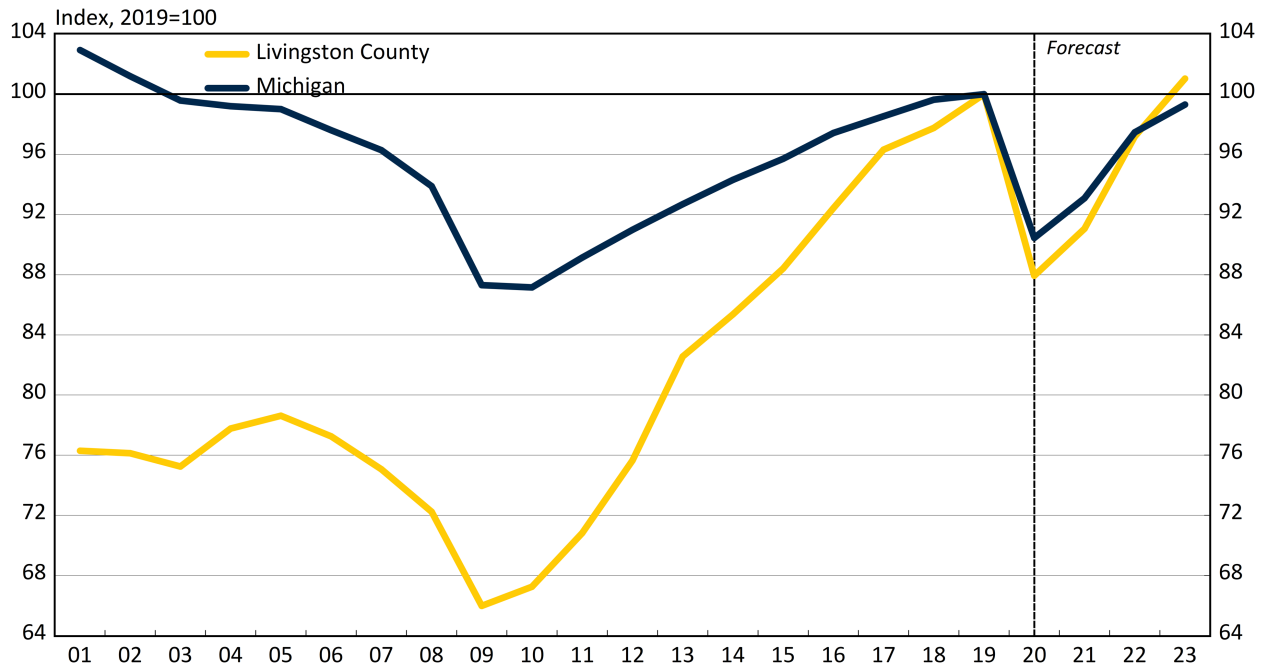


Employment in Livingston compared with Michigan

Figure 8 shows the impact of the COVID-19 recession and subsequent recovery on employment in the county and state. In this figure, total wage and salary employment in both Livingston County and the state of Michigan are indexed to be equal to 100 in 2019. This technique allows us to compare the movements of employment over time between two geographic areas of vastly different scale.

Payroll employment declined by 19 percent in Michigan and 20 percent in Livingston County in the second quarter of 2020 amid the first wave of the COVID-19 pandemic. The county recovered 69 percent of its job losses in the third quarter of 2020 while the state recovered 45 percent of the losses, but the jobs recovery largely stalled in the fourth quarter amid the pandemic's second wave.

Figure 8
Employment in Michigan and Livingston County



We expect the jobs recovery to resume vigorously in the spring of 2021. By the end of 2023, Livingston County will have recovered all the jobs lost during the recession and then some. Employment in the county ends our forecast period at a record-high level, 1.0 percent above its 2019 average. The jobs recovery in the state overall lags slightly behind Livingston County's; we expect that total employment in the state will remain about 0.7 percent below the 2019 level by 2023.

Employment by Industry

Table 2 divides the total job movements we project over our forecast period among eighteen major industries. The table includes, for each industry, our preliminary estimates of the level of employment in 2020, the estimated change from 2019 to 2020, and the forecast change for each of 2021, 2022, and 2023 as well as the cumulative change over the three-year period 2020–

23. The table also includes the average annual wage for each industry category in 2019.¹⁶ Total employment is forecast to grow by 1,985 jobs, or 3.6 percent in 2021. Job growth will then accelerate to 6.7 percent in 2022 (3,890 jobs) and 4.0 percent in 2023 (2,437). Cumulative job growth over the next three years is 657 jobs greater than the number of jobs the county lost in 2020.

The government sector is expected to lose 31 jobs this year following the loss of 311 jobs last year. Government employment then begins to grow again, adding 183 jobs in 2022 and 77 jobs in 2023. Despite this rebound, government employment in Livingston County is forecast to remain well below 2019 levels in 2023. The private sector in Livingston County, on the other hand, is forecast to employ 738 more workers in 2023 than it did in 2019 (1.3 percent).

The private sector industries shown in Table 2 have been organized into two categories: 8 “full-recovery industries,” in which employment in 2023 exceeds employment in 2019, and 6 “incomplete-recovery industries,” in which 2023 employment continues to run behind 2019 levels.

The natural resources and mining industries actually gained jobs in 2020. We expect this small industry to shed a few jobs over the next three years, but we expect it to maintain higher employment than in 2019 throughout our forecast period. The natural resources and mining industry pays slightly less in Livingston County (\$38,467) than it does statewide (\$41,799).

¹⁶ The historical employment data are from the Bureau of Labor Statistics Quarterly Census of Employment and Wages. The average annual wage includes both full- and part-time workers, weighted equally. Consequently, the average wages for industries that employ a disproportionately large number of part-time workers, such as retail trade and leisure and hospitality, are much lower than they would be if the wages were calculated only for full-time workers.

Table 2
Forecast of Employment in Livingston County by Major Industry Division

	2020	Employment Change					Average
		'19-'20	'20-'21	'21-'22	'22-'23	'20-'23	Annual Wage 2019
Total Jobs (Number of jobs)	55,794	-7,656	1,985	3,890	2,437	8,313	\$45,812
(Annual percent change)		(-12.1%)	(3.6%)	(6.7%)	(4.0%)		
Private Sector	49,364	-7,346	2,016	3,707	2,361	8,084	\$45,671
Total Government	6,430	-310	-31	183	77	229	\$46,993
Full-Recovery Industries							
Natural Resources & Mining	268	29	-7	-4	-7	-18	\$38,467
Transportation, Warehousing, Wholesale Trade, and Utilities	3,894	-275	176	170	153	499	\$78,587
Manufacturing Other Than Transportation Equipment	5,071	-533	241	246	206	693	\$62,498
Construction	3,635	-250	321	442	228	992	\$61,740
Financial Activities	2,710	-143	86	124	86	295	\$54,046
Professional & Technical Services	4,183	-481	251	285	226	762	\$50,454
Management of Companies and Enterprises	477	-36	15	30	17	62	\$50,399
Private Education, Health, and Social Services	7,380	-1,104	196	634	500	1,331	\$38,873
Incomplete-Recovery Industries							
Leisure and Hospitality	6,303	-1,951	395	1,085	455	1,935	\$17,859
Other Services	1,897	-427	154	96	52	302	\$31,588
Retail Trade	7,927	-660	179	212	149	540	\$31,965
Administrative Support & Waste Management	1,551	-611	125	161	107	394	\$42,937
Information	473	-45	-3	16	3	15	\$52,631
Transportation Equipment (Motor Vehicles & Parts) Manufacturing	3,330	-869	-113	210	184	281	\$69,336
Unallocated	266	9	0	0	0	0	\$44,680

Employment in transportation & warehousing, wholesale trade, and utilities is forecast to grow by 499 jobs (12.8 percent) over the next three years in Livingston County, compared with 10.4 percent in the state. This is the highest-paying major industry group in Livingston County, with average annual pay of \$78,587 in 2019. In fact, this is one of only two major industry groups that has a higher average wage in Livingston County than in Michigan as a whole (\$71,408). Most of the job gains in this sector are expected to occur in durable goods wholesale trade and trucking and warehousing.

The manufacturing sector outside of transportation equipment (motor vehicles and parts) manufacturing is forecast to add 693 jobs over the next three years (13.7 percent). In the state of Michigan as a whole, this industry group is forecast to grow by 9.0 percent over the same period. The average annual wage in this industry group in 2019 was similar in Livingston County to the average in Michigan as a whole (\$62,498 compared with \$65,036).

Employment in Livingston County's construction industry is forecast to grow by 992 jobs, or 27.3 percent, over the next three years, assuming employers can find enough workers. Michigan's statewide construction industry is forecast to grow by a similar 26.5 percent in that time, but we are very concerned that the growth will be curtailed by a shortage of available workers. The construction industry in Livingston County had an average wage in 2019 that was only slightly below the statewide average (\$61,740 compared with \$63,588).

The financial activities sector is another major industry group that is expected to have more employees in 2023 than it did in 2019. Over the next three years, we think financial activities will grow by 295 jobs (10.9 percent). This is much faster job growth than we expect in the state overall (6.7 percent). The average wage in financial activities in Livingston County (\$54,046) is much less than it is in Michigan overall (\$73,691).

Professional and technical services, a quintessential knowledge economy industry, is forecast to grow by 762 jobs (18.2 percent) over the next three years in Livingston County. That pace is more than twice as fast as our forecast for the state over the same period (8.0 percent), but the average wage in professional and technical services in Livingston County (\$50,454) is just over one-half the level in Michigan overall (\$89,203). Livingston's company management industry is also forecast to enjoy relatively rapid employment growth on a percentage basis over the next three years, but this is a very small industry locally. Once again, it is a relatively low paying industry in Livingston County (\$50,399 annually) compared with Michigan (\$126,541).

Private education, health, and social services is the largest major industry in Livingston County, accounting for 13.2 percent of the county's total employment in 2020. Over the next three years, the sector is forecast to add 1,331 jobs. Employment in private education, health and social services is forecast to grow almost three times as fast in Livingston County (18.0 percent) as it is in Michigan overall (6.9 percent). This is also a relatively low-wage industry in Livingston County, with an average wage of only \$38,873 in 2019 compared with \$50,845 in Michigan.

Out of the eight full-recovery private sector industry groups, we classify four as "blue-collar industries," all of which pay an average wage in Livingston County that is above or only slightly below the statewide value for the same industry group. We classify the other four industry groups as "high-educational attainment services industries," which are perhaps better known as "knowledge-economy industries." These industries all pay local wages that are substantially below the statewide average for the same industry.

We now turn to the incomplete-recovery industries. The first four industries listed in this group near the bottom of Table 2 all pay relatively low wages. The lowest-paying major industry group is leisure and hospitality. The average annual pay in Livingston County in this industry,

which includes a high proportion of part-time workers, was only \$17,859 in 2019. Statewide, the average wage in this sector was \$21,121. Employment in leisure and hospitality services in Livingston County fell by 1,951 jobs, or 23.6 percent, in 2020. While this rate of job loss is shocking, it was much less than last year's 31.9 percent decline statewide. We expect the leisure and hospitality industry to recover nearly all of its 2019 job losses over our forecast horizon, with a total of 1,935 job gains over the next three years. On a percentage basis, this growth translates into a gain of 30.7 percent in Livingston, slightly less than the predicted statewide job growth of 31.2 percent.

The miscellaneous other services sector includes a grab bag of individual industries such as repair services, including motor vehicle repair shops; personal services, such as hair salons and dry cleaners; membership organizations; and private household services. Collectively, these industries lost 427 jobs in 2020 and are expected to regain 302 jobs over the next three years. The average wage in this industry locally was \$31,588, which is 8.0 percent less than the statewide average in 2019 (\$34,330).

Retail trade lost 660 jobs in 2020, and we are forecasting that this sector will recover 82 percent of these jobs (540) over the next three years. This is a much stronger performance than we expect for the retail sector statewide, where we are anticipating that the industry will recover only 32 percent of the job losses in 2020. The relatively strong job growth in the retail sector reflects the historically rapid population growth in Livingston County, even if many of those new residents work at jobs in other counties. The average wage in the retail trade industry in Livingston County (\$31,965) is virtually identical to the statewide average wage in 2019 (\$32,055).

Employment in administrative support and waste management is forecast to rebound by 25.4 percent, or 394 jobs, over the next three years. The average wage in this industry in 2019 in

the state of Michigan was \$37,721; however, in Livingston County the average wage was 13.8 percent higher (\$42,937). Part of the reason for those relatively high wages is that in Livingston County, this major industry group appears to include more sophisticated sub-industries than in the rest of the state.

The information services industry is very small in Livingston County, and as is true statewide, it is not expected to add many jobs over the next three years (15 jobs, or 3.2 percent).

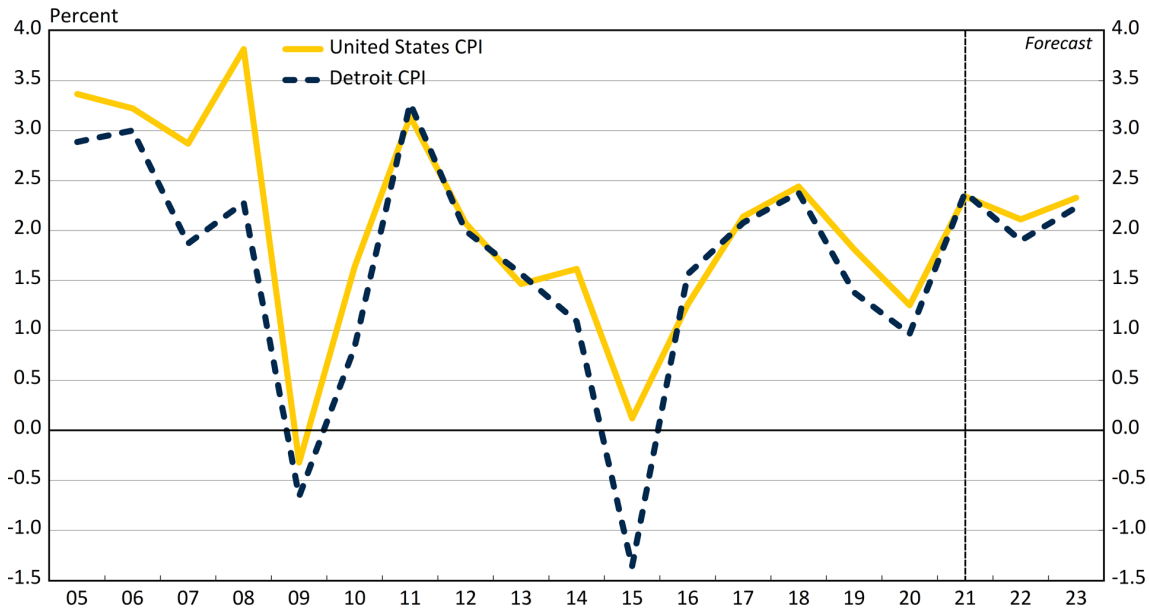
In 2020, Livingston County's transportation equipment (motor vehicle and parts) manufacturing industry lost 869 jobs. Over the next three years, we expect the local motor vehicle manufacturing industry to recover only about one-third of those job losses (281). The local average wage in this industry is slightly less than the statewide average (\$69,336 compared with \$76,342) because locally, this industry almost exclusively consists of parts manufacturing, which tends to pay less than assembly plants.

Inflation

Figure 9 shows that we expect price inflation to rebound in 2021 to 2.3 percent in the U.S. and 2.4 percent in the Detroit region following a period of very low inflation in 2020 (1.3 percent in the U.S. and 1.0 percent locally).¹⁷ We forecast that inflation will moderate to about 2.0 percent in 2022 and edge up slightly in 2023. Our forecast translates into the highest three-year rate of local price inflation since the 2010 to 2013 period, but despite some supply chain bottlenecks and a historical fiscal stimulus, we do not expect high inflation to be a major problem over the next three years. That said, one of the risks to our forecast is that inflation could turn out to be higher than we are forecasting.

¹⁷ We measure local price inflation using the Consumer Price Index for the Detroit region because the Bureau of Labor Statistics does not publish a local inflation measure for Livingston County.

Figure 9
Inflation Rate, National and Detroit CPI



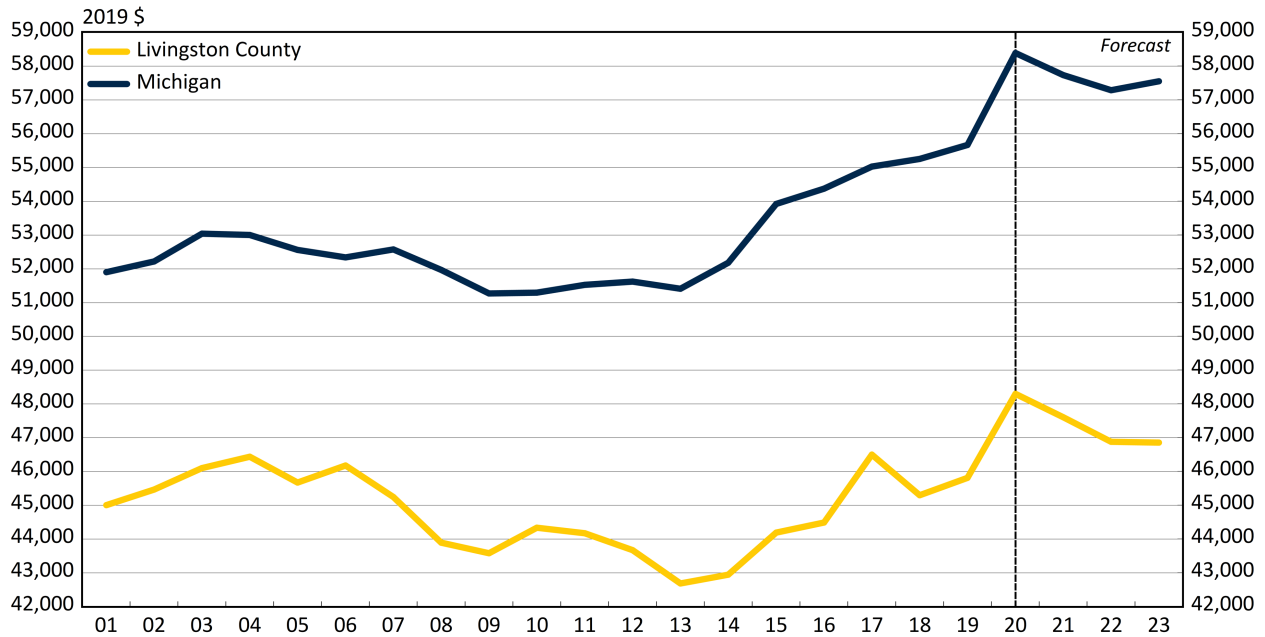
Real Wage

Figure 10 shows the average real wages for all payroll jobs in Livingston County and Michigan from 2001 to 2023, expressed in 2019 dollars.¹⁸ The first thing to notice in this figure is that the average wage is more than 10 percent lower in the county than in the state of Michigan, and that gap has widened over time. Between 2001 and 2019, the average real wage in Livingston County increased by only 1.8 percent, while in the state of Michigan the average real wage grew by 7.3 percent over the same period. These data reflect what jobs at business and government

¹⁸ The wage series are averages per worker. The nominal series is from the Bureau of Labor Statistics Quarterly Census of Employment and Wages and does not include variations in hours worked, a measure that is not available to us in the necessary detail. This consideration is likely less problematic over the longer term than at the business cycle frequency. That being said, these data include all payroll income, including profit sharing bonuses, overtime and holiday pay, and other irregular income, which is not included in the more commonly cited Bureau of Labor Statistics Current Employment Statistics hourly and weekly wage data. Wages are adjusted for inflation using the U.S. Personal Consumption Expenditure Price Index.

establishments located in Livingston County pay. The income of residents of the county, many of whom commute to jobs elsewhere, has gone up much more rapidly.

Figure 10
Average Real Wage for Michigan and Livingston County



The COVID-19 recession generated what many people will see as a very surprising change in the average wage between calendar years 2019 and 2020. The average real wage jumped by 5.4 percent in Livingston County and 4.9 percent in the state of Michigan. Part of that growth came from the unexpected slowdown in inflation, but the biggest reason that real wages skyrocketed during 2020 was the changing mix of employment. The country, state, and county all saw a disproportionate loss of lower-paying jobs relative to higher-paying jobs. This change in the mix of jobs is one of the most unique characteristics of the COVID-19 recession from a macroeconomic perspective.

Over the next three years we are predicting that the average real wage will fall by 3.0 percent in Livingston County and by 1.4 percent in the state of Michigan. Part of this decline

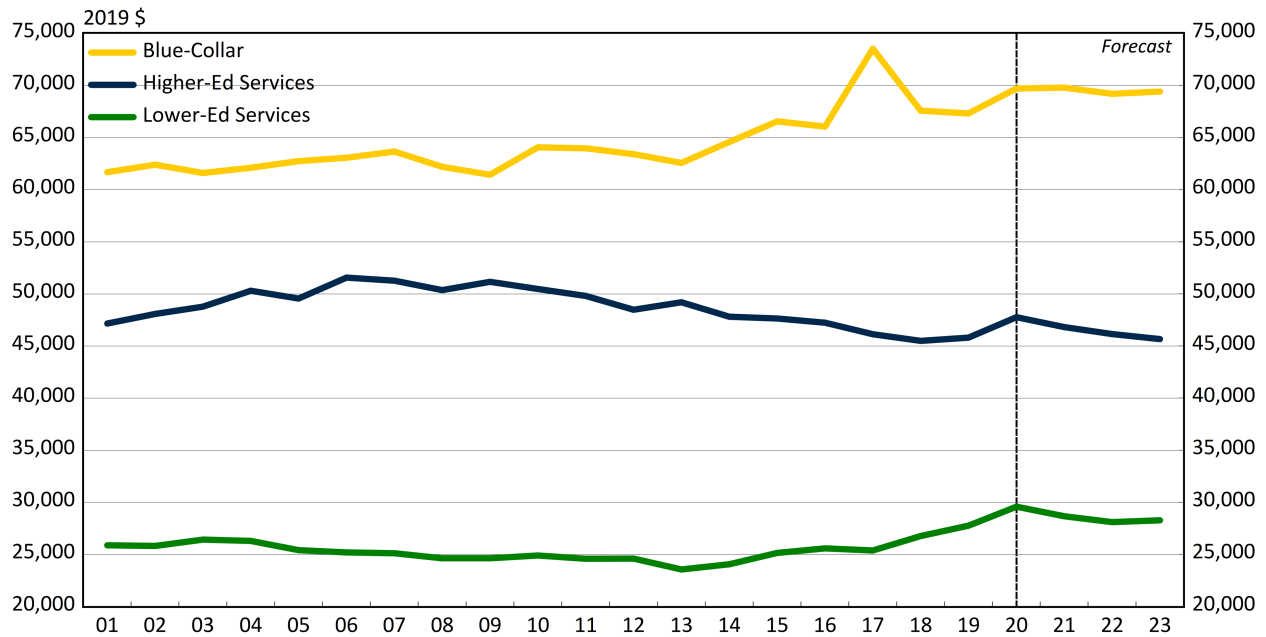
results from the projected rebound in price inflation, but most of the decline is the result of the recovering industry mix; the faster growth in lower paying jobs than in higher paying jobs mathematically reduces the average wage. Average real wages in Livingston County in 2023 will nonetheless remain 2.3 percent higher than they were in 2019, and a similar pattern will hold statewide.

Figure 11 shows the average real wage from 2001 to 2023 for three industry group combinations. The first group comprises traditional blue-collar industries; the second is service-providing industries that tend to employ highly-educated workers, which we call higher-education service industries; and the third are service-providing industries that tend to employ less well-educated workers, which we call lower-education service industries.¹⁹

Figure 11 shows several historical trends, which appear to have remained intact during and following the COVID-19 recession. First, in the decade following the Great Recession (2009 to 2019), average real wages in the blue-collar industries and lower-education service industries have risen, by 9.6 percent and 12.8 percent, respectively; while average wages in the higher-education service industries have fallen by 10.5 percent. This pattern is very unusual. Statewide, average real wages in blue collar industries have declined while wages in higher-education attainment service industries have tended to grow faster than the other two categories.

¹⁹ Blue-collar industries include natural resources and mining, construction, manufacturing, and transportation and warehousing, wholesale trade, and utilities. Higher-education service industries include government, private education and health care services, professional services, corporate headquarters, financial activities, and information services. Lower-education service industries include retail trade, leisure and hospitality services, business support services such as temporary help services, and the miscellaneous other services category, which includes repair and personal services.

Figure 11
Average Real Wage for Livingston County by Industry Groupings



By 2019, the average pay in the higher-education attainment industries in Livingston County was barely two-thirds the average pay in blue-collar industries (\$45,817 compared with \$67,312). In most communities and in the state overall, the higher-education attainment industries pay more than blue-collar industries. Second, the blue-collar industries pay more than twice as much as the lower-education services industries, which we note again feature a higher proportion of part-time jobs than the other two categories.

The 2020 recession caused a spike in average wages in all three industry groups: 3.6 percent in blue-collar, 4.3 percent in higher-education services, and 6.5 percent in lower-education services. The relatively larger jump in lower-education services reflects the fact that even in this generally lower-paying industry group, it was the lowest-paid industry (leisure and hospitality services) that lost the greatest share of jobs in 2020.

The real average wage in all three of these industry groups declines in our forecast between 2020 and 2023, but the decline is smallest in the blue-collar industry group. By 2023, real wages are expected to average 3.1 percent higher than their 2019 levels in blue-collar industries and 1.9 percent higher in lower-education service industries, but they will average 0.3 percent lower in higher-education service industries.

Employment by type of industry

Figure 12 shows employment in blue-collar industries in Livingston County and Michigan between 2001 and 2023, indexed so that the value in 2019 is equal to 100. Employment in blue-collar industries declined by 33.4 percent in Livingston and 36.2 percent in Michigan between 2001 and 2009. From the end of the Great Recession until 2019, blue-collar industry employment boomed in Livingston County, increasing by 69.1 percent to a level 12.6 higher than in 2001. The rebound in the state was less robust, leaving blue-collar industry employment in 2019 14.8 percent below 2001 levels.

Blue-collar employment is forecast to rebound very strongly between 2020 and 2023. By 2023, employment in the blue-collar industries is forecast to exceed 2019 levels by 3.0 percent in Livingston County and 4.3 percent in Michigan.

Figure 12
Employment in the Blue-Collar Industry in Livingston County and Michigan

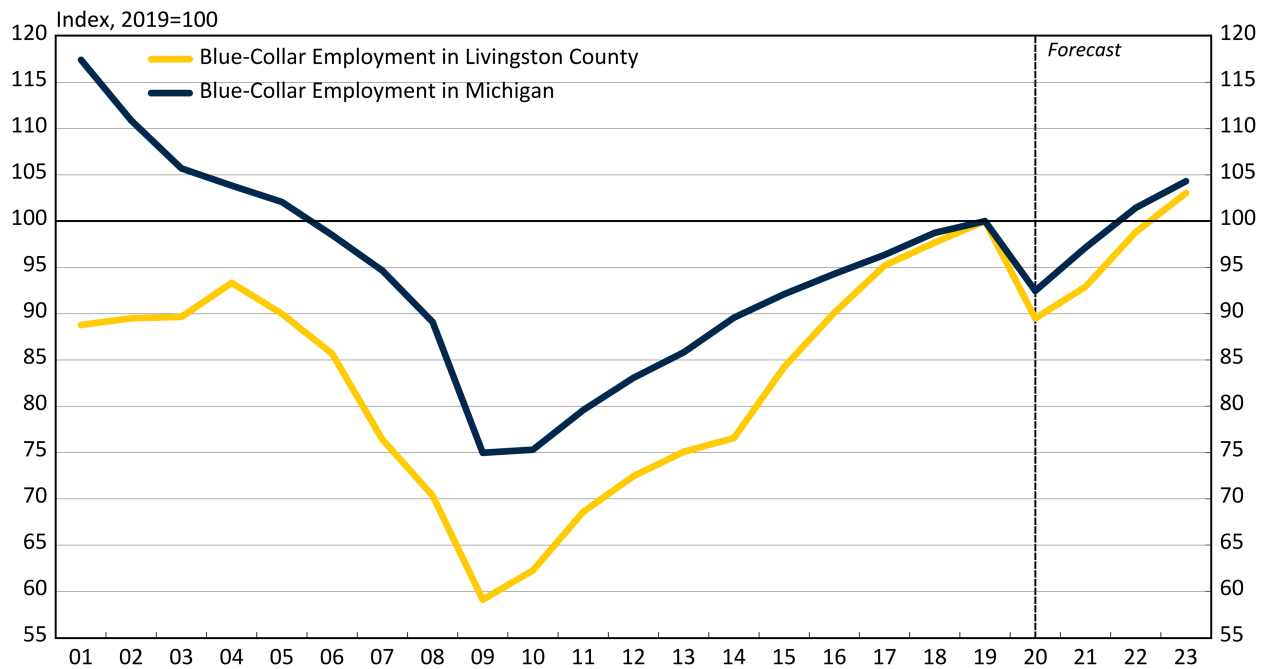


Figure 13 shows employment in higher-education services industries in Livingston County and Michigan between 2001 and 2023, again indexed so that the value in 2019 is equal to 100. Between 2001 and 2009, employment in higher-education services industries declined more in Livingston County (8.5 percent) than in Michigan (2.8 percent). From the end of the Great Recession until 2019, higher-education services industry employment in the county increased by 57.9 percent. In Michigan, higher-education services industry employment grew by only 8.9 percent over the same period.

In 2020, employment in higher-education services industries declined by 8.9 percent in Livingston County and 5.4 percent in Michigan. Higher-education services industry employment is expected to rebound very strongly in both Livingston County and Michigan over the next three years. By 2023 employment in higher-education services industries is expected to exceed 2019 levels by 2.4 percent in the county and 0.3 percent in the state.

Figure 13
Employment in the Higher-Education Services Industries
in Livingston County and Michigan

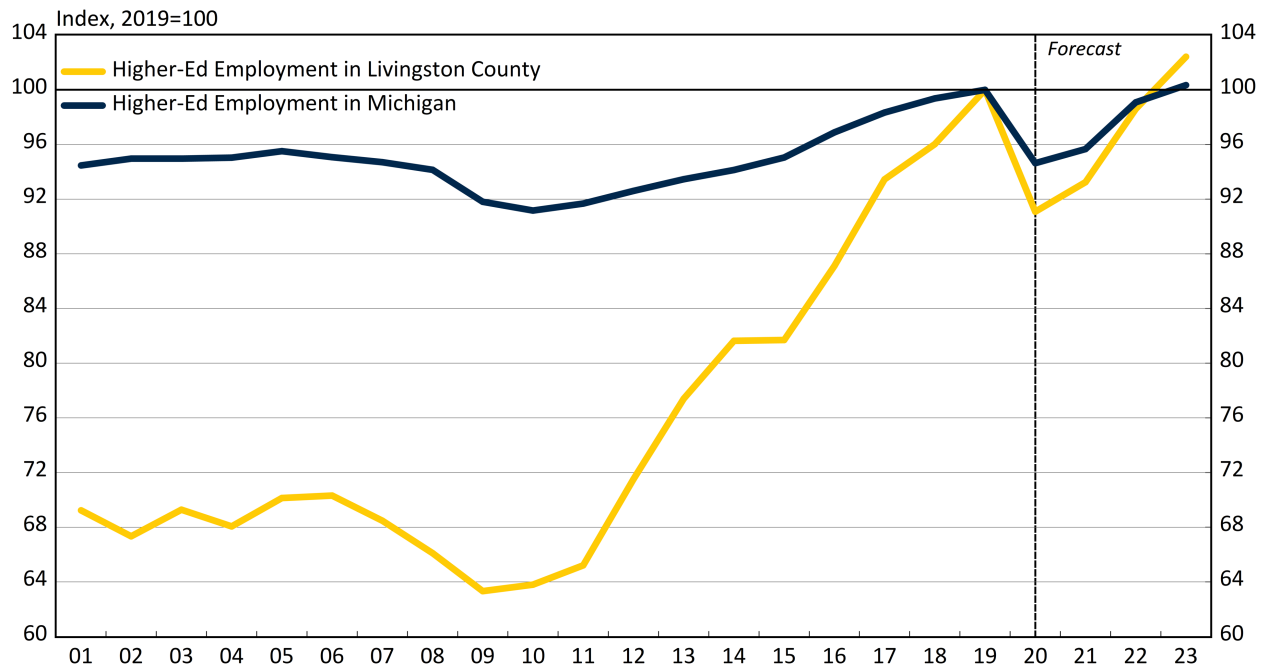
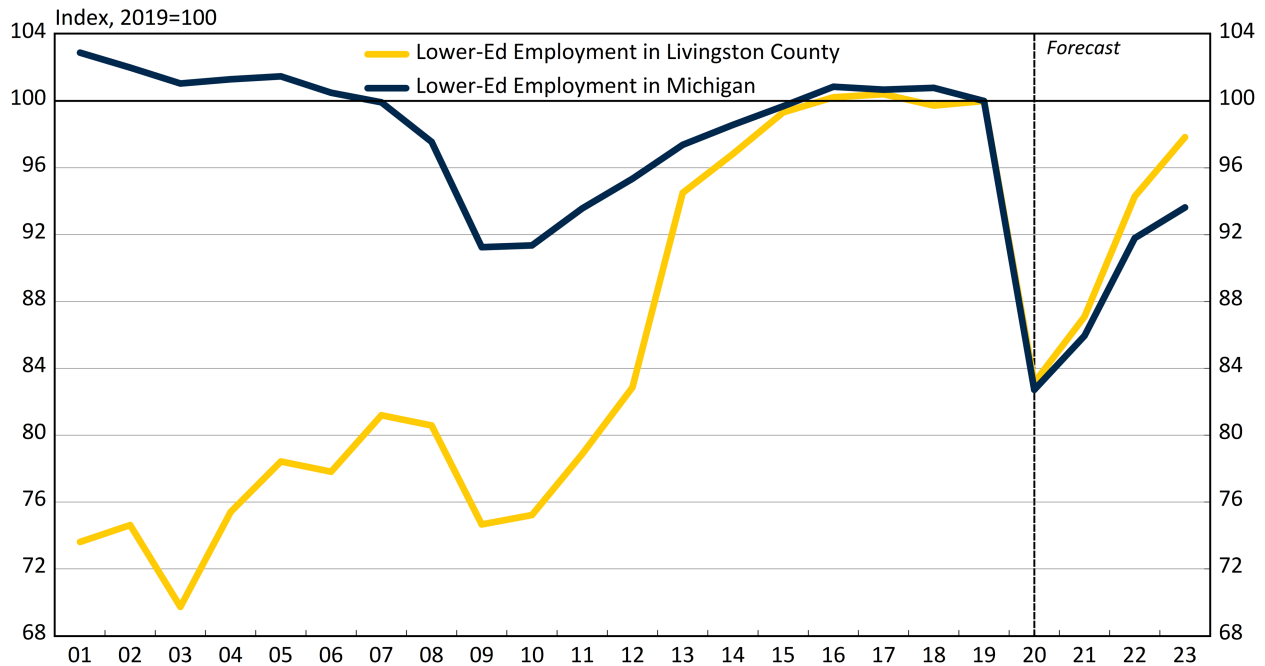


Figure 14 shows employment in lower-education services industries in Livingston County and Michigan between 2001 and 2023. The lines are indexed so that the value in 2019 is equal to 100. Employment in lower-education services industries increased by 1.4 percent in Livingston County while declining by 11.3 percent in Michigan. From the end of the Great Recession until 2019, lower-education services industry employment in the county increased by 33.9 percent. In Michigan, lower-education services industry employment grew by only 9.6 percent over the same period.

In 2020, employment in lower-education services industries declined by 16.9 percent in Livingston County and by 17.3 percent in Michigan. Lower-education services industry employment is expected to rebound very strongly in both Livingston County and Michigan over the next three years, but because of the extremely severe job loss in 2020, we forecast employment

in these industries to remain 2.2 percent short of 2019 levels in the county and 6.4 percent short of 2019 levels in the state by 2023.

Figure 14
Employment in the Lower-Education Services Industries in Livingston County and Michigan



Conclusion

Our expectations for the Livingston economy rely on a national economic forecast that delivers solid growth throughout 2023. While we do not expect a national or statewide shutdown from another wave of COVID-19, the pandemic rests in the driver seat of Livingston’s economic outlook, and it remains our largest risk. As the public health situation improves, we expect another risk to the Livingston economy to emerge—labor shortages. They are bound to return as the labor market tightens. We believe labor shortages will turn into a growing problem as Livingston County moves into the post-COVID era. As the populace ages, the county will need to continue to draw workers in from elsewhere to maintain its historical growth pace. The need will be especially acute in Livingston because the county’s median age is already nearly 4 years older than the state overall.

That being said, we always like to emphasize that a labor shortage is a much better problem for a local economy to face than a jobs shortage.

Our view continues to be that the economy of 2019 was fundamentally a healthy one, and we expect those fundamentals to return once the pandemic subsides. Despite the downside risks, our baseline forecast for Livingston County is that it will enjoy three years of economic growth as it recovers from the pandemic. We forecast that the county will recover all the jobs it has lost due to the COVID-19 recession, and that by 2023, the county's payroll job count will stand 657 jobs higher than its 2019 level. While we expect average real wages to decline over the next three years, we believe that they will mostly decline for an encouraging reason, the return of lower-paid workers to the job.

Although we remain optimistic about Livingston's economic future, the path moving forward will not be an easy one. The COVID-19 pandemic has caused a sharp contraction in economic activity throughout the nation, and Livingston County has not been exempt. The pandemic took an especially heavy toll on job opportunities for less-educated workers. We predict that Livingston County will restore many of those jobs in the recovery, but we anticipate a challenging few years for those seeking lower-education service jobs.

Furthermore, Livingston County has lagged behind the state in creating higher-wage jobs outside of blue-collar industries. Most of its higher-earning residents commute to jobs outside the county. A longer-term task for the county will be to attract more higher-paying, high-education attainment jobs so that its highly educated residents do not need to commute outside of the county.