

34th Oakland County. Economic Outlook

2019-2021

S U M M A R Y



Presented by:

Dr. Gabriel Ehrlich and Donald R. Grimes,
Research Seminar in Quantitative Economics,
University of Michigan

Final Report Available June 2019 at:
AdvantageOakland.com

MiCareerQuest
Southeast 2018

Planet Rock,
Madison Heights

Topgolf,
Auburn Hills



SUMMARY INTRODUCTION

L. BROOKS PATTERSON

OAKLAND COUNTY EXECUTIVE



Welcome to our 34th annual Oakland County Economic Outlook luncheon.

Welcome to our 34th annual Oakland County Economic Outlook luncheon. We are proud of the work we do and appreciate your interest in Oakland County.

Chase and Oakland Community College, along with our Department of Economic Development & Community Affairs, have co-hosted this event for more than three decades. I thank them and our other sponsors who help ensure the luncheon's success as well as the Oakland County Board of Commissioners for its continued support of our economic development programming. We are grateful for these long-standing relationships.

We welcome back respected economists Dr. Gabriel Ehrlich, director of the Research Seminar in Quantitative Economics at the University of Michigan, and longtime contributor Donald R. Grimes to provide business, education and government leaders in southeast Michigan with a three-year projection of economic growth for the area. Of course, Dr. Ehrlich's predecessor, Dr. George Fulton, will be making his annual appearance this year, his 34th. Mention "free lunch" and George drops everything. Welcome back George.

Oakland County remains an economic powerhouse for Michigan. We don't compare ourselves to other counties, our benchmark is other states. Consider the following:

- In 2017, total wages paid by Oakland County companies for their employees were about \$45 billion – which is greater than total wages earned in 16 states
- During the same period, more than 728,000 people were employed in Oakland County – a sum larger than 13 states
- Exports from Oakland County in 2017 exceeded \$14.4 billion, surpassing the export totals of 25 states; a quarter of all exports from Michigan come from Oakland County
- In 2018, our Emerging Sectors[®] business diversification strategy topped \$5 billion of total investment since inception in 2004, resulting in more than 500 successes – either new companies or business expansions – creating or retaining 89,000 jobs
- Our budget is balanced through 2023 as we continue to be among a select few counties nationally to have a AAA bond rating, saving taxpayers millions of dollars

We are on a roll.

Oakland County gives businesses and entrepreneurs the tools and opportunity to succeed: a skilled and educated workforce, a business-friendly environment, access to capital and an unmatched quality of life for our residents.

To the business community in Oakland County and Michigan, thank you for your hard work and for the dollars you put at risk. More importantly, thank you for the shimmering horizon of good economic news that we continue to enjoy.

BOND RATING SINCE 1998
Oakland County is a fiscally responsible government partner with resources to support your success.

2019 SPONSORS

Automation Alley | Beaumont | Bishop International Airport | Citizens Commercial Banking
Construction Association of Michigan | DTE Energy | Genisys Credit Union
Huron Valley State Bank | ITC Holdings Corp. | McLaren Oakland
Oakland County Michigan Works! | Oakland County Michigan Works! Troy
Oakland University | PNC Bank



The Economic Outlook Summary is presented at a luncheon by Dr. Gabriel Ehrlich and Donald R. Grimes, University of Michigan's Research Seminar in Quantitative Economics. Along with Oakland County, the event is hosted by Chase and Oakland Community College.

34th Oakland County. Economic Outlook

2019-2021

S U M M A R Y

PRESENTED BY

Dr. Gabriel M. Ehrlich
and Donald R. Grimes
University of Michigan

APRIL 2019



Gabriel Ehrlich



Donald Grimes

OVERVIEW OF CONTENTS

- ▶ Track Record for Forecasts over the Years
- ▶ Job Growth and Unemployment Rates in Recent History
- ▶ Recent Job Growth by Wage Categories
- ▶ Comparisons with Other U.S. Counties of Similar Size
- ▶ Overview of the U.S. Economic Outlook
- ▶ County GDP Statistics
- ▶ Outlook for Oakland County through 2021, including:
 - *Employment Growth by Industry Division*
 - *Job Growth by Wage Categories*
 - *Oakland Employment Growth Compared with Michigan's*
 - *Local Unemployment and Inflation Rates*

The full report will be available in June on the web (updated annually) at:
AdvantageOakland.com | lsa.umich.edu/econ/rsqe

Research Seminar in Quantitative Economics (RSQE)

The Research Seminar in Quantitative Economics (RSQE) is a modeling and forecasting unit that has been in operation at the University of Michigan since 1952. Four times per year, RSQE provides forecasts of both the U.S. economy and the Michigan economy. RSQE hosts the University of Michigan's Annual Economic Outlook Conference, the longest-running such event in the U.S., in Ann Arbor each November. RSQE has twice received the prestigious Blue Chip Annual Economic Forecasting Award (AEFA) recognizing "accuracy, timeliness, and professionalism" in economic forecasting.

Dr. Gabriel M. Ehrlich

received his Ph.D. in economics from the University of Michigan. He is the director of the University's Research Seminar in Quantitative Economics (RSQE). His research focuses on several areas of housing and land economics as well as the effects of wage rigidity on labor market outcomes. His work has been published recently in the *New England Journal of Medicine*, the *Review of Economics and Statistics*, and the *Journal of Urban Economics*.

Prior to joining RSQE, Dr. Ehrlich worked in the Financial Analysis Division at the Congressional Budget Office (CBO), where he forecast interest rates and conducted analysis on monetary policy and the mortgage finance system. He has also worked as a financial analyst in the mortgage banking industry. He earned his undergraduate degrees in finance and economics at the University of Maryland, where he was chosen by the faculty as the outstanding graduate in finance during his senior year.

Dr. Ehrlich testifies twice per year to the state legislature on Michigan's fiscal and economic prospects, which the state uses as a guide to determining expected future revenues. He recently coauthored *The United States Economic Outlook for 2019–2020* and *The Michigan Economic Outlook for 2019–2020*.

Donald R. Grimes

received his master's degree in economics from the University of Michigan. He is a senior research area specialist at the University's Research Seminar in Quantitative Economics (RSQE) and at the Economic Growth Institute, where he is assistant director of the Center for Labor Market Research. His primary research interests are in labor economics and economic forecasting.

For 40 years, he has been engaged in economic forecasting for state and local governments and is frequently called upon for policy advice. He has worked for many years with the Michigan departments of Transportation and Treasury and the Michigan Economic Development Corporation on policy analysis and evaluating economic strategies. He is co-director of a project to generate long-term economic and demographic projections for all of the counties of Michigan. His past research includes a study looking at Michigan's industrial structure with a view to identifying sectors that will promote economic growth in the future.

He has been involved in research projects sponsored by the U.S. Department of Commerce, the U.S. Department of Labor, the Federal Reserve Bank of Chicago, and the Robert Wood Johnson Foundation. His work has been published recently in the *Economic Development Quarterly* and the *New England Journal of Medicine*. He recently coauthored *The Michigan Economic Outlook for 2019–2020*.

Dr. Michael R. McWilliams

received his Ph.D. in economics from the University of Michigan. He is a Michigan forecasting specialist at the Research Seminar in Quantitative Economics (RSQE). His research focuses on a range of topics in environmental and natural resource economics, including land use change and its causes and environmental consequences, regulation of light-duty vehicles, and the impact of the ethanol mandates. His work has been published in the *Proceedings of the National Academy of Sciences* and *Energy Policy*.

Dr. McWilliams assists with RSQE's forecasts of the Michigan economy and tax revenues four times per year, and he recently coauthored *The Michigan Economic Outlook for 2019–2020*.

Jacob T. Burton

is the newest member of the team at the University of Michigan's Research Seminar in Quantitative Economics (RSQE), where he contributes to the Michigan and U.S. forecasts four times per year. He is currently finishing his master's degree in applied economics from Eastern Michigan University. He recently coauthored *The United States Economic Outlook for 2019–2020* and *The Michigan Economic Outlook for 2019–2020*. His primary fields of interests are in economic forecasting and energy economics.

lsa.umich.edu/econ/rsqe

Table 1

Track Record over the Years

Year of Forecast	% Forecast Error for Total Private Jobs	Year of Forecast	% Forecast Error for Total Private Jobs	Year of Forecast	% Forecast Error for Total Private Jobs
1986	+ 1.4	1997	+ 0.6	2008	+ 2.3
1987	+ 0.7	1998	+ 1.3	2009	+ 5.5
1988	- 1.8	1999	- 1.2	2010	- 1.7
1989	- 1.9	2000	+ 0.6	2011	- 2.5
1990	+ 2.2	2001	+ 1.9	2012	- 2.6
1991	+ 3.9	2002	+ 3.2	2013	- 1.1
1992	- 2.0	2003	+ 1.5	2014	- 0.3
1993	+ 0.5	2004	+ 2.6	2015	- 0.1
1994	- 1.3	2005	+ 1.4	2016	- 0.1
1995	+ 0.2	2006	+ 3.4	2017	+ 1.1
1996	- 0.5	2007	0.0	2018	+ 0.4

(Positive numbers indicate that the forecast was too high; negative numbers indicate that it was too low.)

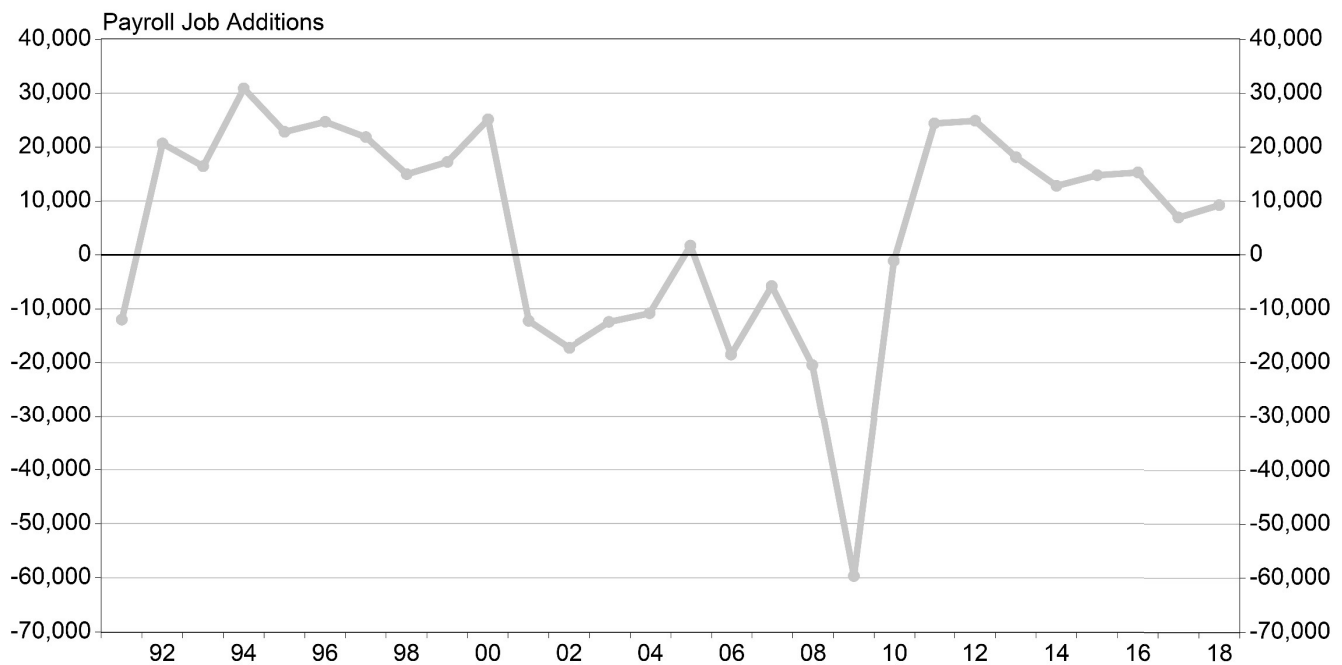
Average absolute forecast error 1986–2018: 1.6%

	Forecast 2018	Actual 2018
Unemployment rate	3.4%	3.3%
Consumer inflation rate	2.3%	2.4%

Forecast Date: April 2018

- In last year's report, we forecast that Oakland County's private sector would add 11,713 jobs in 2018, for a growth rate of 1.7 percent. We now estimate that the county gained 8,861 new jobs last year, or 1.3 percent, resulting in an overshoot of 0.4 percentage points, or four workers per 1,000.
- That forecast error is well below our average absolute error of 1.6 percent since 1986.
- Among the major industry divisions, the largest shortfall in our forecast was in leisure and hospitality services. We expected that industry division to grow by 1,514 jobs (2.1 percent), whereas we now estimate that it added only 252 jobs (0.4 percent). We believe the weakness in this sector is temporary and that growth will bounce back in 2019.
- Our forecast for the government sector was also a little too high. We anticipated job growth of 1.1 percent in 2018; instead, government employment increased by only 0.8 percent.
- We had forecast that the unemployment rate would decline by 0.1 percentage points, from 3.5 percent in 2017 to 3.4 percent in 2018. We were spot on in terms of the change, but the starting point was revised. The unemployment rate for Oakland County did decline by 0.1 percentage points, from a revised value of 3.4 percent in 2017 to 3.3 percent in 2018.
- Our forecast for inflation was also very close. We underestimated local consumer inflation by 0.1 percentage points. Local prices increased by 2.4 percent in 2018 instead of the 2.3 percent we had forecast.

Figure 1
Job Growth in Oakland County, 1991–2018



- Oakland County’s economy grew vigorously during the 1990s. The county added 182,700 jobs from 1990 to 2000, an average pace of 2.8 percent per year.
- The county gave up the majority of that growth during the 2000s, shedding 156,500 jobs. That came to an average rate of decline of 2.2 percent annually. In total, the county lost 86 percent of the jobs it had gained in the preceding decade.
- The 2010s have seen a return to growth in Oakland County. We estimate that through 2018, the county has added back 126,500 jobs, registering an average growth rate of 2.1 percent per year.
- Job growth in the county slipped to a 1.0 percent annual pace in 2017, its slowest rate during the current recovery period.
- Based on the currently available data, it appears that growth bounced back nicely in 2018. We now estimate that the county added 9,300 jobs for the year, a growth rate of 1.3 percent.
- The acceleration in Oakland County’s job growth is a heartening sign this far into the county’s recovery period. It is especially impressive given the recent softness in Detroit Three light vehicle sales, which have declined in each of the past three years.
- In our view, Oakland’s recent success reflects the ongoing diversification of the county’s economy toward future growth sectors, which has been enabled by the county’s well-educated labor force.
- Oakland County’s job gains in 2018 were concentrated in three major industry divisions. In order, they were: professional and business services; private education and health services; and trade, transportation, and utilities. Together, these industries accounted for over four-fifths of the county’s job gains for the year.
- The government sector has continued to lag the private sector since returning to job growth in 2016. The sector grew at a 0.8 percent pace in 2018, half a percentage point slower than the private sector.

Table 2

Job Change in Oakland County by Industry Wage Category, 2010–2018

	2010	2018	Change 2010–2018	% Change 2010–2018
Total all industries	611,142	737,602	126,460	20.7
Higher-wage industries (\$75,000 or more)	196,912	246,854	49,943	25.4
Middle-wage industries (\$35,000 to \$74,999)	278,566	321,722	43,156	15.5
Lower-wage industries (under \$35,000)	135,665	169,026	33,361	24.6

Source: BLS, Quarterly Census of Employment and Wages. Higher-wage industries have an average wage in 2017 at least 35 percent above the U.S. average (\$55,390) and lower-wage industries at least 35 percent below the U.S. average.

- We have broken out job growth in Oakland County over the recovery period into three categories based on the average wages paid in each of the 151 unique industries in our dataset.
- The three categories are higher-wage industries, which paid an average of \$75,000 or more in 2017; middle-wage industries, which paid on average between \$35,000 and \$74,999; and lower-wage industries, which paid less than \$35,000 on average.
- For comparison, the average annual wage in the United States was \$55,390 in 2017, versus \$61,536 in Oakland.
- Higher-wage industries grew faster than average on a percentage basis in Oakland County from 2010 to 2018. The 49,943 job additions in this category came to total growth of 25.4 percent.
- Middle-wage industries grew more slowly in Oakland County on a percentage basis, 15.5 percent. Because the 2010 employment level in middle-wage industries was so large, however, that growth rate translated into 43,156 job additions, only slightly less than the number of jobs in the higher-wage industries.
- Lower-wage industries added 33,361 jobs in Oakland County from 2010 to 2018, the fewest of the three wage categories. However, because the 2010 employment level in lower-wage industries was relatively small, that translated into a healthy growth rate of 24.6 percent.
- An important factor behind the relatively slow growth in the middle-wage industries in Oakland County during this time is job losses in the government sector.

Figure 2

Unemployment Rates for Oakland County and for the United States, 1990–2018



- Oakland County's unemployment rate climbed to 7.5 percent in 1991, its peak level during the early 1990s recession. It declined over the remainder of the 1990s, reaching a low point of 2.6 percent in 2000.
- Oakland's unemployment rate climbed to 6.6 percent in 2008, before spiking during the Great Recession to 13.0 percent in 2009 and 11.8 percent in 2010. The national unemployment rates for those years were 5.8, 9.3, and 9.6 percent, respectively.
- Oakland County's unemployment rate has come down sharply since the Great Recession. Oakland's rate fell below the national rate in 2015, and has stayed there every year since then.
- Oakland's unemployment rate averaged 3.3 percent in 2018. That was only one-tenth of a percentage point lower than the 2017 average, but it was still a move in the right direction. It was also the lowest annual unemployment rate the county had recorded since the all-time low achieved in 2000. The U.S. unemployment rate averaged 3.9 percent in 2018, six-tenths of a percentage point above Oakland County's unemployment rate for the year.
- Growth in the county's labor force came almost to a standstill in 2018, at 0.1 percentage points. We believe that slowdown reflects a balancing act between a strong labor market, which is drawing more workers into the labor force, and a powerful downward pull from demographics, as baby boomers increasingly reach the normal retirement age.

Table 3

Oakland County Compared with its Peers*

County	State	Population 2017	Associate's Degree or More	Child Poverty	Median Family Income**	High-Income Persons Aged 65 or Older	Managerial, Professional	Sum of Rankings	Rank of Sum
Fairfax	VA	1,148,433	1	8	1	1	1	12	1
Montgomery	MD	1,058,810	2	7	3	2	2	16	2
Collin	TX	969,603	5	1	2	12	3	23	3
Nassau	NY	1,369,514	10	3	6	3	13	35	4
DuPage	IL	930,128	6	4	4	11	11	36	5
Oakland	MI	1,250,836	8	6	5	14	5	38	6
Bergen	NJ	948,406	9	2	13	8	9	41	7
Westchester	NY	980,244	11	9	9	5	10	44	8
Wake	NC	1,072,203	3	15	7	15	4	44	8
Hennepin	MN	1,252,024	4	17	8	16	7	52	10
Fairfield	CT	949,921	15	13	11	6	14	59	11
Travis	TX	1,226,698	14	18	10	10	8	60	12
Contra Costa	CA	1,147,439	17	14	15	4	17	67	13
Fulton	GA	1,041,423	7	25	12	18	6	68	14
Suffolk	NY	1,492,953	20	5	14	9	22	70	15
St. Louis	MO	996,726	16	16	16	19	15	82	16
Mecklenburg	NC	1,076,837	13	22	17	24	16	92	17
Allegheny	PA	1,223,048	12	19	18	32	12	93	18
Salt Lake	UT	1,135,649	24	11	19	20	19	93	18
Prince George's	MD	912,756	35	12	20	7	23	97	20
Honolulu	HI	988,650	22	10	24	13	36	105	21
Gwinnett	GA	920,260	23	21	21	23	27	115	22
Franklin	OH	1,291,981	21	30	22	25	18	116	23
Erie	NY	925,528	18	27	23	27	26	121	24
Palm Beach	FL	1,471,150	25	23	29	17	32	126	25
Sacramento	CA	1,530,615	32	24	25	21	25	127	26
Pinellas	FL	970,637	28	20	27	29	29	133	27
Hillsborough	FL	1,408,566	26	26	30	28	24	134	28
Pima	AZ	1,022,769	29	29	32	22	28	140	29
Cuyahoga	OH	1,248,514	27	34	26	33	20	140	29
Orange	FL	1,348,975	19	28	35	34	31	147	31
Duval	FL	937,934	31	31	28	30	30	150	32
Shelby	TN	936,961	34	36	31	26	35	162	33
Marion	IN	950,082	30	32	34	35	33	164	34
Philadelphia	PA	1,580,863	36	37	37	38	21	169	35
Milwaukee	WI	952,085	33	33	33	36	34	169	35
Fresno	CA	989,255	37	35	36	31	37	176	37
Bronx	NY	1,471,160	38	38	38	37	38	189	38

*All counties in the United States with a population between 900,000 and 1,600,000 in 2017

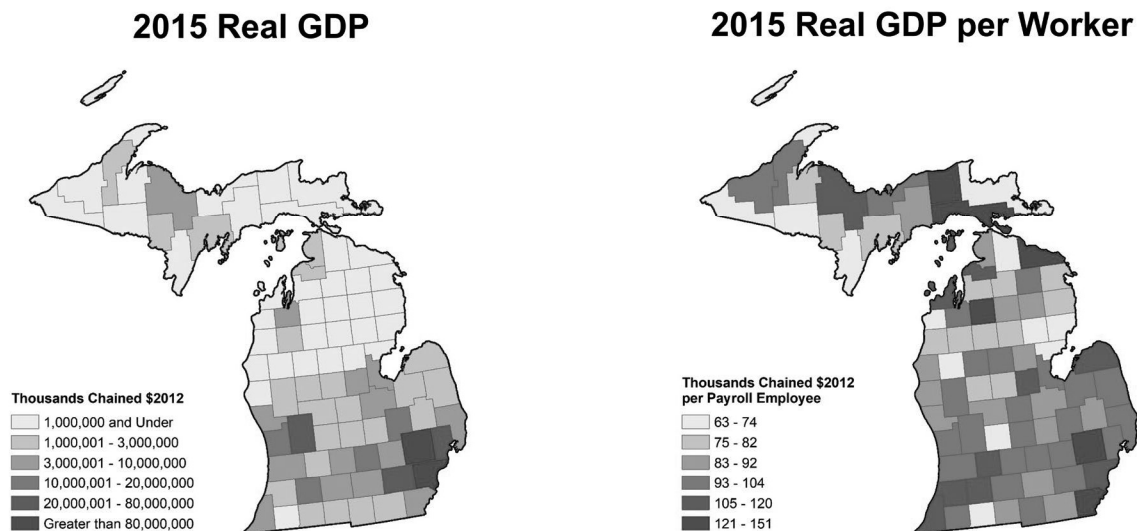
**Adjusted for cost of living

Source: American Community Survey 2017. Census Bureau Population Estimates, April 2018.

- It is useful to compare Oakland County's economic structure and outcomes with those of similar counties in order to forecast Oakland's future. Oakland County ranks near the top on a number of economic metrics when compared to its peer counties.
- We ranked Oakland County among its peers on five measures that we consider to be informative of future economic prospects. We considered all counties in the United States with populations between 900,000 and 1.6 million residents in 2017. A total of 37 other counties matched this description, with Oakland's population of 1.25 million in the middle of the pack.
- A lower number for a rank indicates a better position among the counties: a rank of 1 is the best and 38 is the worst. Oakland County ranks between 5th and 14th across the various measures. Oakland's status in every measure has improved since our previous forecast.
- In Table 2, we arrange the 38 counties by the sum of their rankings across the various measures to calculate an overall ranking. Oakland places 6th overall, up three places from its ranking a year ago.
- The measures we consider are: (1) educational attainment—share of the population aged 25 to 64 with at least an associate's degree in 2017; (2) child poverty—share of the population aged 17 and under who lived within families whose income was below the poverty level in 2017; (3) median family income adjusted for the cost of living in 2017; (4) high income seniors—share of persons aged 65 and older with income at least five times the poverty line in 2017; and (5) professional occupations—share of employed county residents working in professional and managerial occupations in 2017.
- Notably, Oakland ranks 5th in professional occupations, 5th in median family income, and 6th in child poverty. Oakland's placement in these categories has helped it maintain and improve its position compared to its peers. This is an impressive achievement considering that a number of these counties contain some of the top-rated local economies in the nation.
- After last year's forecast presentation, we were asked about the distribution of child poverty within the county. Data for communities within the county are not available for the year 2017, but 5-year averages for the years 2012–2017 are available. Those statistics show dispersion in the level of child poverty across communities within Oakland County. Some communities have reported child poverty rates of zero percent, while others report levels above 40 percent. Oakland's average level of child poverty has fallen in every year since 2011, however.
- Oakland's lowest ranking came in the share of high-income seniors, but the county's ranking of 14th on this metric still placed the county well into the top half of its peer group.
- We believe Oakland County's strong overall performance in these measures suggest it is securely positioned now and for the future. The combination of an educated populace, a high share of managerial and professional jobs, and an attractive standard of living should provide a solid foundation for economic prosperity over our forecast period and in the years to come.

Figure 3

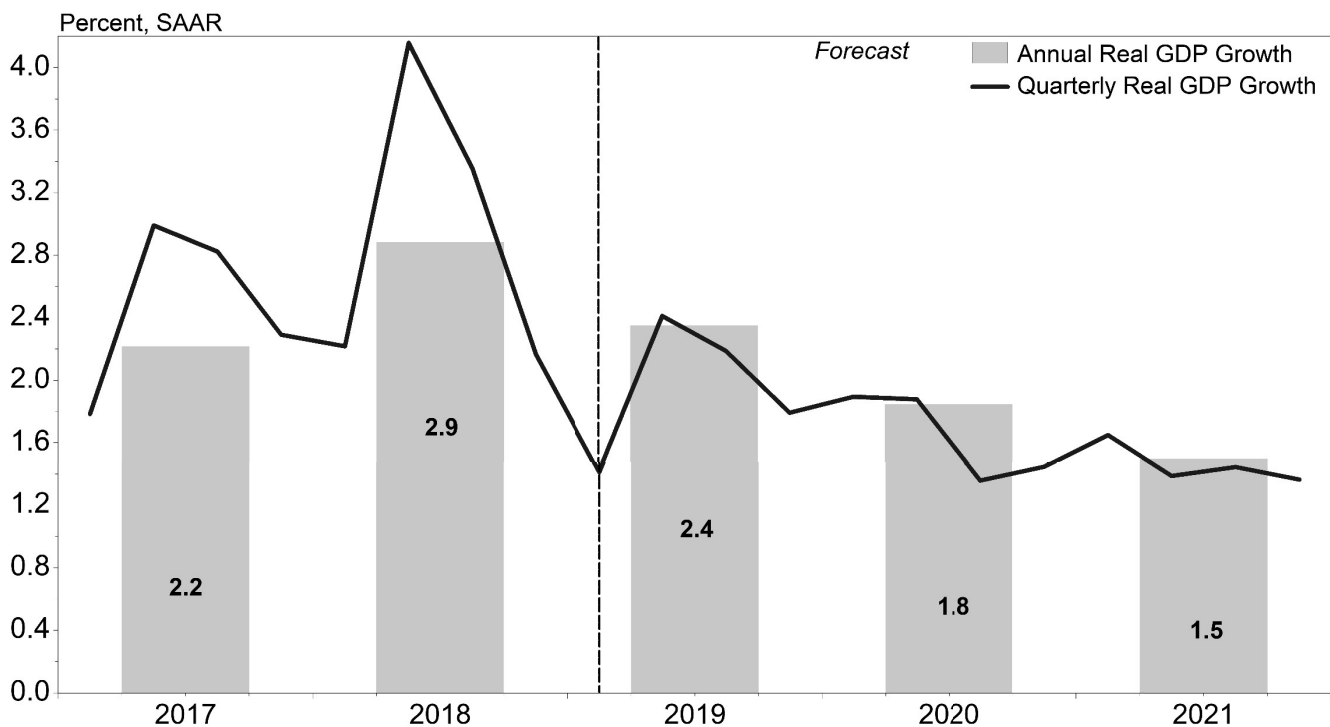
County-Level Real GDP



- The Bureau of Economic Analysis recently released prototype statistics for annual Gross Domestic Product (GDP) by county covering the years 2012–2015. The left-hand map above shows 2015 real GDP for each of the 83 counties in Michigan.
- GDP measures the value of all of the goods and services produced in a particular location over a specific time period. Real GDP adjusts that measure for inflation, in this case to be expressed in 2012 dollars.
- Oakland County's real GDP was \$101 billion in 2015. That was the largest GDP out of all of the counties in Michigan, about 25 percent larger than the next-largest level, in neighboring Wayne County. In fact, Oakland County accounted for 23 percent of Michigan's real GDP in 2015.
- Private service-producing industries accounted for 76.1 percent of Oakland County's real GDP in 2015. Private goods-producing industries accounted for 19.8 percent, while government accounted for just 4.2 percent. Relative to Michigan overall, a higher share of Oakland County's GDP comes from private-sector service industries and a lower share comes from government.
- The right-hand map above shows 2015 real GDP divided by the number of payroll employees, or output per worker, for each of Michigan's counties. Oakland County's output per worker was \$143,100 in 2015, about 32 percent higher than the state average. Oakland's level ranked fourth out of the state's counties.
- The three counties with higher levels of output per worker in 2015 were Kalkaska, Luce, and Mackinac, each of which had fewer than 5,000 payroll employees. We believe that the small sizes of those counties' workforces mean their rankings on this measure should be taken with a grain of salt.
- Wayne County had real output per worker of \$115,400 in 2015, which was 19.4 percent lower than Oakland's level. Kent, Macomb, and Washtenaw Counties, with the state's third-through fifth-largest economies, all had real output per worker near \$100,000, roughly 30 percent lower than Oakland's.
- Private sector output per worker in Oakland County was even higher in 2015 than the overall level, at \$146,400. In the government sector, output per worker was \$95,200.

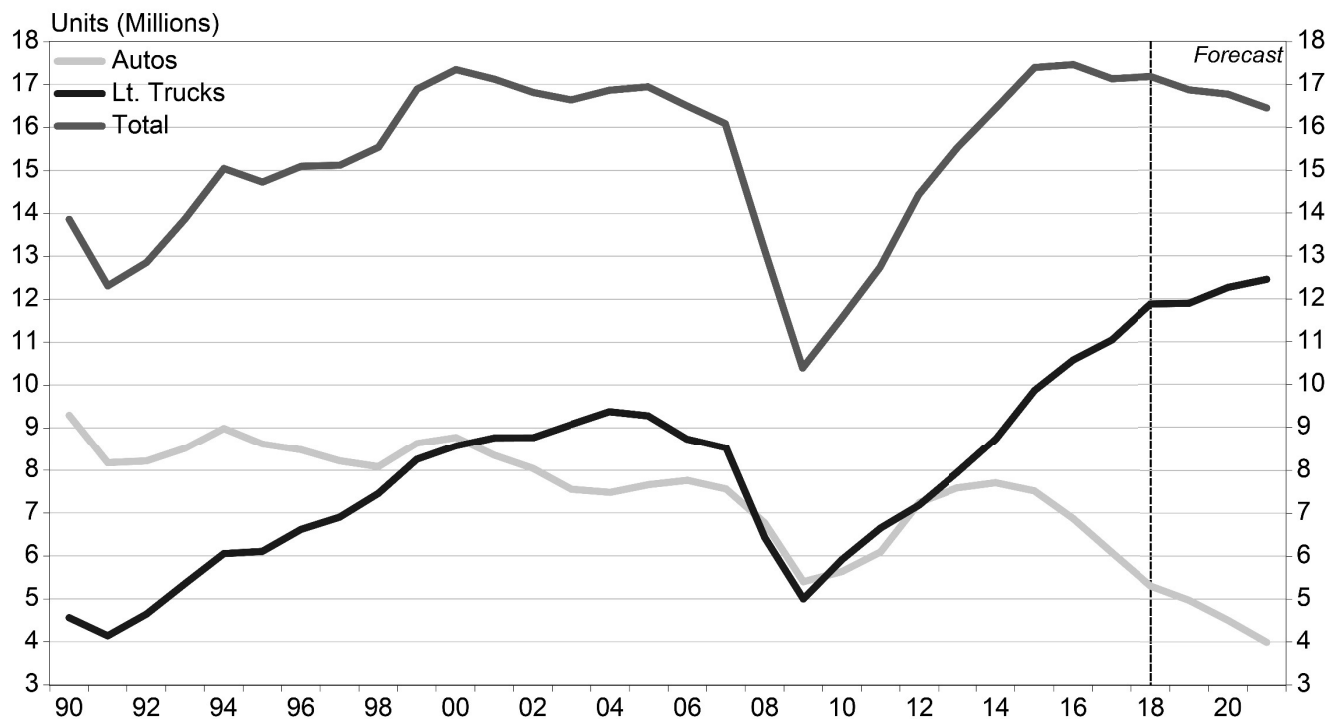
Figure 4

Growth in U.S. Real GDP, 2017–2021



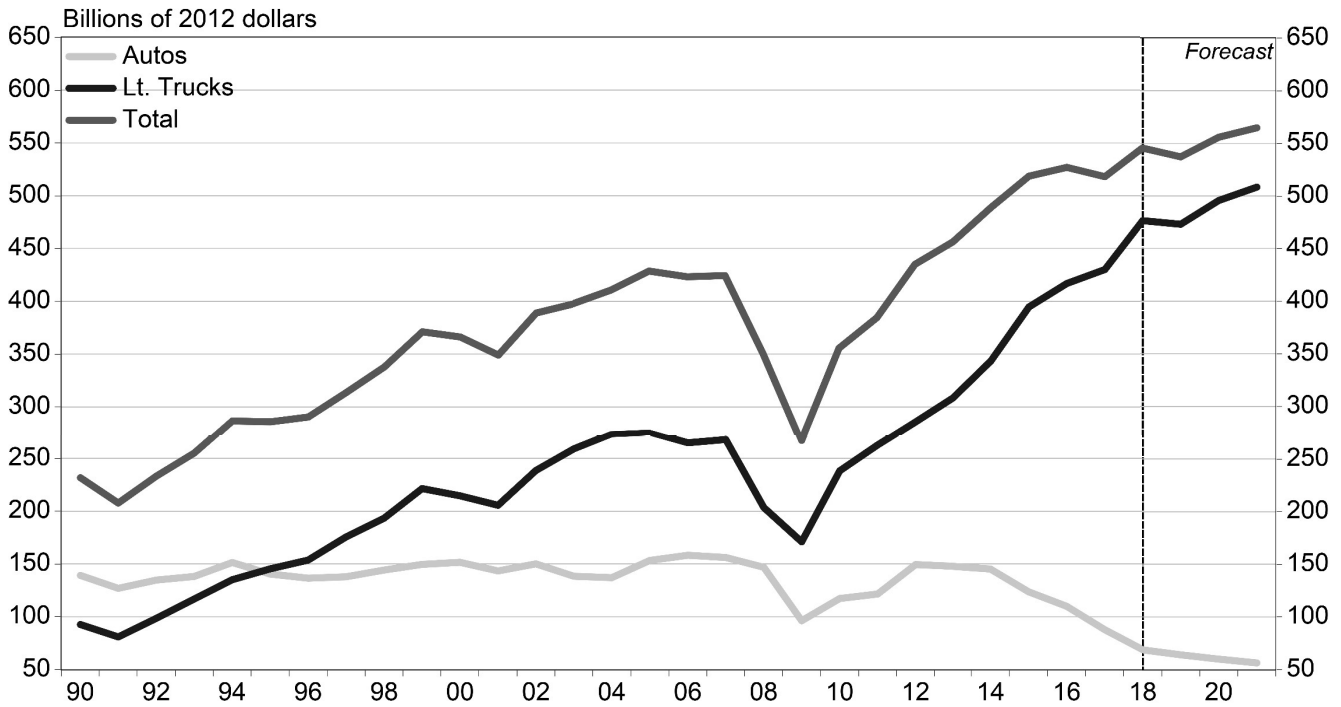
- Oakland County’s economic future is deeply intertwined with the overall health of the national economy.
- U.S. real GDP grew by 2.9 percent in 2018, on par with 2015 as the strongest performance of this business cycle expansion. Growth slowed during the course of 2018, however, from an annual rate of 4.2 percent in the second quarter to 2.2 percent in the fourth quarter.
- Based on the high-frequency data so far, we expect growth in the first quarter of 2019 to register a disappointing annualized pace of 1.4 percent, but we judge that pace to be below the economy’s current trend. Growth bounces back to around 2.4 percent in the second quarter.
- We then expect GDP growth to decelerate over the next few years, as the temporary boost from the tax cuts in the Tax Cuts and Jobs Act of 2017 and the extra federal spending from the fiscal 2018 and 2019 budgets both fade.
- We expect the Federal Reserve to slow its recent pace of monetary tightening going forward. We foresee one additional increase in the range for the federal funds rate this year and one more in 2020 followed by a flat path in 2021.
- Overall, we are projecting annual real GDP growth to register 2.4 percent in 2019, 1.8 percent in 2020, and 1.5 percent in 2021.
- Our forecast assumes a relatively rosy scenario for international trade relations, with no further tariffs imposed by the United States or retaliatory tariffs by other nations. If trade tensions begin to worsen again, our forecast could prove to be too optimistic.
- Although we are projecting growth to slow down over the next few years, our baseline outlook does not include a national recession over the forecast horizon. We believe that the Fed will be able to engineer a so-called “soft landing,” with growth slowing but not venturing into negative territory.

Figure 5
U.S. Light Vehicle Sales, 1990–2021



- As economic growth slows over the forecast horizon, so do U.S. light vehicle sales.
- Total light vehicle sales set an all-time high of 17.5 million units in 2016, but that pace now feels like a hazy memory. Sales fell to 17.2 million units in 2018.
- We are projecting light vehicle sales to total 16.9 million this year before sliding to 16.8 million in 2020 and 16.5 million in 2021.
- The decline is driven by automobiles, as light truck sales, which include minivans, SUVs, and CUVs, continue to grow at a moderate pace. We see the light truck share of vehicle sales edging up to 76 percent of the market in 2021.

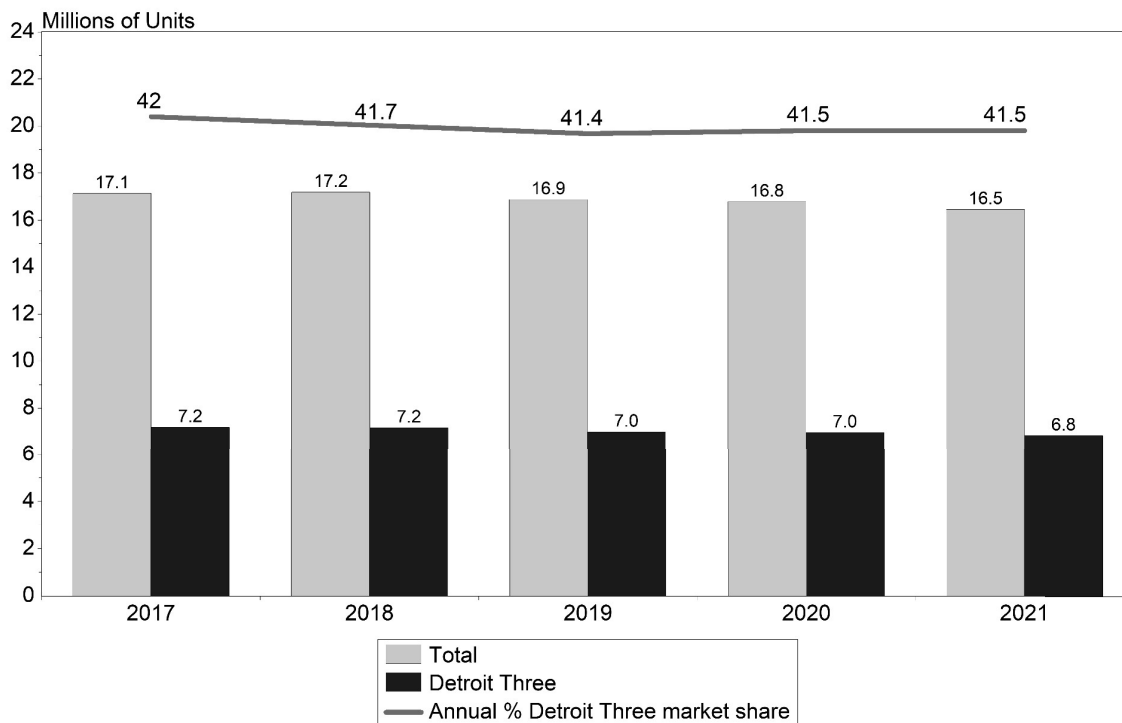
Figure 6
Real U.S. Light Vehicle Output, 1990–2021



- The decline in unit sales of light vehicles over our forecast period obscures a more heartening trend, which is that real U.S. light vehicle output continues to inch up.
- The difference between the trends for sales and real output, or value added, arises from the diverging fortunes of automobiles and light trucks.
- Since light trucks contain much more value added than automobiles, the continued growth of light truck sales outweighs the decline in auto sales when it comes to vehicle output. We forecast average growth of 2.2 percent per year in real output of light trucks from 2018 to 2021, compared with an average decline of 6.5 percent per year in automobiles.
- We expect total real U.S. light vehicle output to grow from 546 billion chained 2012 dollars in 2018 to 565 billion dollars in 2021, for a modest average growth rate of 1.2 percent per year.
- That growth is better than the declines we expect for unit sales, but it is still slower than the average annual growth rate of 5.6 percent recorded between 2011 and 2018.

Figure 7

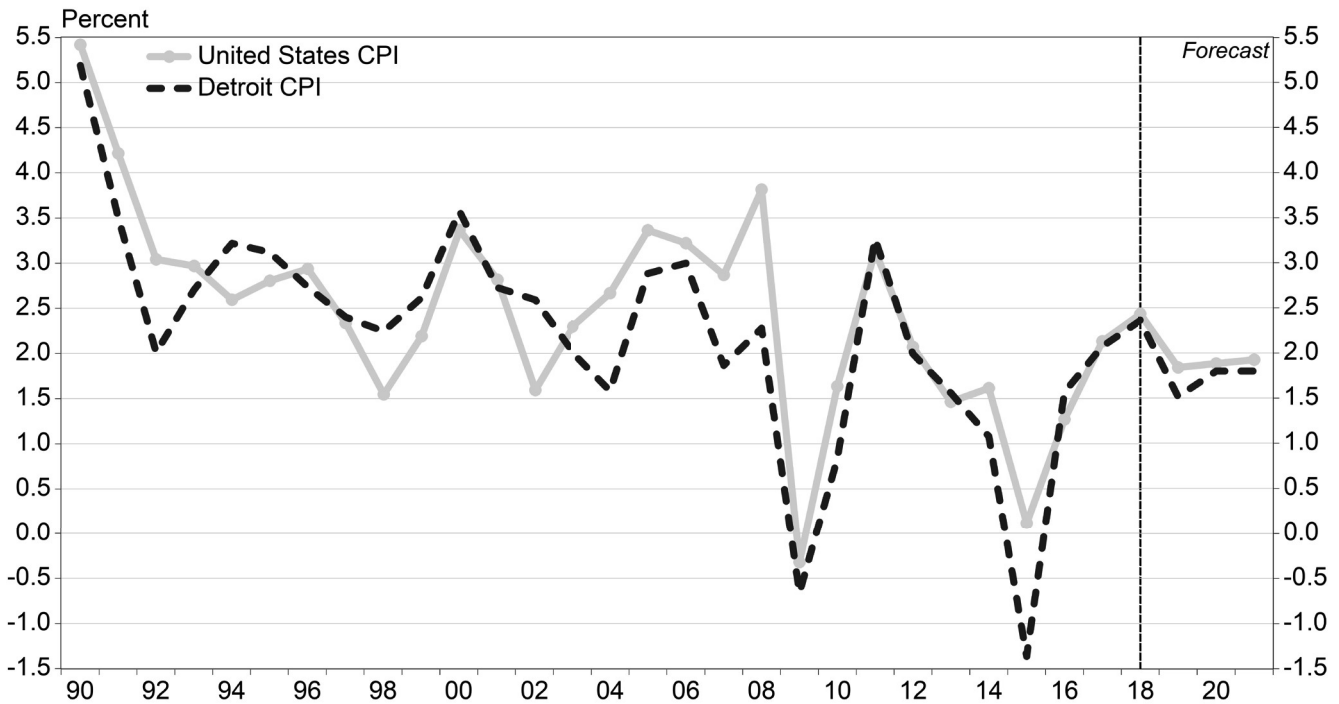
U.S. Light Vehicle Sales, Total vs. Detroit Three, 2017–2021



- The Detroit Three’s share of the light vehicle market fell from 42 percent in 2017 to 41.7 percent last year as the overall market eked out a small gain.
- We see the Detroit Three share dipping a bit further to 41.4 percent in 2019 before nudging back up to 41.5 percent in 2020 and 2021.
- When combined with our outlook for the total light vehicle market, this projections yields a declining profile for Detroit Three sales.
- Detroit Three sales fall from 7.2 million units per year in 2017 and 2018 to 7.0 million units per year in each of 2019 and 2020. They then fall a bit further to 6.8 million units in 2021.
- Our forecast makes several relatively optimistic assumptions: that this year’s contract negotiations between the United Autoworkers and the Detroit Three automakers are completed without a prolonged work stoppage; the United States-Mexico-Canada Agreement is ratified successfully in all three nations; the Trump administration does not impose new tariffs on automotive imports from the European Union; and the trade tensions with China do not result in any substantial new tariffs.

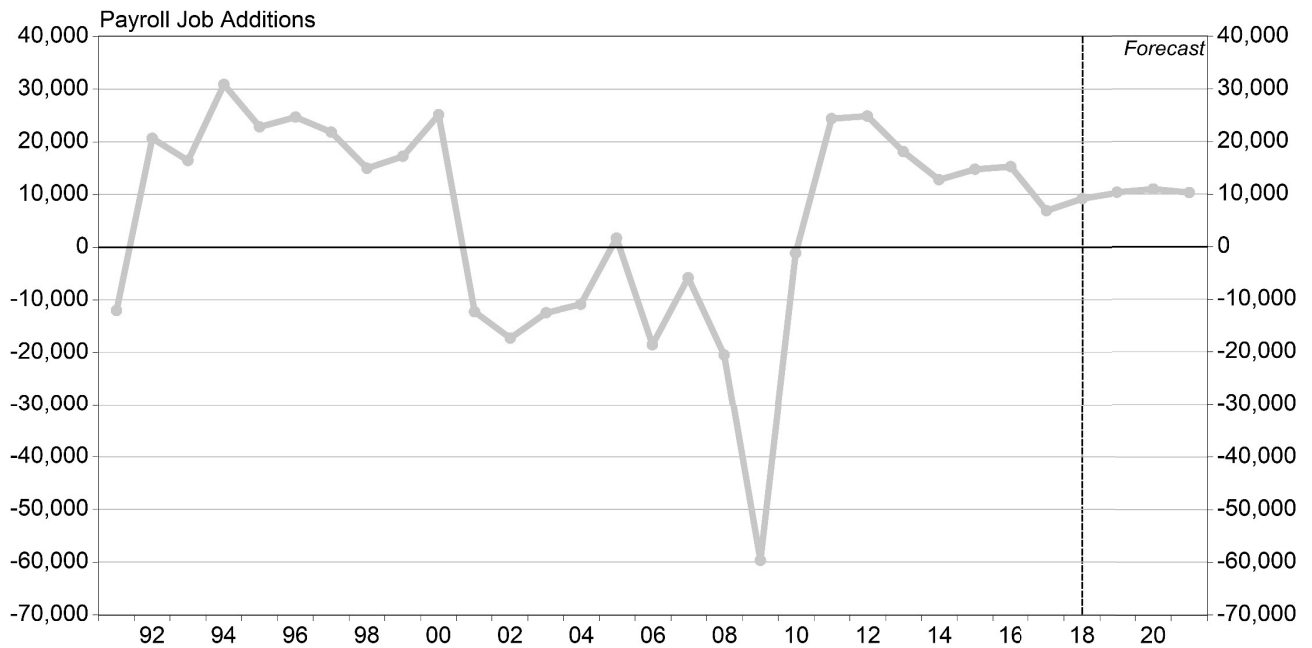
Figure 8

Inflation Rate, Detroit CPI, 1990–2021



- We measure local inflation by the growth rate of the Detroit Consumer Price Index (CPI), as county-level consumer price data are not available. Since 1990, Detroit CPI inflation has averaged 2.2 percent per year, about three-tenths of a percentage point lower than the average U.S. rate of 2.5 percent.
- Local and national inflation both registered 2.4 percent in 2018, pushed upward by a large increase in energy prices that persisted through most of the year. That was the highest level since 2011, when Detroit CPI inflation registered 3.3 percent and national CPI inflation clocked in at 3.1 percent.
- Energy prices tumbled toward the end of 2018 and the start of 2019, which should cause inflation to dip this year. We are forecasting national inflation of 1.8 percent and local inflation of only 1.5 percent for the year.
- Inflation then inches back up toward the Federal Reserve's target of 2.0 percent as energy prices stabilize. We are forecasting local inflation of 1.8 percent per year in 2020 and 2021. National inflation runs one-tenth of a percentage point higher than local inflation in each of those years.

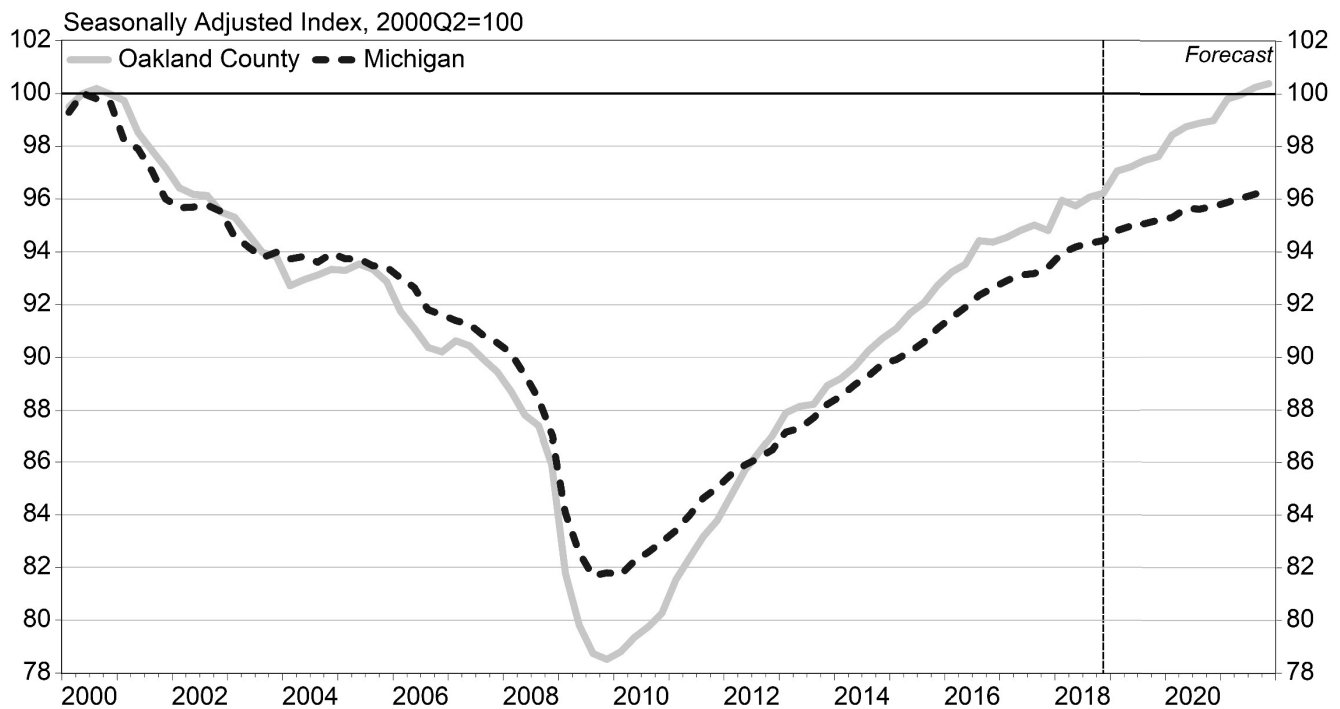
Figure 9
Job Growth in Oakland County, 1991–2021



- On a quarterly basis, using our estimate for the end of 2018, Oakland County has now completed nine consecutive years of job growth since the recession’s low point at the end of 2009. (The small number of job losses recorded in 2010 is a statistical artifact that results from calendar-year averaging. The county actually gained jobs in each quarter of the year, but not quickly enough to take the annual average above its level in the previous year.)
- Job growth accelerated from 1.0 percent in 2017 to 1.3 percent in 2018.
- We expect growth of 1.4 percent in 2019, 1.5 percent in 2020, and 1.4 percent in 2021. That growth translates into gains of 10,300 jobs this year, 10,900 in 2020, and 10,300 in 2021.
- In total, we are forecasting 31,600 job additions over our forecast period, an average pace of 1.4 percent per year. That is a substantially faster pace than we currently anticipate for the United States or the state of Michigan over our forecast period.

Figure 10

Total Jobs in Oakland County vs. Michigan, Seasonally Adjusted, First Quarter of 2000 to Fourth Quarter of 2021



- To put Oakland County's recovery from the Great Recession in perspective, we plot the quarterly path of the county's total employment from the beginning of 2000 to the end of our forecast period in 2021. We include the same path for the state of Michigan. We index both employment paths to equal 100 in the second quarter of 2000, when Michigan reached its peak employment level. Oakland reached its peak employment level one quarter later, in the third quarter of 2000.
- Oakland County lost 166,500 jobs from then until the fourth quarter of 2009, its Great Recession-era low point. That was 21.6 percent of its peak level.
- Oakland's decline was more severe proportionally than Michigan's peak-to-trough decline from the second quarter of 2000 to the third quarter of 2009. Michigan lost 859,100 jobs in that time, 18.3 percent of its peak level.
- Oakland's labor market has recovered more vigorously from the recession than Michigan's overall. We estimate that Oakland recovered 136,100 jobs from the end of 2009 to the end of 2018, which translates to nearly two index points more than the state of Michigan.
- We forecast that Oakland County will create an additional 32,100 jobs from the end of 2018 to the end of 2021. (That total differs slightly than the total using calendar-year averages reported alongside Figure 9 because it is from the end of 2018 to the end of 2021.)
- In our forecast, Oakland County sets a new employment peak in the summer of 2021. By contrast, the state as a whole is forecast to remain four percentage points below its peak employment level in that quarter.
- The more vigorous job growth we are projecting for Oakland County relative to Michigan overall means that the gap between the two index lines in the figure continues to grow, from 1.8 index points at the end of 2018 to 4.0 points at the end of 2021.

Table 4

Job Change in Oakland County by Industry Category, 2018–2021

	2018	2021	Change 2018–2021	% Change 2018–2021
Total all industries	737,602	769,172	31,570	4.3
Higher-wage industries (\$75,000 or more)	246,854	257,684	10,830	4.4
Middle-wage industries (\$35,000 to \$74,999)	321,722	335,012	13,290	4.1
Lower-wage industries (under \$35,000)	169,026	176,476	7,450	4.4

Source: BLS, Quarterly Census of Employment and Wages. Higher-wage industries have an average wage in 2017 at least 35 percent above the U.S. average (\$55,390) and lower-wage industries at least 35 percent below the U.S. average.

- This table splits job growth in Oakland County over the forecast period into the same industry categories based on average wages as in Table 2.
- On a percentage basis, we are forecasting that job growth will be similar in all industry wage categories over the next three years. Employment in both higher-wage and lower-wage industries is expected to increase by 4.4 percent, while employment in middle-wage industries will grow by 4.1 percent.
- One factor we see boosting growth in the middle-wage industries is the government sector's return to growth in Oakland County. Government employment started increasing in the county in 2016, and we expect its growth to continue at a modest pace over the forecast period.
- The higher- and middle-wage industries account for over three-quarters of the net new jobs created in the county from 2018 to 2021.

Table 5

Forecast of Jobs in Oakland County by Major Industry Division, 2018–2021*

	Estimate 2018	Forecast Employment Change				Average Annual Wage 2017
		2018–2019	2019–2020	2020–2021	2018–2021	
TOTAL JOBS (Number of persons)	737,602	10,347	10,941	10,282	31,570	61,536
(Annual percentage change)	(1.3)	(1.4)	(1.5)	(1.4)	(1.4)	N.A.
TOTAL GOVERNMENT	45,417	459	940	117	1,516	53,785
TOTAL PRIVATE	692,184	9,888	10,001	10,165	30,055	62,047
GOODS-PRODUCING	94,383	1,421	1,141	936	3,499	79,414
Natural resources, mining, construction	27,061	734	713	677	2,124	71,196
Manufacturing	67,322	688	428	259	1,375	82,674
Fabricated metal products	10,357	35	-102	-178	-245	61,646
Machinery	11,565	58	98	74	230	83,196
Transportation equipment (motor vehicles)	21,829	272	172	125	569	105,481
Other manufacturing	23,571	323	261	237	821	70,842
PRIVATE SERVICE-PROVIDING	597,801	8,467	8,860	9,229	26,556	59,302
Trade, transportation and utilities	130,449	940	914	1,024	2,878	54,477
Wholesale trade	37,369	303	424	445	1,172	96,191
Retail trade	79,289	262	202	280	744	34,838
Transportation, warehousing and utilities	13,792	375	289	299	963	57,402
Information	14,946	178	68	78	324	80,946
Financial activities	53,751	857	843	855	2,555	83,436
Finance and insurance	37,262	498	481	490	1,468	97,254
Real estate and rental and leasing	16,490	359	363	365	1,087	52,835
Professional and business services	187,339	2,470	2,772	2,726	7,969	76,995
Professional, scientific, and technical	103,944	2,537	2,247	2,197	6,980	91,429
Management of companies and enterprises	18,364	226	194	-33	387	124,769
Administrative support and waste management	65,031	-293	331	562	601	43,089
Private education and health services	116,531	2,444	2,494	2,702	7,641	50,170
Private education services	11,118	226	115	127	467	44,851
Health care and social assistance	105,412	2,219	2,379	2,575	7,173	50,761
Leisure and hospitality	70,898	1,602	1,549	1,576	4,727	21,682
Other services	22,498	0	218	268	487	35,591
Unclassified	1,390	-25	0	0	-25	50,427

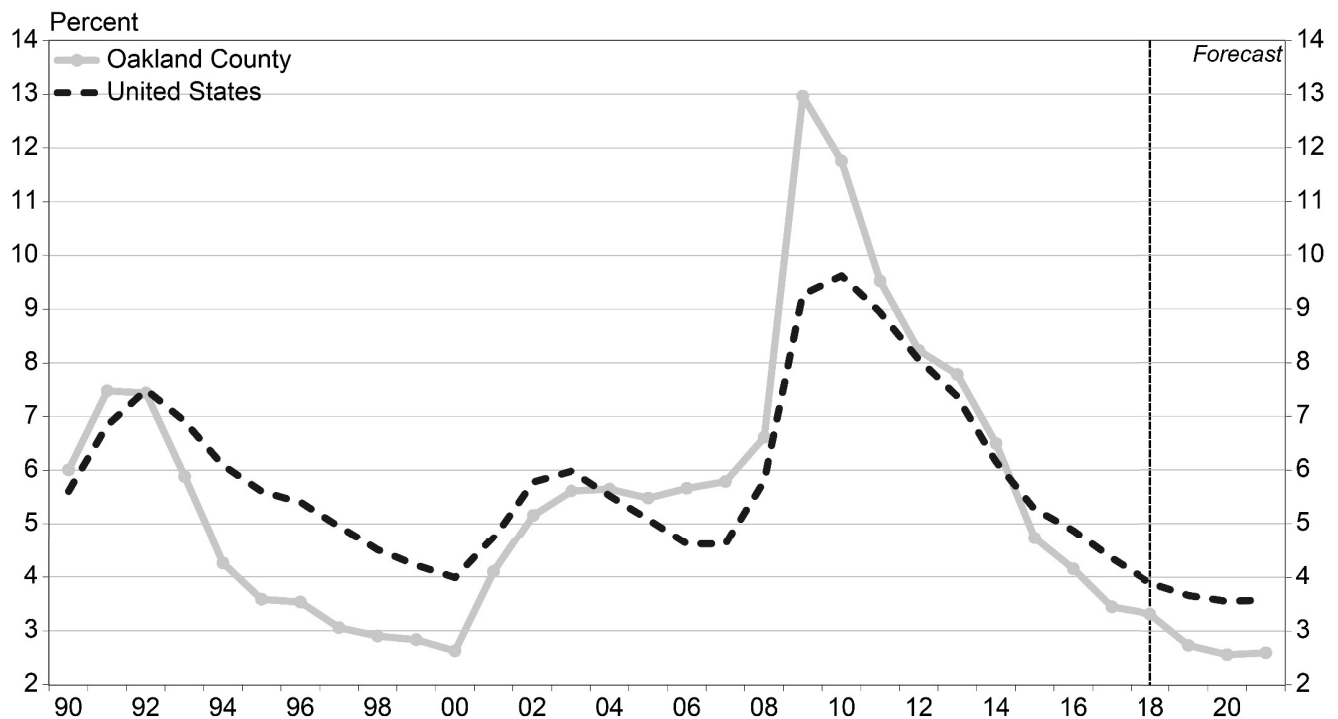
*Some subtotals do not add to totals due to rounding of annual average computations.

- Table 5 distributes our projected total job movements for Oakland County from 2018 to 2021 among 28 major industry divisions.
- The government sector turned the corner to job growth in 2016 after ten consecutive years of job losses, and growth continued in 2017 and 2018. We believe the rebound in government employment is here to stay. We expect job gains to average around 1.1 percent per year over the forecast period, for a total of 1,516 job additions from 2018–2021. The path of those gains is uneven over the forecast period because temporary workers hired to help conduct the 2020 Census boost the job count for that year. Nonetheless, the growth that we foresee in the government sector through 2021 does not keep pace with growth in the private sector.
- Private-sector employment grew 3.1 percent per year in the first four years of the economic recovery, from 2009 to 2013. The pace of growth then slowed to 2.2 percent per year between 2013 and 2016. In 2017, the number of private-sector jobs in the county only grew by 1.0 percent, partly because of statistical revisions that reassigned some professional and technical services jobs to locations outside the county. In 2018, job growth picked up to 1.3 percent, and we are forecasting that jobs in the private sector will expand at a rate of 1.4 percent in each of the next three years.
- The construction industry accounts for 97 percent of the jobs in the aggregate industry category of natural resources, mining, and construction. The category adds 2,124 jobs over the next three years, as residential construction continues to pick up. Specialty trades contractors account for 1,544 total job additions, and residential building contractors account for another 281 job gains.
- Job growth in the manufacturing sector had been slowing prior to 2016, from 5,756 job additions in 2011 to just 655 in 2015. The sector rebounded nicely with 2,185 new jobs in 2016 and 2,386 new jobs in 2017, but 2018 saw a return to slower growth with only 523 job additions. We expect job gains in manufacturing to continue, but at a modest pace of 688 in 2018, 428 in 2020, and 259 in 2021.
- Transportation equipment (motor vehicle) manufacturing led growth in the early stages of the recovery, with a total of 5,328 job additions in 2011 and 2012 combined. Growth slowed to an average of only 263 job additions per year from 2013 to 2016. The industry unexpectedly added 1,450 jobs in 2017, but job gains slipped to only 69 in 2018. Over the next three years we expect transportation equipment manufacturing to add a total of 569 jobs, due in large part to the expansion of production activity at General Motors' Lake Orion assembly plant.
- Employment growth in all other manufacturing industries averaged 3.4 percent per year from 2012 to 2017, compared with 2.5 percent per year in transportation equipment. Job growth in the non-auto manufacturing industries slowed to 1.0 percent in 2018. We expect job growth to continue to slow over the next three years, to 0.9 percent in 2019, 0.6 percent in 2020, and 0.3 percent in 2021, for a total addition of 805 jobs.
- Machinery and chemicals account for over one-half of these job gains over the forecast period, adding 230 and 218 jobs, respectively. The fabricated metals industry is forecast to lose 245 jobs over the next three years
- Employment in wholesale trade is forecast to grow by 1.0 percent per year over the next three years, cumulating to 1,172 job additions. Motor vehicle and parts merchant wholesalers account for over one-half of those job gains (623).
- Retail trade is a much larger sector than wholesale trade. We are bearish on the growth prospects for retail in light of the many job cuts and store closings that have been announced recently both nationally and in Michigan. Online competition, technological advances, and the growth of big-box retailers that are less labor-intensive than smaller stores all weigh on employment growth in retail trade. We see growth averaging just 0.3 percent per year over the forecast period, for a total of 744 new jobs. We would not be surprised if growth in this sector turns out even weaker than we currently forecast.
- Transportation and warehousing grow at a relatively strong average rate of 2.4 percent per year from 2018 to 2021, producing a total of 921 new jobs. Many of these new jobs are effectively replacing jobs in brick and mortar retail stores as on-line shopping continues to expand.
- The information sector adds a total of 324 jobs over the next three years, a modest pace of 0.7 percent per year. Newspaper and book publishers lose 206 jobs between 2018 and 2021, reflecting a long-term decline that by 2018 had claimed sixty percent of the industry's jobs since its peak in 2003.

- The finance and insurance industry was slow to recover in Oakland County after the Great Recession, losing 771 jobs from 2010 to 2014. Employment in the industry then grew at a robust pace of 1,164 jobs (3.4 percent) per year between 2014 and 2017. Growth slowed sharply in 2018 to only 300 jobs (0.8 percent). We expect growth to pick up a bit to an average pace of 489 jobs per year over the next three years, for a total of 1,468 jobs. We are forecasting that depository credit intermediation establishments, such as commercial banks, will show flat employment over the next three years as rising mortgage interest rates take a toll. Insurance carriers, agencies, and other activity related to insurance are expected to fare a bit better, adding 669 jobs over the next three years.
- The real estate and rental and leasing industry grows by a total of 1,087 jobs over the next three years, for an average growth rate of 2.2 percent per year, as the residential real estate market continues to improve. Most real estate agents are self-employed, and thus are not included in the payroll employment statistics presented here.
- From 2009 to 2018, employment in the professional and business services super-sector grew by 51,041 jobs, an average rate of 3.6 percent per year. This super-sector accounted for 40 percent of all job gains in the county between 2009 and 2018, almost twice its share of total employment in 2009 (22 percent). This aggregate category contains three divisions: professional, scientific, and technical services; management of companies and enterprises; and administrative support and waste management. Many of the jobs associated with the knowledge economy are in this sector, which in Oakland County is closely identified with the motor vehicle industry. Over the next three years we expect this super-sector to add 7,969 jobs.
- The professional, scientific, and technical services division accounts for 88 percent of that job growth: 6,980 jobs from 2018 to 2021, or 2.2 percent per year. Engineering services add 1,860 jobs in those years, while testing laboratories contribute another 2,073 jobs, computer systems design and related services grows by 590 jobs, and specialized design services add 544 jobs.
- Management of companies is another core part of the white-collar auto industry in Oakland County. This division grows by a relatively modest 387 jobs from 2018 to 2021.
- Administrative support and waste management services, which includes temporary help services, grew very rapidly in the first few years of the recovery, adding jobs at an average rate of 6.7 percent per year between 2009 and 2013. Since 2013, however, employment in this sector has declined by 103 jobs as local employers decided that they needed to hire workers on a permanent basis rather than as temporary employees. We are forecasting very modest employment growth (0.3 percent per year) in this sector over the next three years, totaling to a net job gain of 601.
- Employment growth in private education services has been moderate since 2009, averaging 1.0 percent per year through 2017. In 2018, employment declined by 247 jobs. We foresee it rebounding to growth of 1.4 percent per year from 2018 to 2021, or 467 total new jobs.
- Health care and social assistance adds 7,173 jobs over the next three years, an average growth rate of 2.2 percent per year. That pace is faster than the sector's average annual growth rate of 1.5 percent since 2009. The aging of the baby boomers will increase demand for health care workers. We forecast hospitals to add 2,800 jobs, ambulatory health care services to add 1,271 jobs, and social assistance to add 1,701 jobs.
- The leisure and hospitality services industry was on a tear from 2011 to 2017, growing at an average rate of 4.0 percent per year. Growth came nearly to a stop in 2018 when this industry added only 252 jobs, a growth rate of 0.4 percent. We expect the good times to return, but at a more moderate pace, with average growth of 2.2 percent per year from 2018 to 2021. That growth path would yield a total of 4,727 new jobs by 2021.
- The "other services" sector covers a wide variety of industries: repair services (including auto repair), personal services (such as hair styling and laundry services), membership organizations, and private household workers. We expect that this sector will expand modestly over the forecast period, adding a total of 487 jobs.

Figure 11

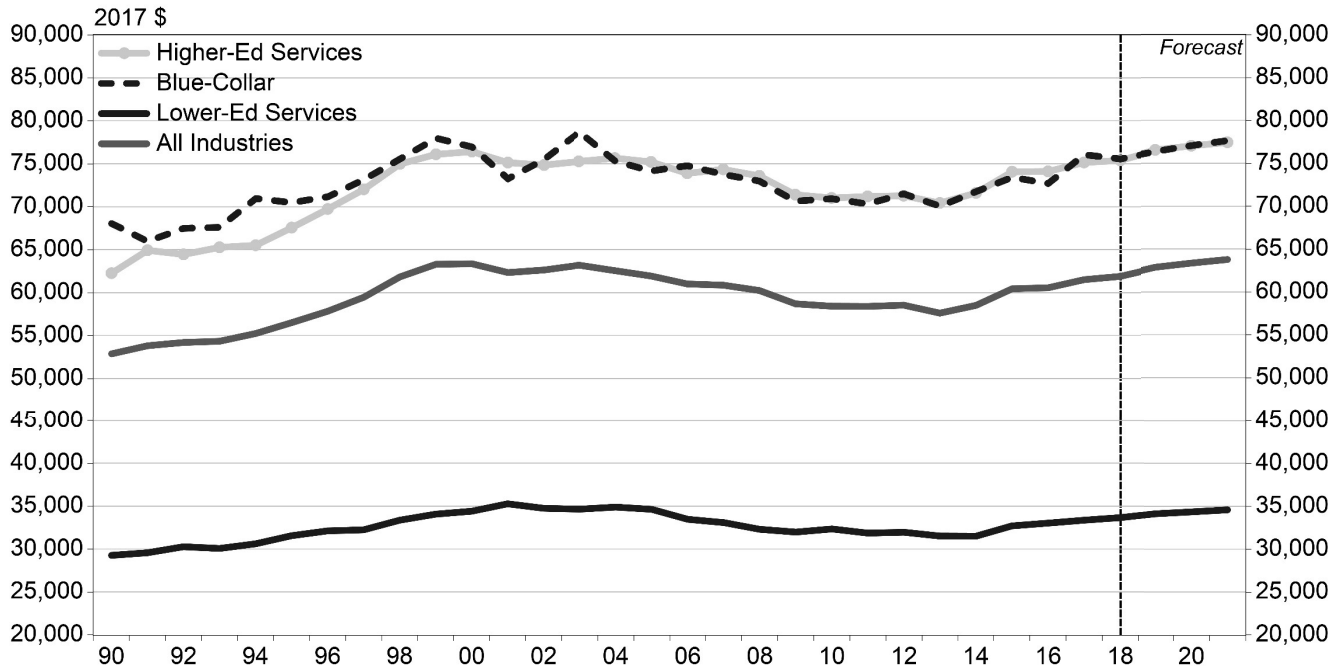
Unemployment Rates for Oakland County and for the United States, 1990–2021



- The healthy job growth we are forecasting for Oakland County drives unemployment to continue its decline through 2021. The local unemployment rate falls from 3.3 percent in 2018 to 2.7 percent in 2019 and 2.6 percent in 2020 and 2021.
- The 2.6 percent unemployment rate we are forecasting in 2020 and 2021 would tie Oakland’s lowest rate on record, achieved in the year 2000.
- The county’s labor force inched up by a tenth of a percentage point in 2018 after averaging growth of 2.4 percent per year in 2016 and 2017. We expect labor force growth to rebound after 2018’s weak showing to a rate of 2.2 percent in 2019, after which it will slow to a more sustainable average annual rate of 1.1 percent in 2020 and 2021.
- There are two major forces affecting the growth of Oakland County’s labor force. On the one hand, the strong labor market is encouraging previously discouraged workers to seek out work. On the other hand, demographic factors, such as retirements among the baby boomers, put downward pressure on the labor force participation rate. We see those two forces roughly offsetting each other over the next few years, leading to middling growth of the labor force.
- Oakland’s unemployment rate of 3.3 percent was six-tenths of a percentage point lower than the U.S. rate of 3.9 percent in 2018. We expect that gap to widen to a full percentage point each year from 2019 to 2021, as the unemployment rate nears historical lows in both Oakland and the United States.

Figure 12

Average Real Wage in Oakland County by Selected Industry Group, 1990–2021



- Here we present the average real wage in Oakland County for the years 1990–2021, adjusted for inflation and expressed in 2017 dollars. We display the average real wage across all industries as well as for three broad industry categories: (1) traditional blue-collar industries such as manufacturing, construction, mining, and transportation; (2) service-providing industries that tend to employ workers with higher educational attainment, such as government, health services, professional services and corporate headquarters, wholesale trade, financial activities, and information; and (3) lower-educational-attainment service-providing industries such as retail trade, leisure and hospitality, business services such as temporary help, and repair and personal services.
- The average inflation-adjusted wage rose in all major industry sectors from 1990 to 2000. The overall average real wage increased by 1.8 percent per year, from \$52,888 in 1990 to \$63,369 in 2000.
- Average real wages then entered a long period, from 2000 to 2013, in which they trended downwards, hitting a low point of \$57,622 in 2013. That level was 9.1 percent lower than in 2000.
- From 2013 to 2017, real wages increased by an average of 1.7 percent per year, buoyed by low consumer price inflation, bringing average real wages to \$61,536 in 2017.
- Somewhat higher price inflation of 2.4 percent in 2018 converted a nominal wage increase of 3.0 percent into a real wage gain of only 0.6 percent.
- Real wage growth rebounds to 1.6 percent in 2019 with a slowdown in inflation, before settling in at about a 0.7 percent annual growth rate in 2020 and 2021 as inflation picks up.
- Over the next three years, we are forecasting that real wages will increase by a total of 2.8 percent in blue-collar and lower-education services industries, and by 2.7 percent in higher-education services industries.
- Despite this growth, in 2021, real wages in the blue-collar industries will remain 1.4 percent below their 2003 peak levels, and wages in lower-education services industries will remain 1.9 percent below their 2001 peak levels. On the other hand, real wages in higher-education services industries will climb 1.3 percent above their previous peak levels achieved in 2000.

Forecast of Jobs in Oakland County by Detailed Industry Division

	Estimate	Forecast			Average Annual Wage
	2018	2019	2020	2021	2017
TOTAL PAYROLL JOBS (Number of persons)	737,602	747,948	758,890	769,172	61,536
(Annual percentage change)	1.3	1.4	1.5	1.4	N.A.
TOTAL GOVERNMENT	45,417	45,876	46,816	46,933	53,785
Federal government	4,720	4,704	5,069	4,702	69,535
Postal service	3,782	3,791	3,820	3,850	63,934
Federal government NEC	938	913	1,250	852	92,504
State and local government	40,697	41,172	41,747	42,231	51,918
Local libraries	564	578	590	605	21,713
Local education and health services	22,360	22,559	22,912	23,177	52,581
Elementary and secondary schools	20,590	20,782	21,137	21,403	53,450
Other education and health services	1,769	1,776	1,775	1,773	43,096
Local public administration	13,102	13,333	13,495	13,650	50,226
State and other local government	4,671	4,703	4,750	4,800	57,064
TOTAL PRIVATE	692,184	702,073	712,074	722,239	62,047
GOODS-PRODUCING	94,383	95,804	96,945	97,881	79,414
Natural resources and mining	843	849	863	875	33,381
Agriculture, forestry, fishing, and hunting	677	685	699	710	26,092
Mining, quarrying, and oil and gas extraction	165	163	164	165	61,259
Construction	26,218	26,946	27,644	28,310	72,427
Construction of buildings	6,700	6,777	6,927	7,067	76,334
Residential	3,163	3,259	3,352	3,444	65,590
Nonresidential	3,537	3,519	3,574	3,622	85,634
Heavy and civil engineering construction	2,267	2,332	2,398	2,448	84,064
Specialty trade contractors	17,251	17,836	18,319	18,795	69,382
Building foundation and exterior	2,559	2,638	2,685	2,760	61,958
Building equipment	9,598	9,905	10,160	10,401	74,924
Building finishing	2,930	3,037	3,148	3,250	58,656
Other specialty trade contractors	2,164	2,257	2,326	2,385	66,823
Manufacturing	67,322	68,010	68,438	68,697	82,674
Food	1,775	1,824	1,896	1,979	39,663
Textile products	166	162	161	160	29,408
Wood products	161	158	156	155	69,831
Paper products	442	458	451	443	67,742
Printing and related support activities	2,015	2,003	1,984	1,962	65,034
Chemicals	3,744	3,823	3,894	3,961	95,690
Plastics and rubber products	3,926	3,948	3,934	3,904	53,366
Nonmetallic mineral products	1,086	1,056	1,040	1,023	68,824
Primary metals	1,380	1,371	1,363	1,354	143,509
Fabricated metals	10,357	10,392	10,290	10,112	61,646
Forging and stamping	1,185	1,214	1,226	1,231	60,162
Architectural and structural metals	665	634	626	569	54,967
Machine shops and threaded products	3,085	3,028	2,954	2,873	65,718
Coating, engraving, and heat treating metals	2,056	2,105	2,057	2,001	49,968
Other fabricated metals	1,837	1,871	1,903	1,931	67,241
Fabricated metals NEC	1,530	1,540	1,525	1,507	65,228
Machinery	11,565	11,623	11,720	11,795	83,196
Industrial machinery	714	676	669	661	87,305
Commercial and service industry machinery	858	918	969	1,021	52,919
Metalworking machinery	6,085	6,062	6,094	6,115	81,146
Turbine and power transmission equipment	488	490	484	478	82,464
Other general purpose machinery	3,146	3,209	3,240	3,259	95,701
Machinery NEC	274	268	265	261	60,709

Forecast of Jobs in Oakland County by Detailed Industry Division (cont'd)

	Estimate	Forecast			Average Annual Wage
	2018	2019	2020	2021	2017
Computer and electronic products	3,077	3,093	3,128	3,157	75,786
Electrical equipment, appliances, components	1,069	1,047	1,042	1,034	78,820
Transportation equipment	21,829	22,101	22,273	22,398	105,481
Motor vehicle bodies and trailers	1,048	1,068	1,087	1,112	117,229
Aerospace products and parts	1,087	1,112	1,111	1,109	82,354
Transportation equipment NEC	19,693	19,921	20,074	20,177	106,269
Furniture and related products	547	558	570	579	56,964
Miscellaneous manufacturing	3,302	3,450	3,575	3,698	58,151
Medical equipment and supplies	575	574	570	565	58,635
Other miscellaneous manufacturing	2,727	2,876	3,005	3,133	58,034
Manufacturing NEC	882	941	962	982	46,338
PRIVATE SERVICE-PROVIDING	597,801	606,268	615,128	624,357	59,302
Trade, transportation, and utilities	130,449	131,390	132,304	133,328	54,477
Wholesale trade	37,369	37,672	38,096	38,540	96,191
Merchant wholesalers, durable goods	26,994	27,264	27,619	27,993	96,673
Motor vehicles and parts	6,868	7,053	7,268	7,491	98,089
Commercial equipment	4,626	4,576	4,549	4,530	114,331
Electric goods	5,133	5,160	5,155	5,148	108,285
Machinery and supply	5,645	5,762	5,914	6,065	89,227
Merchant wholesalers, durable goods NEC	4,722	4,712	4,733	4,759	73,500
Merchant wholesalers, nondurable goods	7,501	7,560	7,639	7,721	82,566
Wholesale electronic markets, agents, brokers	2,874	2,848	2,837	2,827	113,335
Retail trade	79,289	79,551	79,753	80,033	34,838
Motor vehicle and parts dealers	11,622	11,909	12,069	12,221	63,707
Furniture and home furnishings stores	2,617	2,610	2,621	2,632	38,814
Electronics and appliance stores	4,657	4,661	4,645	4,637	53,592
Building material and garden supply dealers	6,643	6,685	6,601	6,513	40,565
Food and beverage stores	13,410	13,370	13,427	13,507	24,315
Health and personal care stores	7,179	7,388	7,508	7,626	36,242
Gasoline stations	2,269	2,270	2,298	2,326	21,163
Clothing and clothing accessories stores	7,360	7,224	7,172	7,151	20,092
Sporting goods, hobby, book, and music stores	2,852	2,804	2,788	2,784	25,985
General merchandise stores	14,572	14,419	14,320	14,256	25,024
Miscellaneous store retailers	4,884	4,976	5,067	5,142	27,375
Nonstore retailers	1,225	1,235	1,236	1,238	63,065
Transportation and warehousing	12,297	12,659	12,934	13,218	49,586
Truck transportation	3,747	3,767	3,833	3,897	59,152
Couriers and messengers	2,287	2,324	2,353	2,380	44,654
Warehousing and storage	1,511	1,582	1,604	1,624	59,576
Transportation and warehousing NEC	4,751	4,986	5,144	5,317	40,813
Utilities	1,495	1,508	1,522	1,536	118,138
Information	14,946	15,124	15,192	15,270	80,946
Publishing (except Internet)	3,843	3,870	3,835	3,786	96,490
Newspaper, book, and directory publishers	1,376	1,300	1,234	1,170	72,940
Software publishers	2,467	2,569	2,601	2,616	110,485
Motion pictures and sound recording	1,918	1,877	1,894	1,907	33,703
Motion picture and video production	447	391	382	374	68,979
Motion picture and video exhibition	1,356	1,370	1,395	1,415	12,117
Motion pictures and sound recording NEC	115	116	118	119	86,050
Broadcasting (except Internet)	1,484	1,491	1,516	1,541	93,091
Telecommunications	4,776	4,840	4,788	4,752	80,326
Data processing, hosting, and related services	1,747	1,835	1,890	1,942	84,912
Information NEC	1,179	1,212	1,268	1,342	94,827

Forecast of Jobs in Oakland County by Detailed Industry Division (cont'd)

	Estimate	Forecast			Average Annual Wage
	2018	2019	2020	2021	2017
Financial activities	53,751	54,608	55,451	56,306	83,436
Finance and insurance	37,262	37,759	38,240	38,730	97,254
Credit intermediation and related activities	16,504	16,783	16,945	17,091	88,413
Depository credit intermediation	8,989	8,986	8,985	8,988	87,049
Commercial banking	6,751	6,755	6,758	6,765	95,160
Depository credit intermediation NEC	2,238	2,231	2,227	2,223	62,495
Nondepository credit intermediation	6,098	6,316	6,440	6,544	93,809
Real estate credit intermediation	3,177	3,341	3,442	3,528	79,324
Nondepository credit intermediation NEC	2,921	2,975	2,999	3,017	107,500
Activities related to credit intermediation	1,418	1,481	1,520	1,559	74,801
Securities, commodity contracts, investments	4,519	4,575	4,648	4,724	162,428
Insurance carriers and related activities	16,071	16,233	16,475	16,740	88,130
Insurance carriers	7,978	8,014	8,096	8,194	94,359
Direct property and casualty insurers	2,391	2,405	2,417	2,429	92,924
Insurance carriers NEC	5,588	5,608	5,679	5,764	94,960
Insurance agencies, brokerages, and related	8,093	8,219	8,379	8,546	81,482
Insurance agencies and brokerages	5,596	5,709	5,846	5,989	82,176
Other insurance-related activities	2,497	2,510	2,533	2,557	79,874
Finance and insurance NEC	167	169	172	175	121,542
Real estate and rental and leasing	16,490	16,849	17,212	17,577	52,835
Real estate	12,907	13,191	13,484	13,784	53,428
Lessors of real estate	5,331	5,346	5,394	5,443	51,083
Offices of real estate agents and brokers	1,401	1,451	1,507	1,550	53,274
Activities related to real estate	6,175	6,394	6,583	6,792	55,621
Rental and leasing services	3,423	3,496	3,562	3,622	47,668
Lessors of nonfinancial intangible assets	159	161	166	170	91,507
Professional and business services	187,339	189,809	192,582	195,307	76,995
Professional and technical services	103,944	106,481	108,728	110,925	91,429
Legal services	12,431	12,570	12,749	12,928	92,002
Accounting and bookkeeping services	6,418	6,570	6,662	6,737	69,765
Architectural and engineering services	39,433	40,674	42,071	43,485	102,085
Architectural services	1,398	1,405	1,440	1,474	86,642
Engineering services	21,281	21,906	22,537	23,142	93,987
Testing laboratories	16,221	16,814	17,531	18,294	115,003
Engineering services NEC	533	549	563	575	74,810
Specialized design services	2,673	2,813	3,006	3,217	115,446
Computer systems design and related services	22,099	22,481	22,616	22,688	89,025
Management and technical consulting services	8,738	8,898	8,986	9,077	85,253
Scientific research and development services	1,260	1,253	1,283	1,310	138,465
Advertising, PR, and related services	4,507	4,522	4,512	4,495	72,592
Other professional and technical services	6,387	6,701	6,843	6,988	60,017
Management of companies and enterprises	18,364	18,590	18,784	18,751	124,769
Administrative support and waste management	65,031	64,739	65,070	65,632	43,089
Administrative and support services	63,635	63,345	63,663	64,211	42,613
Office administrative services	4,045	4,006	4,035	4,086	55,403
Employment services	28,499	28,326	28,107	28,034	48,348
Business support services	8,473	8,650	8,804	8,955	42,977
Investigation and security services	5,385	5,334	5,394	5,454	33,155
Services to buildings and dwellings	13,176	12,927	12,994	13,126	28,621
Other support services	2,851	3,011	3,229	3,448	46,893
Administrative and support services NEC	1,206	1,091	1,100	1,108	46,159
Waste management and remediation services	1,396	1,394	1,408	1,421	64,681

Forecast of Jobs in Oakland County by Detailed Industry Division (cont'd)

	Estimate	Forecast			Average Annual Wage
	2018	2019	2020	2021	2017
Private education and health services	116,531	118,975	121,469	124,171	50,170
Education services	11,118	11,344	11,459	11,586	44,851
Elementary and secondary schools	3,860	3,919	3,936	3,956	42,348
Colleges and universities	1,848	1,810	1,784	1,762	39,921
Education services NEC	5,411	5,615	5,739	5,868	48,565
Health care and social assistance	105,412	107,631	110,010	112,586	50,761
Ambulatory health care	41,024	41,369	41,795	42,295	58,126
Offices of physicians	14,445	14,532	14,619	14,718	81,873
Offices of dentists	6,524	6,628	6,706	6,807	52,094
Offices of other health practitioners	5,836	5,901	6,041	6,215	45,546
Outpatient care centers	2,714	2,751	2,806	2,868	54,622
Medical and diagnostic laboratories	1,391	1,389	1,396	1,405	46,946
Home health care services	8,336	8,304	8,303	8,306	37,383
Other ambulatory health care services	1,778	1,864	1,922	1,976	40,229
Hospitals	35,028	35,872	36,846	37,827	61,230
Nursing and residential care facilities	16,746	17,143	17,629	18,148	29,207
Nursing care facilities	5,378	5,534	5,650	5,793	36,477
Residential mental health facilities	2,435	2,424	2,430	2,442	28,447
Community care facilities for the elderly	6,503	6,548	6,728	6,911	25,893
Other residential care facilities	2,430	2,638	2,821	3,003	23,672
Social assistance	12,614	13,247	13,741	14,315	24,069
Individual and family services	6,683	7,120	7,513	7,986	24,029
Child day care services	4,077	4,121	4,170	4,217	21,527
Social assistance NEC	1,855	2,005	2,058	2,113	32,162
Leisure and hospitality	70,898	72,500	74,050	75,626	21,682
Arts, entertainment, and recreation	10,556	10,708	10,967	11,196	36,372
Golf courses and country clubs	2,485	2,513	2,549	2,586	27,250
Fitness and recreational sports centers	4,519	4,635	4,784	4,934	18,241
Arts, entertainment, and recreation NEC	3,552	3,560	3,634	3,675	61,085
Accommodation and food services	60,342	61,792	63,083	64,430	19,012
Accommodation	5,332	5,772	6,082	6,439	24,759
Food services and drinking places	55,010	56,020	57,001	57,991	18,495
Restaurants and other eating places	48,626	49,547	50,426	51,342	18,232
Full-service restaurants	26,233	26,633	27,113	27,604	20,542
Limited-service restaurants	19,050	19,528	19,850	20,174	15,055
Cafeterias, grill buffets, and buffets	599	596	588	587	19,530
Snack and nonalcoholic beverage bars	2,745	2,789	2,874	2,977	17,671
Special food services	4,019	4,081	4,166	4,218	21,445
Drinking places, alcoholic beverages	2,365	2,392	2,410	2,431	18,342
Other services	22,498	22,498	22,716	22,984	35,591
Repair and maintenance	6,006	6,132	6,189	6,253	46,126
Automotive repair and maintenance	4,024	4,075	4,097	4,127	44,150
Repair and maintenance NEC	1,982	2,057	2,093	2,126	50,463
Personal and laundry services	9,803	9,750	9,849	9,979	25,919
Personal care services	5,276	5,374	5,498	5,627	23,803
Personal and laundry services NEC	4,527	4,376	4,352	4,352	28,267
Membership associations and organizations	5,466	5,384	5,443	5,513	44,347
Private households	1,223	1,231	1,234	1,239	26,532
Private unclassified service-providing	1,390	1,365	1,365	1,365	50,427
<u>Addendum</u>					
Unemployment rate	3.3	2.7	2.6	2.6	N.A.

Oakland County Compared with its Peers Indicator Values*

County	State	Population 2017	Associate's Degree or More	Child Poverty	Median Family Income**	High-Income Persons Aged 65 or Older	Managerial, Professional
Fairfax	VA	1,148,433	67.6%	9.8%	112,170	61.7%	57.0%
Montgomery	MD	1,058,810	64.6%	9.4%	101,275	57.3%	54.9%
Collin	TX	969,603	61.6%	6.0%	102,867	41.3%	53.1%
Nassau	NY	1,369,514	57.8%	7.3%	99,356	48.7%	45.7%
DuPage	IL	930,128	60.8%	7.5%	99,849	42.1%	46.5%
Oakland	MI	1,250,836	59.2%	9.1%	99,584	39.3%	50.2%
Bergen	NJ	948,406	59.1%	6.2%	92,446	44.3%	48.4%
Westchester	NY	980,244	57.7%	10.1%	95,272	46.2%	48.3%
Wake	NC	1,072,203	62.3%	12.0%	98,671	38.7%	51.1%
Hennepin	MN	1,252,024	61.8%	14.5%	98,221	37.7%	49.6%
Fairfield	CT	949,921	56.1%	11.3%	93,734	45.2%	45.7%
Travis	TX	1,226,698	56.2%	15.0%	93,936	42.1%	49.5%
Contra Costa	CA	1,147,439	51.2%	11.9%	87,554	48.1%	43.2%
Fulton	GA	1,041,423	59.9%	20.1%	92,941	35.3%	50.0%
Suffolk	NY	1,492,953	48.8%	8.3%	87,978	43.3%	39.9%
St. Louis	MO	996,726	54.5%	13.5%	87,071	34.3%	45.4%
Mecklenburg	NC	1,076,837	56.2%	16.5%	84,928	30.8%	44.9%
Allegheny	PA	1,223,048	57.2%	15.1%	83,758	26.9%	46.4%
Salt Lake	UT	1,135,649	45.4%	10.8%	83,197	33.0%	40.7%
Prince George's	MD	912,756	39.4%	11.0%	81,076	44.8%	39.7%
Honolulu	HI	988,650	48.1%	10.2%	76,927	41.2%	35.4%
Gwinnett	GA	920,260	47.4%	15.9%	78,846	30.8%	38.5%
Franklin	OH	1,291,981	48.1%	22.5%	78,506	29.7%	42.7%
Erie	NY	925,528	50.1%	22.1%	77,803	27.6%	38.7%
Palm Beach	FL	1,471,150	45.1%	16.5%	68,879	35.9%	36.6%
Sacramento	CA	1,530,615	40.5%	18.1%	73,711	32.8%	38.8%
Pinellas	FL	970,637	42.9%	15.8%	69,046	27.2%	37.4%
Hillsborough	FL	1,408,566	44.7%	21.8%	67,464	27.5%	39.6%
Pima	AZ	1,022,769	42.5%	22.4%	67,275	32.2%	37.5%
Cuyahoga	OH	1,248,514	43.0%	26.8%	72,131	25.3%	40.5%
Orange	FL	1,348,975	49.0%	22.4%	63,341	25.1%	36.9%
Duval	FL	937,934	40.9%	23.4%	68,884	27.1%	37.0%
Shelby	TN	936,961	39.6%	30.2%	67,302	28.5%	35.4%
Marion	IN	950,082	41.2%	24.7%	65,197	24.0%	36.2%
Philadelphia	PA	1,580,863	36.8%	31.9%	52,529	19.3%	40.2%
Milwaukee	WI	952,085	39.9%	25.8%	65,371	22.5%	36.1%
Fresno	CA	989,255	29.1%	28.5%	60,309	27.0%	29.3%
Bronx	NY	1,471,160	28.5%	39.6%	36,908	20.0%	24.6%
<i>State of Michigan</i>			41.0%	19.7%	74,667	25.7%	36.7%
<i>United States</i>			42.4%	18.4%	73,891	29.5%	38.2%

*All counties in the United States with a population between 900,000 and 1,600,000 in 2017.

**Adjusted for cost of living.

Source: American Community Survey 2017. Census Bureau Population Estimates, April 2018. Median Family Income adjusted using BEA price parity indices for 2016 and extended to counties by relative gross rent.

LIVE · WORK · PLAY · PROSPER



SEE HOW WE CAN HELP YOU



Oakland County's

Department of Economic Development & Community Affairs

One Stop Shop Business Center

The first stop for residents and businesses to access planning and economic development resources — including business consultation, data, maps, aerial photographs and property information.

(248) 858-0721 | info@advantageoakland.com

Financial Services

Business Finance Corporation and Economic Development Corporation

Business loans for buildings and equipment.

Planning

Community services for all the cities, villages and townships. Resources are available in the areas of downtown development, historic preservation and design assistance, environmental stewardship, waste resources, brownfield redevelopment, land use and zoning.

Business Development

Helping businesses locate and expand in Oakland County.

Community & Home Improvement

Neighborhood revitalization, housing counseling and home improvement services for low income families, seniors and veterans.

Workforce Development

Matching businesses with talent through training, recruitment and retention services and talent pipeline development activities.

Find out what's going on in Oakland County all year long



Subscribe for free to the Prosper e-newsletter (sent twice a month): OaklandCountyProsper.com

- Communities
- Arts & Culture
- Business News & Talent Innovations
- Historic Preservation
- Parks & Trails

AdvantageOakland.com



L. BROOKS PATTERSON
OAKLAND COUNTY EXECUTIVE



*FOR MORE
INFORMATION*

AdvantageOakland.com

.....
info@advantageoakland.com
(248) 858-0721



facebook.com/AdvantageOak



@AdvantageOak



youtube.com/AdvantageOakland



Oakland County – Michigan

2100 Pontiac Lake Road, Building 41W | Waterford, MI 48328

