

O A K L A N D C O U N T Y , M I C H I G A N

32nd
**Economic
Outlook**

S U M M A R Y

2017 - 2019



Presented by:

Gabriel Ehrlich, *Research Seminar in Quantitative Economics* | University of Michigan

Donald R. Grimes, *Institute for Research on Labor, Employment, and the Economy* | University of Michigan

Final Report Available June 2017 at:

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SUMMARY INTRODUCTION

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Oakland County is a fiscally responsible government partner with resources to support your success.

Welcome to our 32nd annual Oakland County Economic Outlook luncheon.

Chase and Oakland Community College, along with our Department of Economic Development & Community Affairs, have co-hosted this event for more than 20 years. We are fortunate to have had such long-standing relationships. 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.

This year, we welcome Dr. Gabriel Ehrlich, director of the Research Seminar in Quantitative Economics at the University of Michigan, who joins longtime economist and friend Donald R. Grimes to provide business, education and government leaders in southeast Michigan with a three-year projection of economic growth for the area.

Dr. Ehrlich is UM's "replacement" for Dr. George Fulton, the leader of UM's Institute for Research on Labor, Employment, and the Economy and who had collaborated with Oakland County on this forecast since 1986. I'm sorry to see George go but welcome Dr. Ehrlich and the Research Seminar in Quantitative Economics to the program.

Good news keeps coming for Oakland County. All of the indicators are up; the dashboards seem to be in the green so it seems to be full speed ahead. Foreign direct investment — investment from companies headquartered outside the U.S. — increased for the third year as did known economic investment tracked by the county, which came in at \$871 million for 2016. In simpler terms, nearly \$2.4 million each day — on average — was invested here last year.

Our Emerging Sectors[®] business diversification strategy is on the cusp of \$4 billion total investment and 66,000 new and retained jobs. Tech248[™] is connecting the 2,000+ tech/IT companies operating in our county. We've just begun to work with a whole new demographic through our Oakland Next campaign to prepare our high school students for a future which — hopefully — includes Oakland County. Our budget is balanced through 2021 as we continue to be among a select few counties nationally to have a AAA bond rating, saving taxpayers millions of dollars.

It may sound rosy but facts are stubborn things and we have the facts to back up what we say. Review the following pages and see for yourself.

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 all enjoy.



The Economic Outlook Summary is presented at a luncheon by Gabriel Ehrlich and Donald R. Grimes, University of Michigan's Institute for Research on Labor, Employment, and the Economy. Along with Oakland County, the event is hosted by Chase and Oakland Community College.

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PRESENTED BY

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

APRIL 2017



Gabriel Ehrlich



Donald Grimes

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The full report will be available in June on the web (updated annually) at:
AdvantageOakland.com | Isa.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 a 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 United States, 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.

► **Institute for Research on Labor, Employment, and the Economy**

at the University of Michigan was established in 2008 as a new entity, merging two long-standing university units, the Institute of Labor and Industrial Relations and the Business and Industrial Assistance Division. The Center for Labor Market Research, a division within the Institute, focuses on the transitioning economy and its effects on localities and regions throughout the country. This center has been a pioneer in economic forecasting for regional labor markets, and it has become an integral resource in the area of research-based public policy analysis.

► **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 discussed in *The Economist* magazine and *The Washington Post*, and his recent article, *Economic Effects of Medicaid Expansion in Michigan*, was published in the *New England Journal of Medicine*.

Prior to joining RSQE, Dr. Ehrlich worked in the Financial Analysis Division at the Congressional Budget Office (CBO), where he forecasted 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 is a coauthor recently of *The U.S. Economic Outlook for 2017–2018* and *The Michigan Economic Outlook for 2017–2018*.

► **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 Institute for Research on Labor, Employment, and the Economy (IRLEE), where he is assistant director of the Center for Labor Market Research. His primary research interests are in labor economics and economic forecasting.

For more than 30 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 recent publications include *The Michigan Economic Outlook for 2017–2018*; *Exploring Wage Determination by Education Level: A U.S. Metropolitan Statistical Area Analysis from 2005 to 2012*, published in *Economic Development Quarterly*; and *Economic Effects of Medicaid Expansion in Michigan*, published in the *New England Journal of Medicine*.

► **Dr. George A. Fulton**

received his Ph.D. in economics from the University of Michigan. He is a research professor emeritus at the University's Institute for Research on Labor, Employment, and the Economy, and director emeritus of the Research Seminar in Quantitative Economics.

Dr. Fulton's special expertise is in economic forecasting and regional economic development. For more than 35 years, he has been forecasting labor market activity for the state of Michigan as a whole, as well as for all the state's counties individually. He is currently a principal of the Detroit Consensus Revenue Estimating Conference.

His research crosses disciplines, having been published in diverse professional journals and sponsored research reports. He has published one book, *A Regional Econometric Forecasting System: Major Economic Areas of Michigan* (co-authored with Harold T. Shapiro, former president of both the University of Michigan and Princeton University). He is a coauthor recently of *The Michigan Economic Outlook for 2017–2018*.

► **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 is a coauthor recently of *The Michigan Economic Outlook for 2017–2018*.

isa.umich.edu/econ/rsqe

Table 1

Report Card: 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	+2.2
1987	+0.7	1998	+1.3	2009	+5.5
1988	-1.8	1999	-1.2	2010	-1.6
1989	-1.9	2000	+0.6	2011	-2.3
1990	+2.2	2001	+1.9	2012	-2.2
1991	+3.9	2002	+2.5	2013	-0.8
1992	-2.0	2003	+1.6	2014	-0.1
1993	+0.5	2004	+2.6	2015	0
1994	-1.3	2005	+1.4	2016	-0.3
1995	+0.2	2006	+3.3		
1996	-0.5	2007	0		

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

Average absolute forecast error 1986–2016: 1.6%

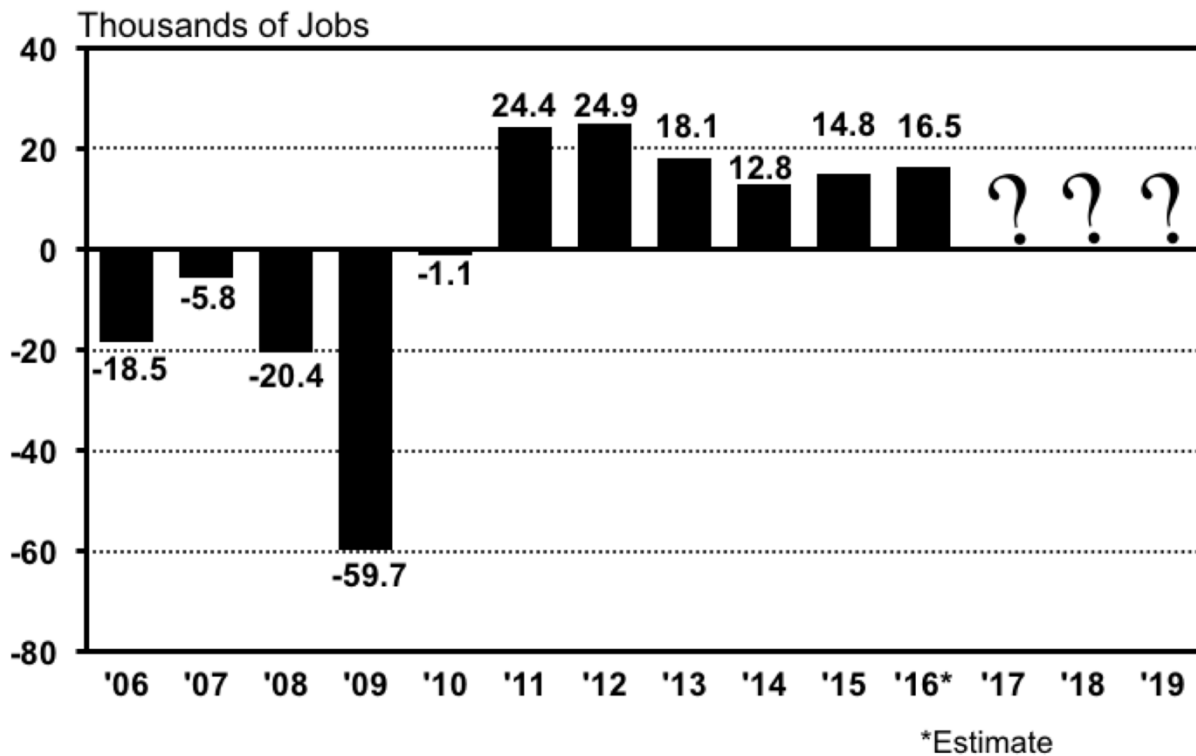
	Forecast 2016	Actual 2016
Unemployment rate	4.2%	4.2%
Consumer inflation rate	0.7%	1.6%

Forecast date: April 2016

- In last year's report, we forecast that solid job growth would continue in Oakland County, but that the tempo would tick down slightly in 2016. In fact, private-sector job growth accelerated slightly in 2016, resulting in an undershoot of 0.3 percentage points in our forecast, or three workers per 1,000.
- That forecast error is well below our average absolute forecast error over the past 31 years of 1.6%. Indeed, each of our past four forecasts have been considerably more accurate than that.
- Among the major industry divisions, the largest shortfall in our forecast was in manufacturing. We anticipated that the sector would continue growing modestly in 2016, but as it turned out, manufacturing employment strengthened significantly in 2016 following a considerable slowing in 2015.
- We were virtually spot-on in projecting job growth in the private service-providing sector overall, with a miss of less than 200 workers in a sector of almost 590,000 employees. Within the sector, our largest mistakes were being too bullish on professional and business services and too bearish on health care.
- We forecast correctly that all major industry divisions would gain jobs in 2016.
- We hit the bulls-eye in our forecast of the unemployment rate for Oakland County, with our projection of a rate of 4.2% for 2016 matching the official rate.
- We did not do quite as well in forecasting the local consumer inflation rate for 2016. We anticipated the rebound from -1.4% posted for 2015, but were short on the magnitude of the rebound.
- Overall, though, considering the modest miss on private-sector job growth and our bulls-eye on the unemployment rate, last year's forecast was one of our most accurate.

Figure 1

Job Growth in Oakland County, 2006–16



- Oakland County suffered substantial job losses each year from 2006 to 2009, registering a record loss of 59,663 jobs in 2009. That year's performance reflected the national Great Recession and bankruptcy proceedings for both General Motors and Chrysler.
- Oakland turned the corner to resume job growth in early 2010, although calendar-year averages show a small job loss for the year. The county gained nearly 25,000 jobs in each of 2011 and 2012, before downshifting to just over 18,000 job additions in 2013. The average job gains from 2011 to 2013 were the most in any three-year period since the mid-1990s.
- Growth then slowed from the sizzling, but unsustainable, pace of 2011–13 to average just under 14,000 job gains in 2014 and 2015.
- Oakland County's economic performance in 2016 suggests that the county can continue to create jobs in large numbers, as growth accelerated to 16,500 jobs for the year.
- The continuing recovery in Oakland is consistent with sustained expansion of the U.S. economy and a local housing sector that continues to recover. Notably, growth in 2016 continued in the face of a small decline in Detroit Three vehicle sales. Oakland's growth is backed by the county's strong economic fundamentals and forward-looking policy initiatives.
- The major industry divisions that have added the most jobs in the recovery to date are professional and business services; trade, transportation, and utilities; manufacturing; and leisure and hospitality. Government is the only major industry division that has lost jobs over the recovery period to date.
- Some of the primary questions that now face the Oakland County economy include: Can the county sustain its recent pace of job growth? How will the various industry sectors perform going forward? And what is the outlook for real wage growth in the county? We address these issues in the forecast section of the report, after taking a closer look at recent history.

Table 2

Job Change in Oakland County by Industry Wage Category, 2010–16

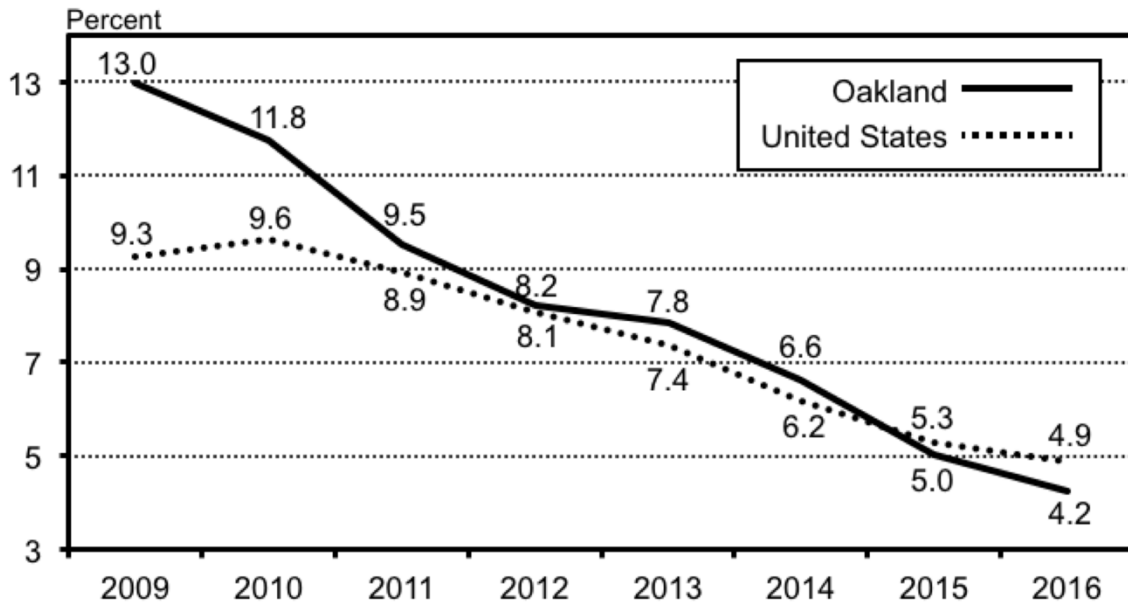
	2010	2016	Change 2010-16	% Change 2010-16
Total all industries	611,142	722,645	111,503	18.2
Higher-wage industries (\$75,000 or more)	190,149	237,892	47,744	25.1
Middle-wage industries (\$35,000-\$74,999)	277,962	313,273	35,311	12.7
Lower-wage industries (under \$35,000)	143,031	171,480	28,449	19.9

Source: BLS, Quarterly Census of Employment and Wages. Higher-wage industries have an average wage in 2015 about 40 percent above the U.S. average (\$52,942) and lower-wage industries about 35 percent below the U.S. average.

- To better understand what types of jobs have been created in Oakland County over the recovery period to date, we dissected the job recovery into three wage categories.
- Specifically, we partitioned the 172 unique industries in our data set into three categories based on their average annual wage in 2015: higher-wage industries (\$75,000 or more, at least 40% above the U.S. average of \$52,942 in 2015); middle-wage industries (\$35,000 to \$74,999); and lower-wage industries (under \$35,000, or at least 30% below the U.S. average).
- We then computed the change in employment, both in number of jobs and in percentages, over the period from 2010 to 2016 for each of the three wage categories and for the county overall.
- The ranking of job change from 2010 to 2016, in top-down order measured in percentage terms, is the higher-wage (25.1%), lower-wage (19.9%), and middle-wage (12.7%) industries.
- Four in nine of the net new jobs created in the county from 2010 to 2016 were in the higher-wage industries. The relatively weak performance of the middle-wage category reflects large job losses in state and local government. In the private sector, employment in middle-wage industries increased by 16.9% over this period, still ranking third in this sectoral category.
- In summary, the growth in Oakland County over the current economic recovery to date is skewed toward the higher-compensated end of the wage scale, with both job growth and job additions for higher-wage industries well above either of the other two categories.

Figure 2

Unemployment Rates for Oakland County and for the United States, 2009–16



- The unemployment rate for Oakland County peaked in 2009 at 13.0%. The jobless rate has declined by more than two-thirds since then, to 4.2% in 2016.
- The unemployment rate recorded for 2016 is the lowest annual reading since 2001, when the rate averaged 4.1%.
- The labor force has grown in six out of the seven years since 2009, as a greater number of residents seek out expanding job opportunities.
- Oakland's unemployment rate fell below the national rate on a calendar-year basis in 2015. The local jobless rate was 0.7 percentage points beneath the U.S. rate in 2016.
- Prior to 2015, the last time the county unemployment rate was lower than the U.S. rate was the twelve-year period from 1992 to 2003.

Table 3

Oakland County Compared with 38 U.S. Counties of Similar Size*

(Ranking based on selected Indicators of prosperity)

County	State	Population 2016	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	1,138,652	1	1	1	1	3	7	1
Montgomery	MD	1,043,863	2	8	3	2	1	16	2
Middlesex	MA	1,589,774	3	3	2	10	2	20	3
Collin	TX	939,585	5	5	4	14	4	32	4
Nassau	NY	1,361,500	12	2	5	3	15	37	5
Bergen	NJ	939,151	8	4	9	8	9	38	6
DuPage	IL	929,368	9	6	6	11	13	45	7
Westchester	NY	974,542	10	13	8	7	11	49	8
Fairfield	CT	944,177	14	9	12	5	12	52	9
Oakland	MI	1,243,970	11	11	7	17	8	54	10
Wake	NC	1,046,791	4	18	11	15	6	54	10
Hennepin	MN	1,232,483	6	16	10	18	5	55	12
Contra Costa	CA	1,135,127	18	14	15	4	17	68	13
Fulton	GA	1,023,336	7	28	14	19	7	75	14
Travis	TX	1,199,323	15	21	17	13	10	76	15
Suffolk	NY	1,492,583	21	7	16	12	20	76	15
St. Louis	MO	998,581	16	17	13	21	18	85	17
Allegheny	PA	1,225,365	13	19	18	32	14	96	18
Mecklenburg	NC	1,054,835	17	22	19	22	16	96	18
Prince George's	MD	908,049	31	15	22	6	22	96	18
Honolulu	HI	992,605	23	10	23	9	35	100	21
Salt Lake	UT	1,121,354	27	12	21	24	28	112	22
Franklin	OH	1,264,518	20	29	24	27	19	119	23
Erie	NY	921,046	19	30	20	29	23	121	24
Gwinnett	GA	907,135	24	20	25	25	27	121	24
Palm Beach	FL	1,443,810	22	25	28	16	30	121	24
Sacramento	CA	1,514,460	30	27	26	20	25	128	27
Hillsborough	FL	1,376,238	26	24	32	33	24	139	28
Pinellas	FL	960,730	29	23	31	31	26	140	29
Cuyahoga	OH	1,249,352	28	32	27	35	21	143	30
Duval	FL	926,255	32	31	30	28	29	150	31
Orange	FL	1,314,367	25	26	35	34	32	152	32
Shelby	TN	934,603	36	36	29	23	36	160	33
Pima	AZ	1,016,206	33	33	36	26	33	161	34
Milwaukee	WI	951,448	34	34	33	37	34	172	35
Marion	IN	941,229	35	35	34	36	37	177	36
Fresno	CA	979,915	39	37	37	30	38	181	37
Philadelphia	PA	1,567,872	37	38	38	38	31	182	38
Bronx	NY	1,455,720	38	39	39	39	39	194	39

*All counties in the United States with a population between 900,000 and 1,600,000 in 2016.

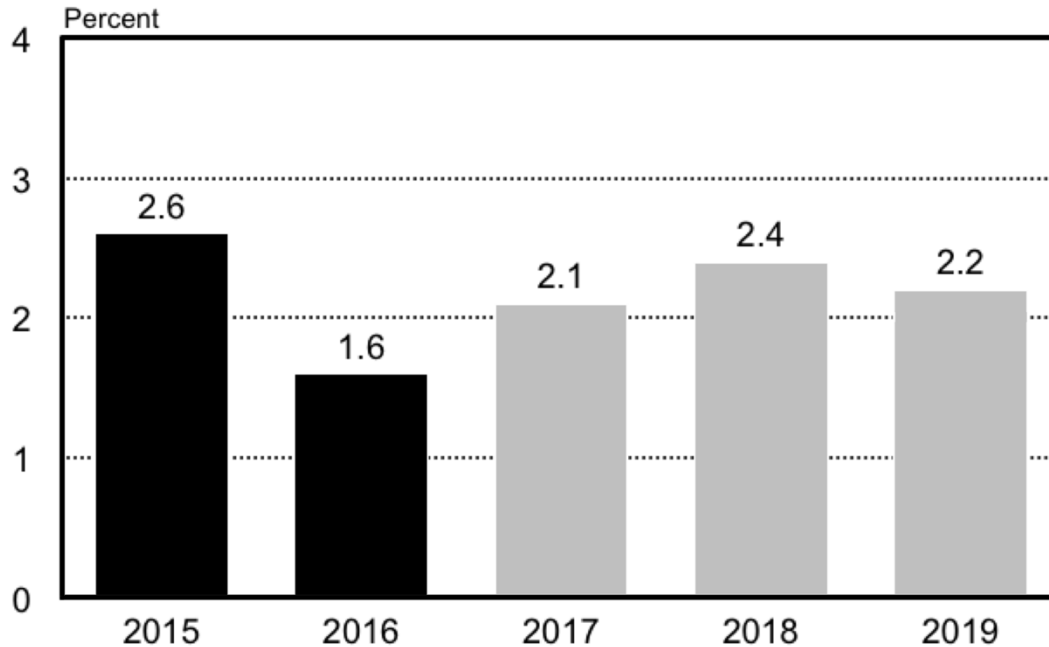
**Adjusted for cost of living.

Source: American Community Survey 2015. Census Bureau Population Estimates, April 2017.

- Comparing Oakland County's economic foundation to its peer counties can help to assess the county's prospects going forward.
- We ranked Oakland County and 38 other counties of similar size in the United States on a series of measures that we consider to be indicative of economic prospects for the future. (The data underlying the rankings are provided in appendix B.)
- We considered all counties in the United States with populations between 900,000 and 1.6 million in 2016. Oakland's population was 1.244 million.
- This group contains many of the most prosperous counties in the nation. Many of them are among the select group of U.S. counties, including Oakland, that have a AAA bond rating with multiple rating agencies.
- The measures we consider are: (1) share of the population aged 25 to 64 with at least an associate's degree in 2015; (2) share of the population aged 17 and under who lived within families whose income was below the poverty level in 2015; (3) median family income adjusted for the cost of living in 2015; (4) share of persons aged 65 and older with income at least five times the poverty line in 2015; and (5) share of employed county residents working in professional and managerial occupations in 2015.
- A lower number for the rank indicates a better position among the counties; that is, a rank of 1 is best and 39 is worst. Oakland County ranks between 7 and 17 across the five measures.
- Oakland is especially noteworthy for its median family income adjusted for the cost of living, where it ranks 7th, and its share of residents employed in professional and managerial occupations, where it ranks 8th.
- We order the 39 counties by the summation of all five rankings. This order is not meant to be a rigorous measure of overall ranking, but it does give a sense of the counties' relative standing. Oakland is tied for 10th overall among the 39 counties on this basis, an impressive achievement considering that a number of these counties constitute some of the healthiest local economies in the nation.
- We believe this comparison suggests that Oakland County is well-positioned to thrive in the future, with an educated populace, a high share of managerial and professional jobs, and an attractive standard of living.

Figure 3

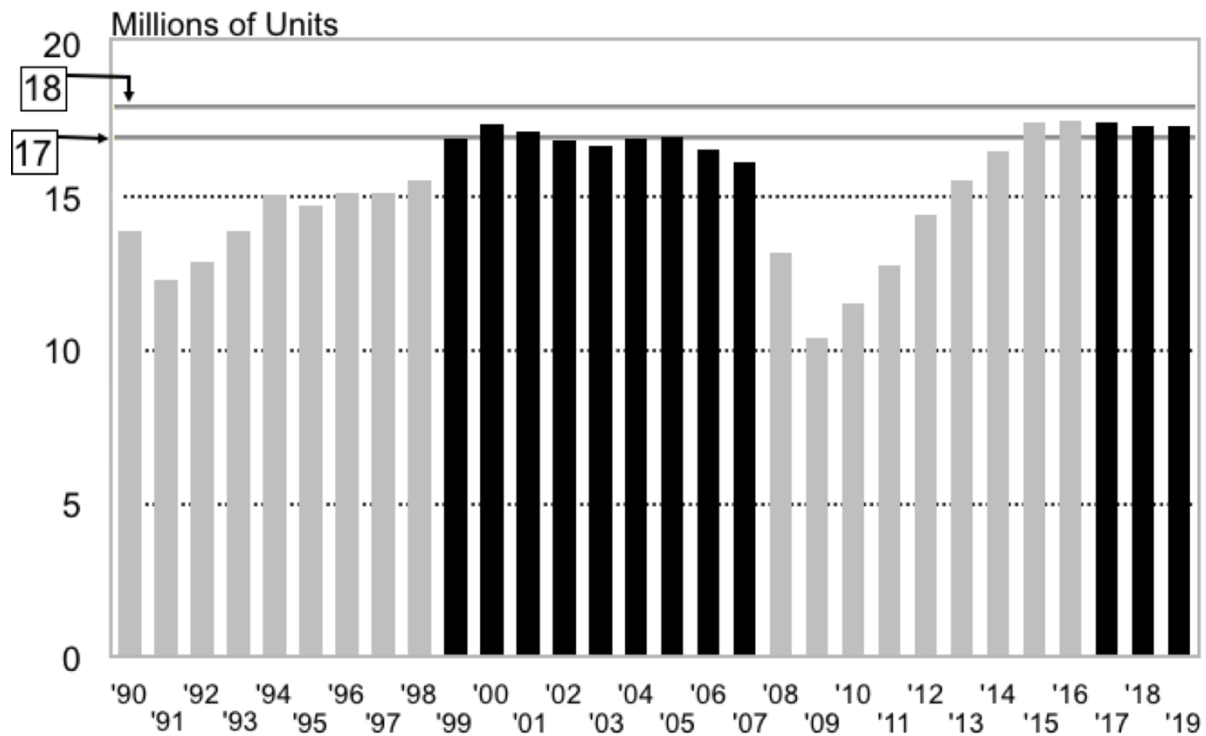
Growth in U.S. Real GDP, 2015–19



- The future course of the Oakland County economy depends in part on the overall health of the national economy.
- The best single measure of the U.S. economy is inflation-adjusted, or real, Gross Domestic Product, which comprises all of the goods, services, and structures produced in the economy.
- Real GDP growth downshifted from a 2.6% average rate in 2015 to 1.6% in 2016, held down by weak inventory investment and net exports, both of which can be quite volatile.
- Real final sales to domestic purchasers, which is a measure that strips out those two components, grew by a healthier 2.1% in 2016.
- We project net exports to continue subtracting from growth over the forecast period, due in part to the very strong dollar.
- However, we also expect an acceleration in business fixed investment, led by investment in equipment and structures. In particular, investment in mining exploration, shafts, and wells associated with the fracking boom collapsed in 2015 and 2016 following the plunge in energy prices. We foresee a modest rebound in that sector over the next few years. The end to the carnage in that sector should help to support growth over our forecast horizon.
- Overall, we foresee real GDP growth accelerating to 2.1% in 2017 and 2.4% the next year, before moderating slightly to 2.2% in 2019.
- There are two ways to summarize this outlook for U.S. economic growth. On the one hand, the growth rates that we foresee are modest, in keeping with the slow pace of this economic expansion relative to many in the past. On the other hand, our forecast implies ten consecutive calendar years of positive growth for the national economy.
- We are frequently asked whether the length of the current expansion means that we are due for a recession sometime soon. Our view is that economic expansions do not die of old age. Rather, they are typically caused by a policy error or an external shock, such as an oil embargo. We do not currently anticipate a recession over our forecast horizon, despite the middling growth rate that we project.

Figure 4

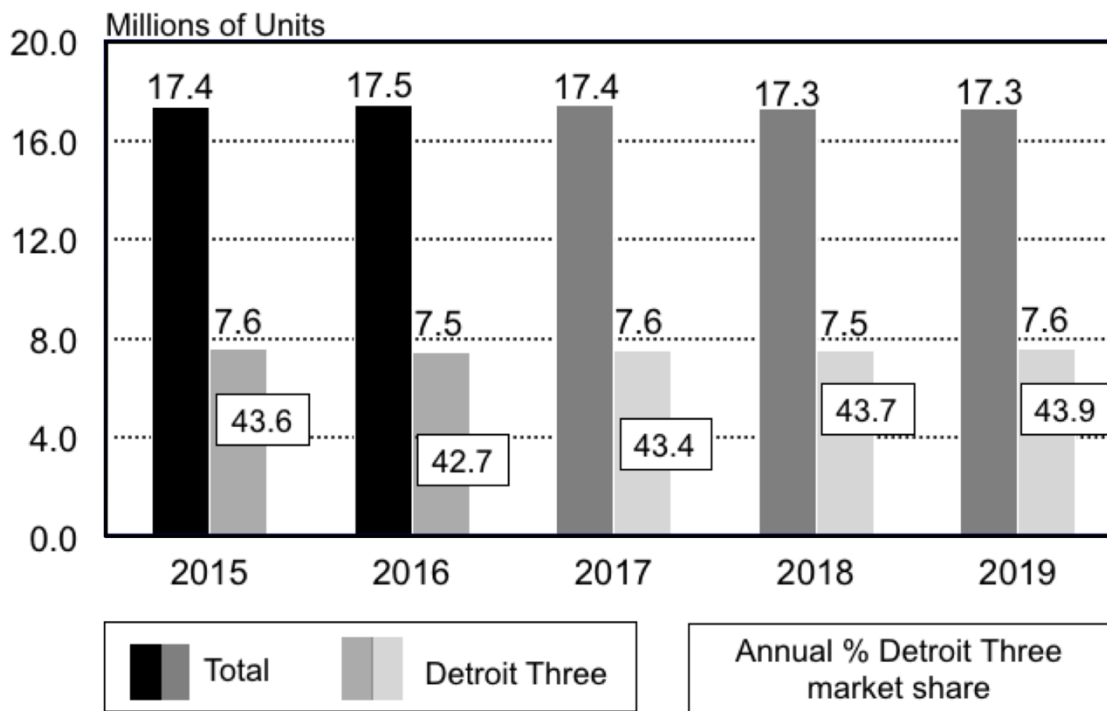
U.S. Light Vehicle Sales, 1990–2019



- Total U.S. light vehicle sales exceeded 16 million units in every year from 1999 through 2007 before plunging to 13.2 million units in 2008, with the onset of the Great Recession.
- Sales then bottomed out at 10.4 million units in 2009, and have grown every year since then, climbing back above the 16-million-unit line in 2014. Sales set a new all-time record of 17.4 million units in 2015, which was surpassed the next year with sales of 17.5 million units.
- We are forecasting that sales have reached a cyclical peak, and will retreat a bit from here, to 17.4 million units in 2017 and 17.3 million in each of the following two years.
- Some caution signs for light vehicle sales include high average incentives and high inventory levels for many vehicle models, especially for smaller vehicles.

Figure 5

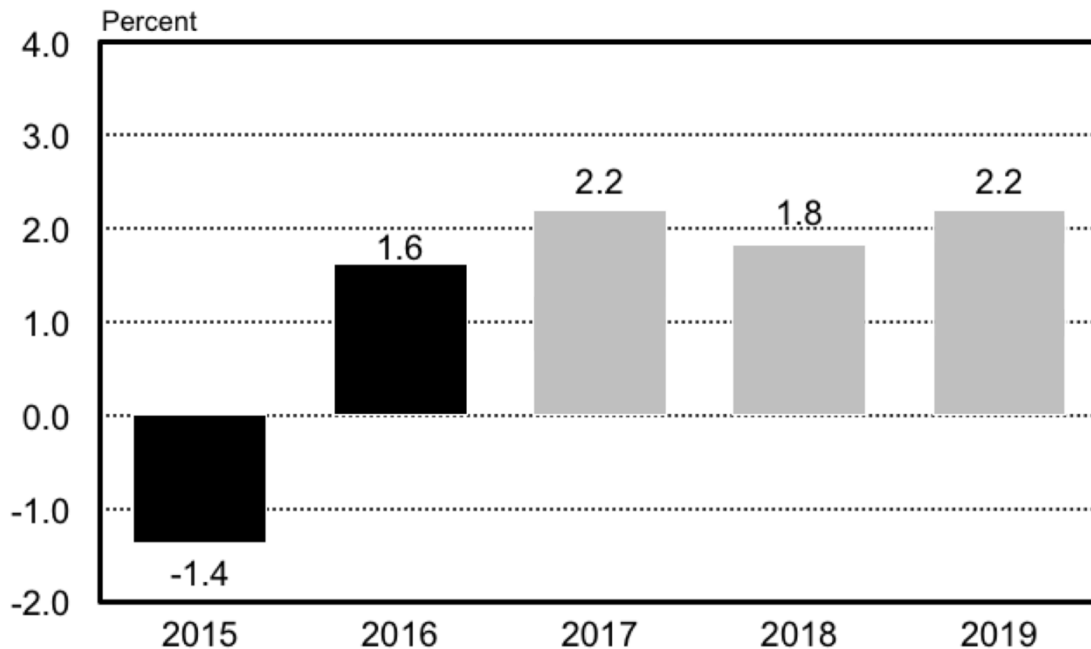
U.S. Light Vehicle Sales, Total vs. Detroit Three, 2015–19



- The Detroit Three’s share of the light vehicle market fell from 43.6% in 2015 to 42.7% in 2016.
- That decline was due to a combination of a slight drop in Detroit Three sales and a somewhat larger increase in non-Detroit Three sales.
- We see the Detroit Three’s share rebounding to 43.4% in 2017, and climbing slowly from there, to 43.7% in 2018 and 43.9% in 2019.
- That pattern is consistent with our projection of a gradually rising share of light truck sales relative to all vehicle sales, a declining share of foreign-made light trucks, and a roughly steady share of auto imports.
- The projections for total sales and the Detroit Three’s share, taken together, yield our outlook for Detroit Three sales, which stay in the 7.5–7.6-million-unit range throughout the forecast period, in line with the past couple of years.
- The flattening out of Detroit Three sales follows a period of vigorous growth from 2009 to 2015, and is consistent with a maturing economic expansion.

Figure 6

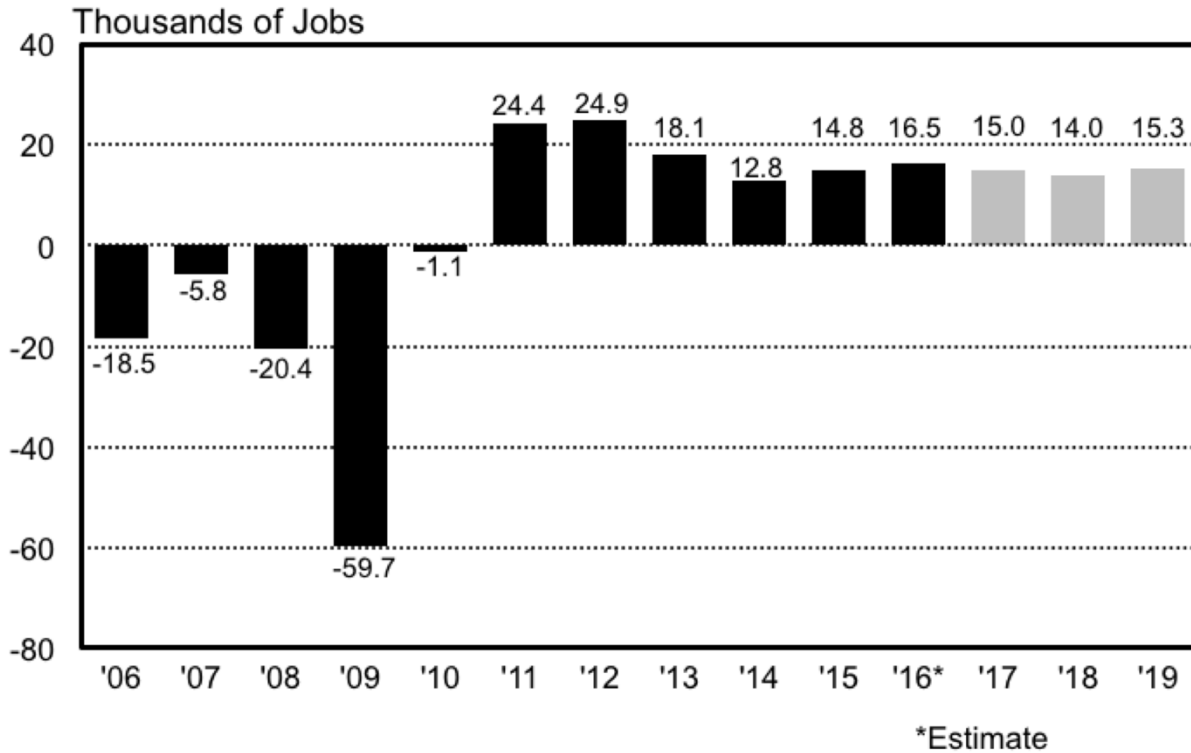
Inflation Rate, Detroit CPI, 2015–19



- We measure local inflation by the growth rate of the Detroit Consumer Price Index (CPI). Consumer price data are compiled at the regional level; they are not available for the county in isolation.
- Local inflation was negative 1.4% in 2015, the lowest rate on record. That means that local prices were lower on average in 2015 than they had been in 2014.
- The decline in local prices was broad-based across spending categories and was quite puzzling to local analysts. We projected that it would be temporary in our forecast of a year ago.
- Indeed, as we had projected in last year's forecast, negative inflation reversed itself in 2016, when local prices rose by 1.6%, led in part by a pickup in U.S. inflation.
- We project a further acceleration in local inflation to 2.2% in 2017, as energy prices rebound from their 2016 levels.
- As energy prices stabilize in 2018, local inflation recedes to 1.8%. Inflation picks up again to 2.2% in 2019, as the labor market continues to tighten.

Figure 7

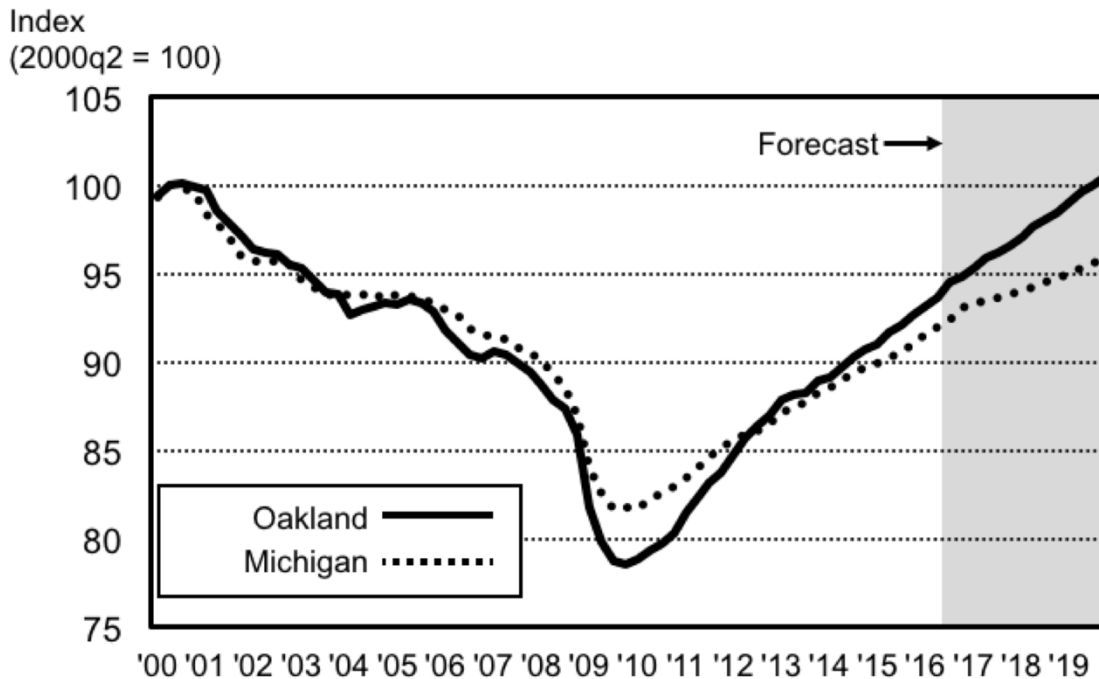
Job Growth in Oakland County, 2006–19



- Oakland County is now in its eighth year of economic recovery since the recession's low point at the end of 2009 and the county's upturn at the beginning of 2010.
- Over the period 2009 to 2016, the county's job growth of 18.0% has greatly outpaced both the nation's (9.9%) and Michigan's (11.8%).
- The job recovery picked up in 2016, with an addition of 16,475 jobs, or an increase of 2.3%, slightly faster than the 2.1% gain recorded in 2015 and the 1.9% gain recorded in 2014.
- We are forecasting that job growth will slow down slightly over the forecast period, to 2.1% in 2017, 1.9% in 2018, and 2.0% in 2019. The growth we foresee moving forward translates into gains of 14,993 jobs in 2017, 14,012 in 2018, and 15,326 in 2019.
- The job additions we project cumulate to 44,331 over our three-year forecast period, a healthy average pace of 2.0% per year. Oakland County's economy appears to have reached a comfortable cruising altitude after a turbulent start to the millennium.
- If our forecast proves correct, the span of Oakland's current recovery will extend to at least ten years. The county's upward trajectory continues to be supported by its strong economic fundamentals.

Figure 8

Total Jobs in Oakland County vs. Michigan, Seasonally Adjusted, First Quarter of 2000 to Fourth Quarter of 2019



- To give some perspective to Oakland’s current recovery, we compare it with the preceding decline, to see how much ground has been made up since employment bottomed out in 2009.
- We include the same profile for Michigan, with both the county and state employment paths indexed to equal 100 in the second quarter of 2000, representing Michigan’s previous peak employment level.
- From the spring of 2000 to the state’s low point in summer 2009, the county lost 163,338 jobs, over half of them in the last two years of the decline, reflecting the severity of the Great Recession.
- Then the recovery followed: from the summer of 2009 to the end of the currently published data in summer 2016, Oakland gained 121,173 jobs.
- From then to the end of 2019, we are forecasting that the county economy will create an additional 45,972 jobs, thus cumulating to 167,145 job additions (121,173 + 45,972) from the bottom of the downturn through 2019.
- That would more than replenish all of the jobs lost from the spring of 2000 to summer 2009. In our forecast, Oakland County sets a new employment peak in summer 2019.
- In contrast, by the end of 2019, the state as a whole is forecast to remain more than 4 percentage points short of its peak employment level set in the spring of 2000.
- The employment decline from the spring of 2000 to summer 2009 was steeper in Oakland (21.3 index points) than in the state overall (18.3 index points).
- Oakland’s recovery, however, has been more vigorous through the summer of 2016. Oakland has gained 15.8 index points, versus 10.7 for the state. The gap in the rate of recovery continues to widen in the county’s favor through 2019, as Oakland adds jobs more rapidly than the state as a whole.

Table 4

Job Change in Oakland County by Industry Wage Category, 2016–19

	2016	2019	Change 2016–19	% Change 2016–19
Total all industries	722,645	766,976	44,331	6.1
Higher-wage industries (\$75,000 or more)	237,892	253,588	15,696	6.6
Middle-wage industries (\$35,000-\$74,999)	313,273	331,259	17,986	5.7
Lower-wage industries (under \$35,000)	171,480	182,129	10,649	6.2

Source: BLS, Quarterly Census of Employment and Wages. Higher-wage industries have an average wage in 2015 about 40 percent above the U.S. average (\$52,942) and lower-wage industries about 35 percent below the U.S. average.

- The job change in Oakland County from 2016 to 2019 is distributed across industry categories based on the industry average wage, showing for the forecast period the same data that table 2 showed for the years 2010–16. The categories are higher-, medium-, and lower-wage industries. The method for partitioning the data is outlined in the notes for table 2.
- The ranking of job change from 2016 to 2019, in top-down order measured in percentage terms, is the higher-wage (6.6%), lower-wage (6.2%), and middle-wage (5.7%) industries. This matches the rank ordering, by percentage growth, of the 2010–16 period (see table 2).
- The higher- and middle-wage industries make up over three-quarters of the net new jobs created in the county over the three-year forecast period.
- In summary, the growth in Oakland County is forecast to continue to be skewed toward the better-compensated end of the wage scale, as it has been in the current recovery period to date, although not quite as tilted toward the higher end as in the earlier period. This growth pattern bodes well for Oakland’s sustained economic prosperity.

Table 5

Forecast of Jobs in Oakland County by Major Industry Division, 2016–19*

	Estimate	Forecast Employment Change				Average Annual Wage
	2016	'16–'17	'17–'18	'18–'19	'16–'19	2015
TOTAL JOBS (Number of persons)	722,645	14,993	14,012	15,326	44,331	58,447
(Annual percentage change)	(2.3)	(2.1)	(1.9)	(2.0)	(2.0)	N.A.
TOTAL GOVERNMENT	44,976	773	567	548	1,889	53,260
TOTAL PRIVATE	677,669	14,220	13,445	14,778	42,442	58,795
GOODS-PRODUCING	89,622	1,826	1,486	1,422	4,735	73,988
Natural resources, mining, construction	25,162	837	1,027	969	2,833	66,573
Manufacturing	64,460	989	459	454	1,902	76,854
Fabricated metal products	10,905	15	-66	-83	-134	60,382
Machinery	10,827	224	42	42	309	79,048
Transportation equipment (motor vehicles)	20,396	199	170	176	545	94,748
Other manufacturing	22,333	551	312	319	1,182	67,013
PRIVATE SERVICE-PROVIDING	588,046	12,393	11,959	13,355	37,707	56,518
Trade, transportation and utilities	127,772	1,570	1,535	1,736	4,841	51,979
Wholesale trade	35,712	595	581	587	1,763	90,419
Retail trade	78,875	466	416	555	1,437	32,926
Transportation, warehousing and utilities	13,185	509	539	594	1,641	59,083
Information	15,599	473	330	384	1,187	78,019
Financial activities	52,633	927	1,034	1,147	3,109	79,971
Finance and insurance	36,399	662	652	714	2,028	93,517
Real estate and rental and leasing	16,235	265	382	433	1,080	49,426
Professional and business services	187,608	4,577	4,152	4,374	13,103	71,224
Professional, scientific, and technical	109,567	3,290	3,027	3,094	9,411	82,346
Management of companies and enterprises	14,190	184	225	136	545	129,684
Administrative support and waste management	63,851	1,103	900	1,144	3,147	40,276
Private education and health services	112,454	2,341	2,919	3,381	8,641	49,210
Private education services	11,242	127	192	236	556	44,627
Health care and social assistance	101,212	2,214	2,727	3,144	8,085	49,732
Leisure and hospitality	67,935	2,002	1,724	1,973	5,698	20,433
Other services	22,605	504	264	361	1,129	33,697
Unclassified	1,440	0	0	0	0	47,818

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

- The projected job movements in total are distributed among 28 major industry divisions in table 5, and into 235 finer industry divisions in appendix A.
- The government sector turned the corner in 2016, adding 505 jobs after ten consecutive years of job losses from 2006 to 2015. We believe the rebound in government employment is here to stay, and expect job gains of around 1.4% per year over the forecast period, for a total of 1,889 job additions from 2017–19. Nonetheless, the growth that we foresee in the government sector does not keep pace with growth in the private sector, meaning that government continues to shrink as a share of overall employment.
- Private-sector employment growth accelerated from 2.1% in 2014 to 2.3% in 2015 and 2.4% in 2016. We foresee it cooling off a bit from here, to a range of 1.9 to 2.1% in 2017–19. That growth rate translates into job gains of slightly over 14,000 per year on average, cumulating to 42,442 jobs over the three-year period.
- The aggregate industry category of natural resources, mining, and construction is dominated by the construction industry, which accounted for 97% of the category's jobs in 2016. The category adds 2,833 jobs over the next three years, as residential construction continues to pick up. Specialty trade contractors such as plumbing, electrical, and HVAC contractors account for 2,001 job additions over the three years. Residential building contractors account for another 337 job additions.
- 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 in 2016 with 2,232 new jobs, but we expect the trend toward slower growth to continue, to 989 job additions in 2017, 459 in 2018, and 454 in 2019.
- 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 has slowed down substantially since then, with an average of 204 job additions per year from 2013 to 2015. The industry added 528 jobs in 2016, but we do not expect a resurgence of growth in this industry. We see 199 job gains in 2017, 170 in 2018, and 176 in 2019. While factory jobs in the auto industry are no longer leading the job recovery, its white-collar component, included in professional and business services, will continue to see strong growth.
- Employment in manufacturing outside of transportation equipment has tended to grow more rapidly than employment in the transportation equipment area. Employment growth in all other manufacturing industries has averaged 3.7% from 2012 to 2016, for a total of 5,956 job additions. We see job growth in the non-auto manufacturing industries slowing from here, to a total of 1,357 jobs over the next three years. That translates to an average growth rate of 1% per year.
- Chemicals and machinery both see large job gains over the forecast period: 496 and 309 jobs, respectively. We expect the chemicals industry to set a new employment record in 2017.
- Wholesale trade sees job growth in the 1.6–1.7% range over each of the next three years, cumulating to 1,763 job additions. Motor vehicle and parts merchant wholesalers account for 818 of those job gains, an average of 4.5% per year.
- Retail trade is a much larger sector than wholesale trade, but generally pays lower wages. We are bearish on the growth prospects for this sector 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 0.6% per year over the forecast, for a total of 1,437 new jobs. Department stores lose jobs over the forecast period.
- Transportation, warehousing, and utilities grow at a strong rate of 4% per year on average from 2016 to 2019, producing a total of 1,641 new jobs. Relatively strong growth in construction and increased local consumer spending both support growth in these industries.

- The information sector adds a total of 1,187 jobs over the next three years, an average pace of 2.5 percent per year. Newspaper and book publishers lose 192 jobs between 2016 and 2019, reflecting a long-term decline that has claimed more than half of the industry's jobs since its peak in 2003. In contrast, software publishing adds 496 jobs and the data processing, hosting, and related services industry adds 352 in the next three years.
- The finance and insurance industry in Oakland County was slow to recover after the Great Recession, losing 771 jobs from 2010 to 2014. Things have turned around in this industry over the past two years, with a total of 2,929 job additions in 2015 and 2016. Growth continues over the forecast period, but slows to an average pace of 676 jobs per year, for a total of 2,028 jobs over the next three years. We expect commercial banking to expand by 250 total jobs, an average rate of 1.2% per year. More rapid growth over the next three years is expected in securities, commodity contracts, and investments (1.9% per year) and insurance agencies and brokerages (2.6% per year).
- The real estate and rental and leasing industry grows by a total of 1,080 jobs over the next three years, for an average growth rate of 2.2% per year, as the residential real estate market continues to improve. Following our usual practice, we note here that most real estate agents are self-employed, and thus are not included in the payroll employment statistics presented here.
- From 2009 to 2016, employment in the professional and business services super-sector grew by 51,310 jobs, an average rate of 4.7% per year. 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, and in Oakland County it is closely identified with the motor vehicle industry. We see this sector growing at an average rate of 2.3% per year over the next three years, cumulating to a total of 13,103 job additions.
- The knowledge-based professional, scientific, and technical services sector supplies most of that job growth: 9,411 jobs from 2016 to 2019, or 2.8% per year. Engineering services add 2,563 jobs in those years, while testing laboratories add another 1,586 jobs. These industries are core parts of the white-collar auto industry. Other industries in this sector that deliver strong performances over the forecast are computer systems design and related services, which grows an average of 2.1% per year, for a total of 1,374 job additions, and management and technical consulting services, which grows an average of 5% per year, for a total of 1,553 new jobs.
- Management of companies is another core part of the white-collar auto industry in Oakland County. This division grows at a moderate pace over the forecast, an average of 1.3% per year, cumulating to 545 job additions from 2016 to 2019.
- Administrative support and waste management services add 3,147 jobs over the next three years, an average rate of 1.6% per year. Among the strong gainers in this sector are business support services, with 696 total job additions (2.8% per year), and office administrative services, with 628 additions (4.8% per year). Employment services, which include temporary help services, grows by 835 jobs over the forecast, a middling growth rate of 1.0% per year on average. That is still an improvement over the past four years, in which the industry has consistently lost jobs.
- Employment growth in private education services has been moderate since 2009, averaging 0.9% per year through 2016. We foresee it accelerating slightly, to 1.6% per year from 2016 to 2019. That growth translates into 556 new jobs over the forecast period.
- Health care and social assistance adds 8,085 jobs over the next three years, an average growth rate of 2.6% per year. That pace represents a slight slowdown from the sector's 3.2% growth rate in 2016, but is nonetheless respectable. We believe growth in this sector will continue. Ambulatory health care services provide 2,770 of the new jobs in this sector over the forecast period, followed by hospitals with 2,216 new jobs, and social assistance, with 1,783 new jobs.

- The leisure and hospitality services industry has been on a tear lately, growing at an average rate of 4% per year from 2011 to 2016. We expect the good times to continue, if in a more subdued fashion, going forward, with average growth of 2.7% per year from 2016 to 2019. That growth path would yield a total of 5,698 new jobs by 2019. Full-service restaurants account for about one-half of those job gains, reflecting the increasing affluence of the county's population. Limited-service, or fast-food, restaurants, add an additional 582 jobs over the forecast period, while accommodation services add 898 new jobs.
- The "other services" sector covers a wide variety of industries: repair services (including auto repair), personal services (such as hair salons and dry cleaners), membership organizations, and private household services. These industries grow by a total of 1,129 jobs over the forecast period. Personal care services lead the way with 494 job additions.

Table 6

Change in Employment Shares by Major Industry Division, 2000 and 2019*

Industry	Share 2019 (%)	Share 2000 (%)	Difference 2019–2000 (%)
Total Government	6.1	7.1	-1.0
Natural resources, mining	0.1	0.1	0.0
Construction	3.5	4.7	-1.2
Manufacturing	8.7	14.0	-5.3
Trade, transportation, and utilities	17.3	17.8	-0.5
Information	2.2	2.8	-0.6
Financial activities	7.3	7.1	0.2
Professional and business services	26.2	25.3	0.9
Private education	1.5	1.0	0.5
Health services	14.3	9.6	4.7
Leisure and hospitality	9.6	7.8	1.8
Other services	3.1	2.7	0.4
Total Jobs	100.0	100.0	0.0

*Industries in bold are broken out in additional detail in Table 7.

- Although we forecast Oakland County will virtually match in calendar-year 2019 the total number of jobs it enjoyed in its previous peak year of 2000, there has been a significant shift over those two decades in the distribution of employment across major industry divisions.
- The largest decline occurs in the goods-producing sector, which consists of manufacturing, construction, natural resources, and mining. The sector contributed 18.8% of all of the jobs in the county in 2000, compared with a much smaller 12.3% in 2019, a drop of 6.5 percentage points, with manufacturing making up the bulk of that loss.
- The government sector's employment share shrinks by a percentage point over the period.
- The largest increases in slices of the employment pie originate in the private service-providing sector. The greatest gains are in health services, whose share mushrooms from 9.6% in 2000 to 14.3% in 2019; in leisure and hospitality, expanding from a share of 7.8% to 9.6% over the same period; and in professional and business services, increasing from 25.3% to 26.2%.
- Those three industries combined see an increase in employment share over the period of 7.4 percentage points, counterbalancing the loss in share of 7.5 percentage points by the goods-producing and government sectors collectively.
- Oakland County has been investing for years in activities that are becoming increasingly prominent in the New Economy. Medical Main Street and the Oakland University William Beaumont School of Medicine are on the leading edge of health services. The Emerging Sectors program, Tech248, and much of Automation Alley line up with professional and business services. The county's strategy more generally of promoting skill enhancement for occupations that mesh with the evolving knowledge- and information-based economy is validated by this data.

Table 7

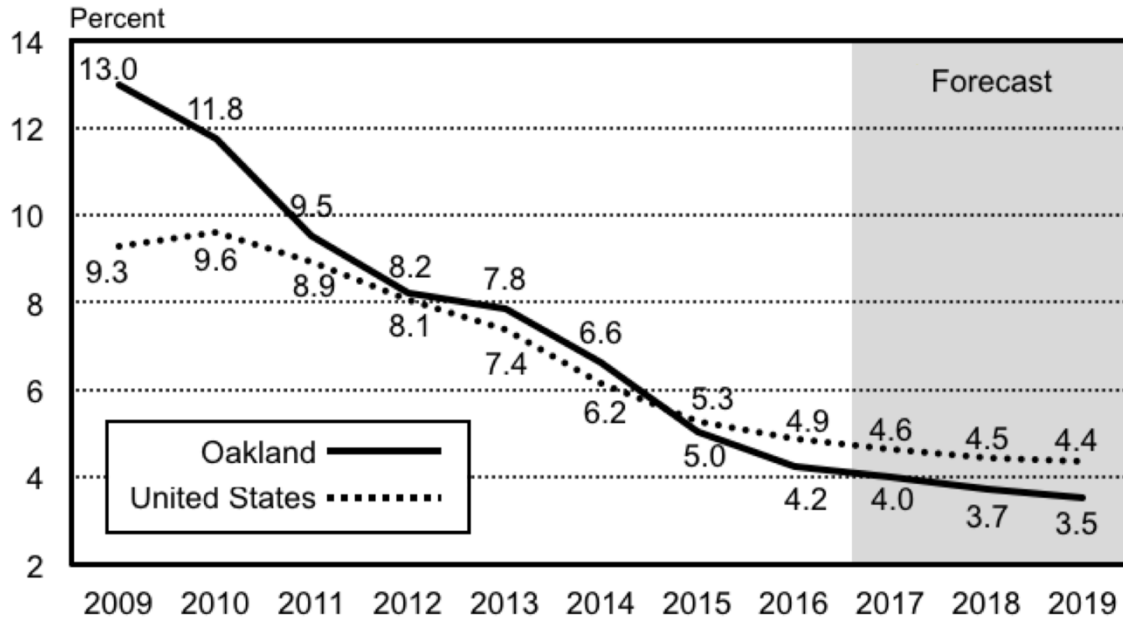
Change in Employment Shares by Selected Detailed Industry, 2000 and 2019

Industry	Share 2019 (%)	Share 2000 (%)	Difference 2019–2000 (%)
Total Government	6.1	7.1	-1.0
Elementary and secondary schools	2.8	3.7	-0.9
Manufacturing	8.7	14.0	-5.3
Fabricated metal products	1.4	1.9	-0.5
Machinery	1.5	2.4	-0.9
Motor vehicles	2.7	6.0	-3.3
Professional and business services	26.2	25.3	0.9
Professional, scientific, and technical	15.5	13.0	2.5
Health services	14.3	9.6	4.7
Ambulatory health care	5.7	3.7	2.0
Hospitals	4.7	3.7	1.0
Nursing and residential care facilities	2.2	1.5	0.7
Social assistance	1.7	0.8	0.9
Leisure and hospitality	9.6	7.8	1.8
Restaurants and other eating places	6.6	4.8	1.8

- The loss of share in the government sector from 2000 to 2019 is dominated by the contraction of employment in elementary and secondary schools.
- Much of the impetus for the shrinking slice of the jobs pie for manufacturing comes, not surprisingly, from the motor vehicle manufacturing industry, which accounted for 6.0% of the county economy's job count in 2000, compared with an expected 2.7% in 2019.
- The loss of share for the local auto industry is the result of its severe retrenchment from 2000 to 2010, when it lost 70% of its work force. From 2010 to 2016, the industry recouped 20% of those losses.
- Many of the other relatively large local manufacturing industries, such as fabricated metal products and machinery, have followed the same pattern, collapsing in the first decade of the 2000s and nudging up after that, with a permanent loss in employment share.
- The largest pickup in share among the major categories of professional and business services is taking place in the professional, scientific, and technical industry grouping, which forms the core of the knowledge economy.
- Within the health services sector, most of the gains can be traced to: ambulatory health care (e.g., offices of health practitioners, home health care services); hospitals; nursing and residential care facilities; and social assistance.
- Among industries in the leisure and hospitality sector, the greatest advances in employment share are found in the restaurant category.

Figure 9

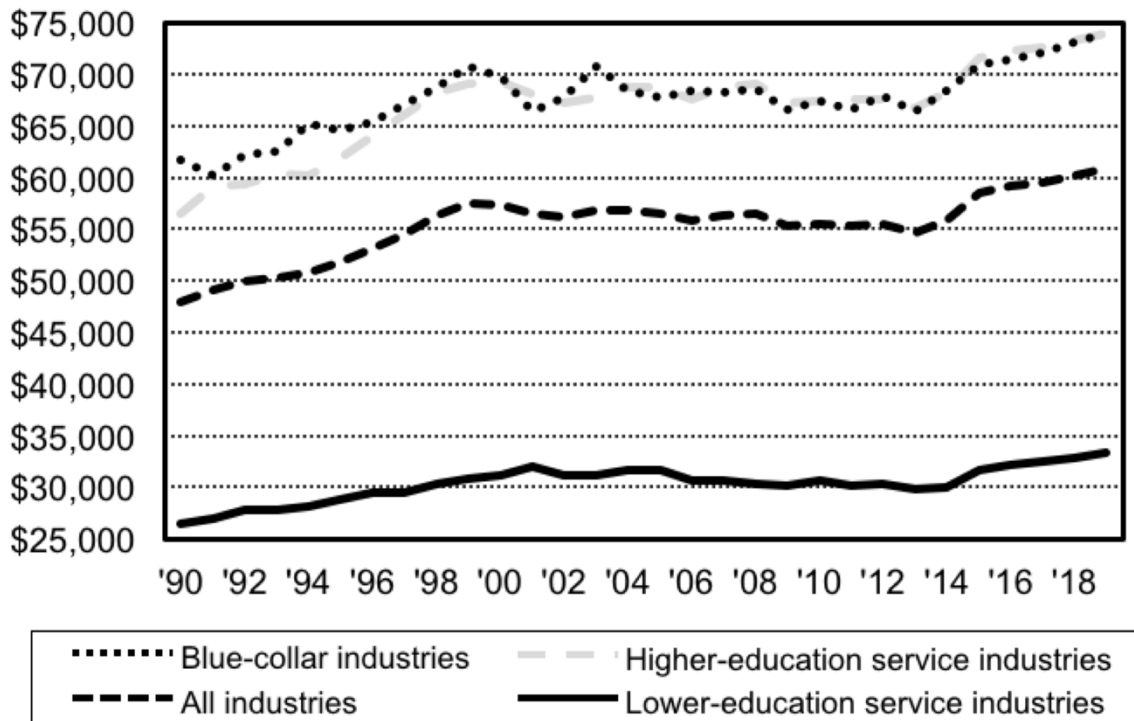
Unemployment Rates for Oakland County and for the United States, 2009–19



- The sustained job growth we project for Oakland County translates into continued declines in the county’s unemployment rate from 2016 to 2019. The rate falls from 4.2% in 2016 to 4.0% in 2017, 3.7% in 2018, and 3.5% in 2019.
- The unemployment rate for 2019 would be the county’s lowest since the year 2000, when it averaged 2.6%. That reading was the lowest ever recorded in the county.
- The county’s labor force has grown every year since 2011, but the pace averaged a modest 0.6% per year from 2011 to 2015. Labor force growth picked up sharply to 3.3% in 2016, as improving job opportunities encouraged more people to reenter the labor force. We are projecting that labor force growth will slow to a more sustainable, but still healthy, average rate of 1.6% per year from 2016 to 2019, as the vigorous labor market encourages previously discouraged workers to seek out jobs.
- Oakland’s unemployment rate was 3.7 percentage points above the U.S. rate in 2009 (13.0% vs. 9.3%). The gap narrowed to four-tenths of a percentage point by 2014 (6.6% vs. 6.2%).
- The county and the nation switched positions in 2015, when Oakland’s rate of 5.0% was three-tenths of a percentage point lower than the U.S. rate of 5.3%. The gap widened in 2016 to seven-tenths of a percentage point (4.2% vs. 4.9%).
- We are forecasting that the gap will widen further over the next few years, with Oakland’s unemployment rate falling nine-tenths of a percentage point below the nation’s by 2019 (3.5% vs. 4.4%).

Figure 10

Average Real Wage in Oakland County by Selected Industry Group, 1990–2019



- Here we present the average real wage, adjusted for inflation to be expressed in 2015 dollars, in Oakland County for the years 1990–2019. We display the real wage both in total and 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 in Oakland rose from \$47,934 in 1990 to \$57,424 in 1999, an increase of 19.8%. Wage gains ranged from 14.7% in the blue-collar industries to 16.5% in the lower-education service industries and 22.3% in the higher-education service industries.
- Average real wages then entered a long period from 1999 to 2013 in which they tended to decline, with a low point of \$54,594 in 2013. That

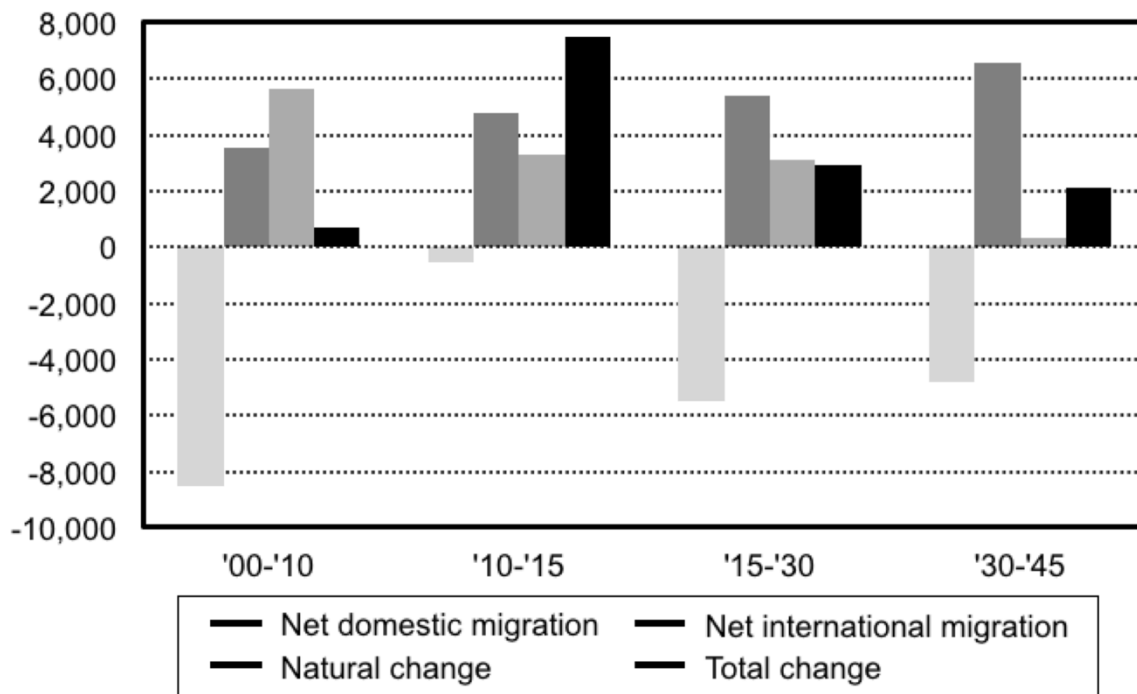
level was 4.9% below the 1999 level. Average real wages in blue-collar industries declined slightly more than wages in the other industry groupings.

- Average real wages have grown briskly since 2013, to \$59,132 in 2016, which is 8.3% above the level in 2013 and 3.0% above the previous peak in 1999. Real wages grew especially sharply in 2015, as that year’s 1.4% decline in local prices converted a nominal wage gain of 3.4% into a real wage increase of 4.8%. This was the county’s largest annual real wage gain since at least 1990.
- From 2013 to 2016, real wages increased by an average of 2.5–2.7% per year across the three industry groupings that we consider.
- Local inflation of 2.2% in 2017 converts a nominal wage increase of 2.8% into a real wage gain of 0.6%. Real wage growth accelerates to 1.3% in 2018 with the slowdown in local inflation to 1.8%, before settling in at 1.0% in 2019 as local inflation again reaches 2.2%.

- Real wage gains average 1.0% per year from 2016 to 2019 in our forecast. That may not sound like much, but it is five times faster than the average real wage gain of 0.2% per year recorded from 2000–16.
- Real wage gains are distributed fairly evenly across the industry groupings over the forecast period. The smallest increases accrue to the higher-education service industries, an average of 0.8% per year. Blue-collar and lower-education service industries both see real wage gains of 1.1% per year on average.

Figure 11

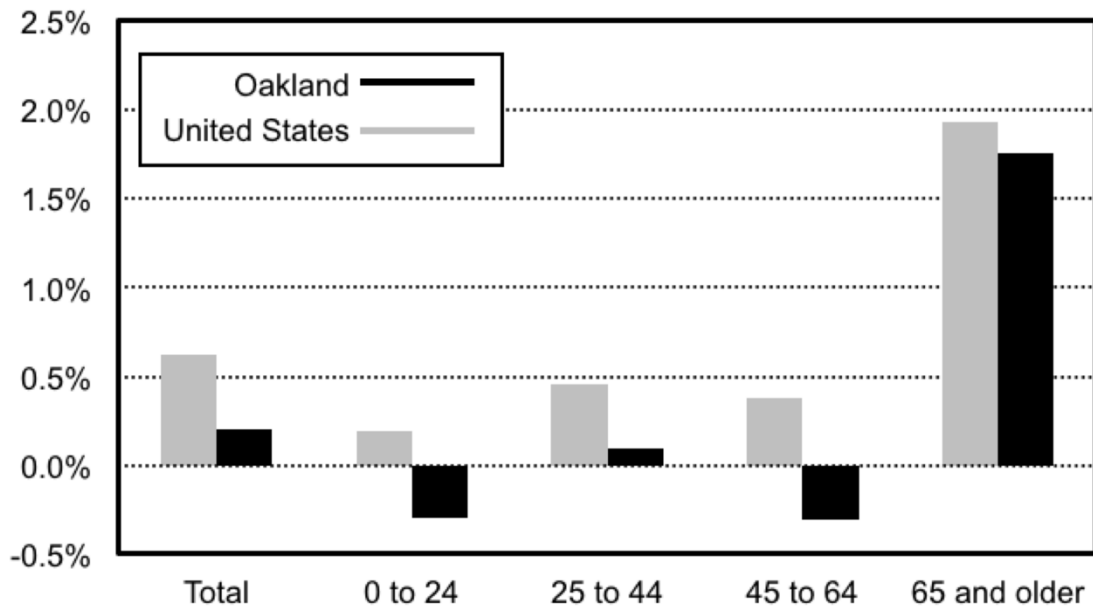
Components of Population Change in Oakland County, Average per Year, 2000–45



- We now turn our attention to a longer-run topic, the county’s demographic prospects through the year 2045. There are three potential sources of population growth: natural population change (births minus deaths), net international migration, and net domestic migration. Together, these sources of growth sum to the total change in population over any time period.
- Between 2000 and 2010, the county’s population increased by 666 people per year on average. Natural population growth averaged 5,654 per year in that time, and net international migration averaged positive 3,565 per year. Net domestic migration, however, averaged *negative* 8,553 people per year, nearly offsetting growth from the other two sources. Much of the domestic outmigration reflected the more difficult economic conditions in the county during that period.
- Net domestic outmigration slowed to a trickle, averaging 572 per year between 2010 and 2015 as the economy improved. At the same time, net international migration increased to 4,775 per year. Together, these trends more than compensated for a slowdown in natural population growth to 3,267 per year. In sum, total population growth increased dramatically to 7,470 per year over the 2010–15 period.
- Net domestic outmigration picks up to an average of 5,514 per year during the first 15 years of our forecast period, from 2015 to 2030. Net international migration accelerates modestly to 5,369 per year, while natural population growth averages roughly its level from the 2010–15 period at 5,369 per year. Total population growth thus decreases to 2,944 per year on average from 2015 to 2030.
- In the final 15 years of our forecast, 2030 to 2045, net domestic outmigration slows a bit to 4,782 per year, while net international migration accelerates to 6,566 per year. The big story, however, is that natural population growth falls to an average of only 352 per year. Accounting for all three components, total population growth from 2030 to 2045 slows to an average pace of 2,137 per year.
- Oakland County’s population would decline in the post-2018 period if it were not for net international migration.

Figure 12

Population Change by Age Group in Oakland County and United States, Average per Year, 2015–45



- The major demographic story in Oakland County—and the nation as a whole—over the next 30 years is the dramatic aging of the population as the baby-boomer generation enters the typical retirement years.
- Oakland’s population in the cohort aged 65 and older is forecast to grow at an average rate of 1.8% per year from 2015 to 2045, compared with a much slower pace of 0.2% per year for its total population.
- As a consequence, the share of the county’s total population that is 65 or older increases dramatically over the forecast period, from 15.5% in 2015 to 24.4% in 2045—almost one out of every four people in the county.
- Compare this to Florida, the state known for its concentration of retirees, where people 65 and older currently account for 19.4% of the population—almost one out of every five people in the state.
- Conversely, the younger cohorts either grow much more slowly or decline, depending on the age category.
- These demographic trends may well produce labor shortages down the road, particularly of workers with skills that mesh with the evolving knowledge- and information-based economy.
- The total population in Oakland County grows more slowly than in the United States—0.2% per year versus 0.6%—but the growth rates for the cohort aged 65 and older are comparable.
- The dramatic aging of the population will create a new set of economic and social challenges for the county, but also new opportunities to meet the needs and desires of an aging population nationwide.
- Oakland County’s senior population is currently relatively affluent—36.9% of its population 65 and older has an income at least five times the poverty rate, compared with 28.1% for the United States and only 23.9% for Michigan as a whole. If the county continues to attract and retain relatively affluent seniors because of its recreational amenities, excellent health care systems, and attractive cost of living, the aging population will continue to contribute to Oakland’s ongoing prosperity.

Forecast of Jobs in Oakland County by Detailed Industry Division

	Estimate	Forecast			Average Annual Wage
	2016	2017	2018	2019	2015
TOTAL PAYROLL JOBS (Number of persons)	722,645	737,638	751,650	766,976	58,447
(Annual percentage change)	2.3	2.1	1.9	2.0	N.A
TOTAL GOVERNMENT	44,976	45,749	46,316	46,865	53,260
Federal government	4,691	4,765	4,811	4,861	71,266
Postal service	3,724	3,822	3,881	3,940	66,572
Federal government NEC	967	943	930	921	87,312
State and local government	40,285	40,985	41,506	42,004	51,144
Local libraries	555	556	565	578	21,050
Local education and health services	22,322	22,716	22,959	23,129	52,641
Elementary and secondary schools	20,343	20,770	21,012	21,180	53,828
Other education and health services	1,978	1,946	1,947	1,950	40,848
Local public administration	12,780	12,986	13,165	13,379	48,975
State and other local government	4,628	4,726	4,817	4,917	53,375
TOTAL PRIVATE	677,669	691,889	705,333	720,111	58,795
GOODS-PRODUCING	89,622	91,449	92,935	94,357	73,988
Natural resources and mining	758	762	765	773	32,248
Agriculture, forestry, fishing, and hunting	597	609	611	617	25,183
Mining, quarrying, and oil and gas extraction	161	153	154	157	59,904
Construction	24,404	25,238	26,261	27,222	67,593
Construction of buildings	6,196	6,450	6,663	6,861	71,440
Residential	3,080	3,187	3,299	3,417	66,431
Nonresidential	3,117	3,263	3,363	3,444	76,787
Heavy and civil engineering construction	2,195	2,220	2,281	2,347	76,731
Utility systems	959	971	994	1,015	64,386
Land subdivision	195	193	199	211	77,836
Highway, street, and bridge construction	969	970	993	1,018	90,938
Other heavy construction	73	86	96	103	56,099
Specialty trade contractors	16,013	16,568	17,317	18,014	64,884
Building foundation and exterior	2,360	2,466	2,582	2,693	57,417
Building equipment	9,099	9,352	9,744	10,111	70,424
Building finishing	2,574	2,656	2,774	2,887	52,419
Other specialty trade contractors	1,979	2,094	2,217	2,323	64,344
Manufacturing	64,460	65,449	65,909	66,362	76,854
Food	1,686	1,680	1,687	1,697	27,061
Bakeries and tortilla manufacturing	585	586	593	601	20,157
Food manufacturing NEC	1,101	1,095	1,094	1,097	34,416
Textile products	173	176	183	190	28,045
Wood products	166	156	147	140	60,210
Paper products	282	296	305	309	76,231
Printing and related support activities	2,018	2,034	2,028	2,021	59,906
Chemicals	3,425	3,602	3,756	3,921	96,929
Plastics and rubber products	3,850	3,941	3,929	3,908	53,457
Nonmetallic mineral products	1,230	1,260	1,266	1,265	59,887
Primary metals	1,248	1,201	1,156	1,116	114,764
Fabricated metals	10,905	10,920	10,854	10,771	60,382
Forging and stamping	1,080	1,099	1,121	1,137	56,063
Architectural and structural metals	697	680	667	653	53,998
Machine shops and threaded products	3,999	3,963	3,921	3,875	65,506
Coating, engraving, and heat treating metals	2,002	2,013	2,007	1,994	52,314
Other fabricated metals	1,542	1,602	1,598	1,594	63,475
Fabricated metals NEC	1,585	1,562	1,540	1,518	60,618

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

	Estimate	Forecast			Average Annual Wage
	2016	2017	2018	2019	2015
Machinery	10,827	11,051	11,094	11,136	79,048
Industrial machinery	753	761	756	751	79,821
Commercial and service industry machinery	656	659	688	717	58,296
Metalworking machinery	5,693	5,871	5,886	5,904	78,080
Turbine and power transmission equipment	489	479	467	456	79,503
Other general purpose machinery	2,905	2,945	2,958	2,968	85,837
Machinery NEC	331	336	339	341	61,479
Computer and electronic products	2,676	2,763	2,818	2,873	72,981
Semiconductors and electronic components	1,485	1,540	1,580	1,620	68,208
Electronic instruments	846	872	876	881	75,454
Computer and electronic products NEC	346	350	361	371	87,998
Electrical equipment, appliances, components	1,112	1,115	1,115	1,115	69,616
Transportation equipment	20,396	20,595	20,765	20,941	94,748
Motor vehicle bodies and trailers	1,171	1,224	1,282	1,335	96,025
Aerospace products and parts	1,060	1,056	1,046	1,037	82,367
Transportation equipment NEC	18,165	18,315	18,437	18,570	95,388
Furniture and related products	521	522	521	520	51,827
Miscellaneous manufacturing	2,807	2,911	3,010	3,110	55,844
Medical equipment and supplies	593	596	603	610	53,066
Other miscellaneous manufacturing	2,214	2,314	2,407	2,500	56,869
Manufacturing NEC	1,139	1,226	1,275	1,330	49,186
PRIVATE SERVICE-PROVIDING	588,046	600,440	612,399	625,754	56,518
Trade, transportation, and utilities	127,772	129,342	130,878	132,614	51,979
Wholesale trade	35,712	36,307	36,888	37,475	90,419
Merchant wholesalers, durable goods	24,112	24,676	25,230	25,780	91,415
Motor vehicles and parts	5,781	6,065	6,340	6,599	89,668
Commercial equipment	4,899	4,886	4,898	4,927	108,063
Office equipment	909	875	848	823	69,622
Computers and software	1,989	1,984	1,990	2,003	143,165
Medical equipment	1,355	1,378	1,406	1,441	88,851
Commercial equipment NEC	645	649	654	660	74,913
Electric goods	4,162	4,205	4,240	4,279	100,794
Machinery and supply	5,036	5,210	5,384	5,545	85,179
Industrial machinery	3,484	3,642	3,786	3,918	84,479
Machinery and supply NEC	1,552	1,567	1,598	1,627	86,723
Merchant wholesalers, durable goods NEC	4,235	4,310	4,367	4,431	70,106
Merchant wholesalers, nondurable goods	6,809	6,888	6,967	7,054	74,128
Paper and paper products	370	366	357	349	75,236
Druggists' goods	1,584	1,583	1,608	1,634	66,837
Groceries and related products	1,487	1,543	1,577	1,610	62,813
Chemicals	1,413	1,378	1,363	1,363	108,119
Miscellaneous nondurable goods	1,127	1,187	1,225	1,255	59,984
Merchant wholesalers, nondurable goods NEC	828	832	837	843	69,869
Wholesale electronic markets, agents, brokers	4,791	4,743	4,691	4,641	108,429
Retail trade	78,875	79,341	79,757	80,312	32,926
Motor vehicle and parts dealers	10,947	11,129	11,274	11,434	60,706
Furniture and home furnishings stores	2,739	2,801	2,830	2,856	35,177
Electronics and appliance stores	4,612	4,622	4,696	4,772	51,001
Building material and garden supply dealers	6,794	6,801	6,829	6,876	39,743
Food and beverage stores	12,660	12,644	12,683	12,758	22,411
Health and personal care stores	5,964	6,070	6,110	6,156	36,685

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

	Estimate	Forecast			Average Annual Wage
	2016	2017	2018	2019	2015
Retail trade (continued)					
Gasoline stations	2,074	2,107	2,133	2,161	18,324
Clothing and clothing accessories stores	8,248	8,361	8,494	8,654	19,883
Sporting goods, hobby, book, and music stores	4,005	3,955	3,962	3,992	23,549
General merchandise stores	15,026	14,755	14,490	14,272	23,613
Department stores, except discount	3,979	3,854	3,726	3,619	26,222
Discount department stores	3,889	3,767	3,640	3,519	19,072
Warehouse clubs and supercenters	5,803	5,696	5,598	5,514	26,389
All other general merchandise stores	1,354	1,438	1,527	1,619	17,290
Miscellaneous store retailers	4,716	5,003	5,158	5,280	25,837
Nonstore retailers	1,089	1,095	1,098	1,101	56,595
Transportation and warehousing	11,704	12,174	12,685	13,250	47,477
Truck transportation	3,822	3,884	4,000	4,119	57,567
Couriers and messengers	1,903	1,911	1,901	1,904	44,122
Warehousing and storage	1,418	1,404	1,396	1,394	60,973
Transportation and warehousing NEC	4,562	4,975	5,388	5,833	35,617
Utilities	1,481	1,520	1,548	1,576	150,435
Information	15,599	16,071	16,402	16,786	78,019
Publishing (except Internet)	3,847	3,938	4,041	4,151	97,011
Newspaper, book, and directory publishers	1,512	1,442	1,380	1,320	73,229
Software publishers	2,335	2,496	2,661	2,831	114,099
Motion pictures and sound recording	2,282	2,475	2,449	2,433	33,309
Motion picture and video production	921	1,111	1,065	1,028	71,269
Motion picture and video exhibition	1,197	1,205	1,221	1,239	11,395
Motion pictures and sound recording NEC	164	159	162	165	63,528
Broadcasting (except Internet)	1,451	1,474	1,504	1,534	93,355
Telecommunications	5,088	5,050	5,060	5,086	77,480
Wireless telecommunications carriers	657	666	670	671	85,106
Telecommunications NEC	4,431	4,384	4,391	4,415	76,520
Data processing, hosting, and related services	2,225	2,347	2,460	2,577	76,663
Information NEC	706	788	888	1,006	82,509
Financial activities	52,633	53,560	54,594	55,742	79,971
Finance and insurance	36,399	37,060	37,712	38,427	93,517
Credit intermediation and related activities	15,612	16,005	16,265	16,515	84,911
Depository credit intermediation	9,039	9,130	9,176	9,227	80,469
Commercial banking	6,790	6,887	6,961	7,040	86,359
Depository credit intermediation NEC	2,249	2,243	2,215	2,187	66,801
Nondepository credit intermediation	5,214	5,462	5,625	5,770	97,800
Real estate credit intermediation	2,297	2,502	2,623	2,732	81,008
Nondepository credit intermediation NEC	2,917	2,960	3,001	3,038	109,595
Activities related to credit intermediation	1,359	1,413	1,464	1,517	68,714
Mortgage and nonmortgage loan brokers	437	476	517	559	81,563
Activities related to credit intermediation NEC	922	936	947	958	62,688
Securities, commodity contracts, investments	4,438	4,496	4,591	4,703	155,279
Insurance carriers and related activities	16,221	16,429	16,727	17,081	84,388
Insurance carriers	8,569	8,651	8,793	8,968	91,314
Direct property and casualty insurers	2,468	2,496	2,518	2,541	100,919
Insurance carriers NEC	6,102	6,155	6,275	6,427	87,447
Insurance agencies, brokerages, and related	7,651	7,778	7,934	8,113	76,549
Insurance agencies and brokerages	5,373	5,484	5,643	5,811	78,447
Other insurance-related activities	2,279	2,294	2,291	2,302	71,928
Finance and insurance NEC	128	130	129	128	89,714

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

	Estimate	Forecast			Average Annual Wage
	2016	2017	2018	2019	2015
Real estate and rental and leasing	16,235	16,500	16,882	17,315	49,426
Real estate	12,691	12,920	13,268	13,650	49,321
Lessors of real estate	5,468	5,497	5,543	5,597	44,567
Offices of real estate agents and brokers	1,565	1,596	1,646	1,701	52,998
Activities related to real estate	5,658	5,827	6,078	6,352	53,187
Rental and leasing services	3,243	3,277	3,314	3,367	45,419
Lessors of nonfinancial intangible assets	301	303	300	298	90,937
Professional and business services	187,608	192,185	196,337	200,711	71,224
Professional and technical services	109,567	112,857	115,884	118,978	82,346
Legal services	12,051	12,236	12,418	12,606	89,953
Accounting and bookkeeping services	6,505	6,567	6,649	6,744	65,290
Architectural and engineering services	45,429	46,973	48,324	49,726	80,940
Architectural services	1,316	1,353	1,389	1,428	84,692
Engineering services	23,576	24,599	25,369	26,139	80,812
Testing laboratories	19,981	20,459	20,988	21,567	81,298
Engineering services NEC	555	563	578	592	63,559
Specialized design services	2,284	2,389	2,515	2,668	109,230
Computer systems design and related services	21,551	22,060	22,505	22,925	88,717
Management and technical consulting services	9,903	10,441	10,956	11,456	75,468
Scientific research and development services	1,952	2,041	2,122	2,204	119,545
Advertising, PR, and related services	4,478	4,522	4,573	4,609	86,352
Other professional and technical services	5,415	5,628	5,823	6,039	54,407
Management of companies and enterprises	14,190	14,374	14,599	14,735	129,684
Administrative support and waste management	63,851	64,954	65,854	66,998	40,276
Administrative and support services	62,511	63,635	64,530	65,664	39,930
Office administrative services	4,132	4,321	4,524	4,760	53,382
Employment services	27,869	28,320	28,464	28,704	45,535
Business support services	7,993	8,210	8,450	8,689	40,711
Investigation and security services	5,852	6,093	6,163	6,239	28,397
Services to buildings and dwellings	12,921	12,885	13,011	13,213	25,844
Other support services	2,440	2,506	2,599	2,720	47,167
Administrative and support services NEC	1,305	1,300	1,318	1,340	43,557
Waste management and remediation services	1,340	1,319	1,324	1,334	55,772
Private education and health services	112,454	114,795	117,714	121,095	49,210
Education services	11,242	11,369	11,561	11,797	44,627
Elementary and secondary schools	3,883	3,848	3,878	3,931	37,486
Colleges and universities	2,204	2,237	2,245	2,266	38,925
Education services NEC	5,155	5,285	5,438	5,601	52,948
Health care and social assistance	101,212	103,426	106,153	109,297	49,732
Ambulatory health care	41,053	41,696	42,670	43,823	56,437
Offices of physicians	14,205	14,214	14,303	14,434	80,125
Offices of dentists	6,434	6,518	6,645	6,797	50,761
Offices of other health practitioners	5,510	5,801	6,111	6,483	43,732
Outpatient care centers	2,822	2,927	3,049	3,184	50,405
Medical and diagnostic laboratories	1,725	1,786	1,890	2,029	46,286
Home health care services	8,913	8,943	9,117	9,297	36,076
Other ambulatory health care services	1,445	1,508	1,555	1,598	41,381
Hospitals	33,607	34,295	35,031	35,823	60,027
Nursing and residential care facilities	15,446	15,747	16,203	16,762	27,914
Nursing care facilities	4,744	4,779	4,886	5,040	34,372
Residential mental health facilities	2,688	2,716	2,767	2,829	25,616

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

	Estimate	Forecast			Average Annual Wage
	2016	2017	2018	2019	2015
Nursing and residential care facilities (continued)					
Community care facilities for the elderly	6,297	6,390	6,516	6,641	25,238
Other residential care facilities	1,716	1,862	2,034	2,253	22,733
Social assistance	11,106	11,688	12,249	12,889	23,113
Individual and family services	5,942	6,405	6,916	7,504	23,326
Child day care services	3,912	3,984	4,014	4,040	20,235
Social assistance NEC	1,251	1,299	1,320	1,345	31,179
Leisure and hospitality	67,935	69,937	71,661	73,633	20,433
Arts, entertainment, and recreation	10,322	10,625	10,863	11,152	35,852
Spectator sports	1,346	1,409	1,461	1,498	86,463
Golf courses and country clubs	2,364	2,452	2,492	2,543	27,086
Fitness and recreational sports centers	4,192	4,410	4,571	4,742	18,052
Arts, entertainment, and recreation NEC	2,421	2,354	2,339	2,369	45,400
Accommodation and food services	57,613	59,312	60,797	62,481	17,707
Accommodation	4,482	4,840	5,101	5,380	24,691
Food services and drinking places	53,130	54,472	55,696	57,101	17,140
Restaurants and other eating places	46,946	48,128	49,304	50,648	16,945
Full-service restaurants	25,962	26,869	27,752	28,731	19,130
Limited-service restaurants	17,806	17,956	18,146	18,388	13,900
Cafeterias, grill buffets, and buffets	533	534	529	530	19,320
Snack and nonalcoholic beverage bars	2,646	2,770	2,877	2,999	16,311
Special food services	4,269	4,365	4,370	4,387	19,641
Drinking places, alcoholic beverages	1,915	1,979	2,023	2,065	16,571
Other services	22,605	23,110	23,374	23,735	33,697
Repair and maintenance	5,997	6,068	6,129	6,204	42,884
Automotive repair and maintenance	4,169	4,174	4,192	4,226	40,778
Repair and maintenance NEC	1,827	1,894	1,936	1,977	48,114
Personal and laundry services	9,896	10,280	10,447	10,641	25,002
Personal care services	5,304	5,426	5,611	5,798	21,665
Personal and laundry services NEC	4,593	4,855	4,836	4,844	29,015
Membership associations and organizations	5,559	5,583	5,620	5,709	39,327
Private households	1,153	1,179	1,178	1,181	24,652
Private unclassified service-providing	1,440	1,440	1,440	1,440	47,818
<u>Addendum</u>					
Unemployment rate	4.2	4.0	3.7	3.5	N.A.

Appendix B

Oakland County Compared with 38 U.S. Counties of Similar Size Indicator Values*

County	State	Population 2016	Associate's Degree or More	Child Poverty	Median Family Income**	High-Income Persons Aged 65 or Older	Managerial, Professional
Fairfax	VA	1,138,652	66.0%	7.1%	105,537	60.8%	54.9%
Montgomery	MD	1,043,863	64.2%	10.5%	97,964	55.0%	55.6%
Middlesex	MA	1,589,774	62.9%	7.5%	99,261	41.8%	55.1%
Collin	TX	939,585	59.8%	8.9%	96,952	39.6%	52.2%
Nassau	NY	1,361,500	55.4%	7.5%	92,299	48.6%	44.3%
Bergen	NJ	939,151	57.3%	8.6%	89,499	43.4%	48.0%
DuPage	IL	929,368	56.9%	9.4%	92,171	41.4%	45.1%
Westchester	NY	974,542	56.1%	12.8%	89,629	44.7%	46.4%
Fairfield	CT	944,177	54.6%	10.7%	87,636	45.4%	45.9%
Oakland	MI	1,243,970	56.0%	11.7%	90,812	36.9%	48.6%
Wake	NC	1,046,791	60.2%	15.7%	88,941	37.7%	48.9%
Hennepin	MN	1,232,483	59.0%	14.0%	89,380	35.4%	49.0%
Contra Costa	CA	1,135,127	48.3%	13.2%	83,460	45.9%	42.9%
Fulton	GA	1,023,336	57.6%	22.9%	85,145	35.3%	48.9%
Travis	TX	1,199,323	54.2%	18.3%	81,096	40.0%	46.8%
Suffolk	NY	1,492,583	46.5%	10.0%	82,040	40.2%	38.6%
St. Louis	MO	998,581	53.1%	14.0%	86,847	32.6%	42.8%
Allegheny	PA	1,225,365	55.0%	16.3%	78,022	24.5%	44.6%
Mecklenburg	NC	1,054,835	52.6%	18.6%	77,024	32.0%	43.2%
Prince George's	MD	908,049	39.7%	13.4%	75,019	44.8%	38.4%
Honolulu	HI	992,605	45.4%	11.0%	73,774	42.1%	35.0%
Salt Lake	UT	1,121,354	42.5%	12.3%	76,128	30.9%	36.7%
Franklin	OH	1,264,518	48.1%	24.6%	71,637	27.4%	42.3%
Erie	NY	921,046	48.1%	25.2%	76,386	25.5%	38.4%
Gwinnett	GA	907,135	45.3%	18.1%	69,224	29.6%	37.0%
Palm Beach	FL	1,443,810	45.5%	20.9%	66,191	37.2%	36.6%
Sacramento	CA	1,514,460	40.0%	22.7%	68,646	32.9%	38.1%
Hillsborough	FL	1,376,238	44.7%	20.9%	61,976	24.3%	38.2%
Pinellas	FL	960,730	41.8%	20.2%	63,071	25.2%	37.7%
Cuyahoga	OH	1,249,352	41.9%	26.0%	68,634	22.6%	38.4%
Duval	FL	926,255	39.7%	25.6%	63,989	26.9%	36.7%
Orange	FL	1,314,367	44.7%	22.3%	59,563	23.4%	36.0%
Shelby	TN	934,603	36.7%	32.4%	64,125	31.2%	34.4%
Pima	AZ	1,016,206	39.3%	28.3%	59,261	28.4%	35.9%
Milwaukee	WI	951,448	39.2%	29.6%	60,124	21.5%	35.9%
Marion	IN	941,229	38.6%	32.2%	59,649	21.8%	34.2%
Fresno	CA	979,915	26.9%	36.9%	54,112	25.4%	28.8%
Philadelphia	PA	1,567,872	35.8%	38.3%	47,000	16.3%	36.6%
Bronx	NY	1,455,720	28.2%	42.9%	34,192	16.1%	25.4%
<i>State of Michigan</i>			39.4%	22.4%	67,899	23.9%	35.2%
<i>United States</i>			40.9%	20.7%	68,260	28.1%	37.1%

*All counties in the United States with a population between 900,000 and 1,600,000 in 2016.

**Adjusted for cost of living.

Source: American Community Survey 2015. Census Bureau Population Estimates, April 2017. Median Family Income adjusted using BEA price parity indices for 2014 and extended to counties by relative gross rent.

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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.

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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.

AdvantageOakland.com



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