SEVENTH ANNUAL SOUTHERN CALIFORNIA ECONOMIC RECOVERY & JOB CREATION SUMMIT

ORANGE COUNTY ECONOMIC UPDATE

Prepared for the

Southern California Association of Governments

Orange County Business Council
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Section 1 - Introduction

This report is intended to provide a general overview of current 2016 economic and related trends in Orange County, along with projections for the short and long-term future, in preparation for the seventh annual Southern California Economic Summit to be held on December 1, 2016 and co-hosted by Southern California Association of Governments (SCAG) and the Southern California Leadership Council.

Metrics highlighted in this report include measures and projections of demographics, employment, industry clusters, educational attainment levels, income and poverty, and the housing market, broken down into the following sections:

- Current Economic Conditions
- Key Existing and Emerging Industries
- Innovation in Orange County
- Occupational Employment and Salary Growth
- Income and Poverty Statistics
- Educational Attainment Demographics
- Housing Market and Construction Activity

Where relevant, current and emerging regional, state, and national economic trends are highlighted so that elected officials, policymakers, and region-wide stakeholders might amplify the benefits of these trends while mitigating their potential negative impacts. Analyzing these issues will help elected officials, community leaders, policymakers, and business leaders respond to potential economic and societal changes: demographic shifts, technological advancement, and the seemingly ever-widening skills gap between employees’ skills and employers’ needs.

As the Great Recession fades into memory, Southern California must look forward instead of backward. In Orange County, which helped lead Southern California’s economic recovery and has surpassed pre-recession highs in terms of employment and the housing market, elected officials and policymakers should look to the future, and focus on addressing long-standing and emerging macro socio-economic issues by continuing to leverage Orange County’s strengths and address potential threats to the county’s continued economic prosperity.
Section 2 – Current Economic Conditions

Orange County continues to boast a lower unemployment rate than state and national averages as 2016 draws to a close, demonstrating the strength and resilience of its economy. The county’s unemployment rate, in fact, dropped below pre-recession lows in May 2016 (3.6 percent) before rising in July, as part of a national increase in unemployment rates. The unemployment rate was 4.1 percent in September 2016, 0.1 percent lower than the previous year and lower than the statewide (5.3 percent) and national (4.8 percent) unemployment rates. Exhibit 2.1 shows county, state, and national unemployment rates over the past nine years, highlighting Orange County’s strong recovery from the ravages of the Great Recession.

Exhibit 2.1 Unemployment Rates (January 2008 – September 2016)

![Unemployment Rate Graph](source: California EDD)

Orange County’s strong economic recovery in the aftermath of the Great Recession continues to build momentum. Exhibit 2.2 shows the county’s labor force from 2008 to 2016; the county’s current employment has surpassed 2008 levels by over 40,400 employees, reducing its unemployed population by over 19,400 during the same period.
While still below pre-recession levels, the labor force participation rate has improved, reaching a five-year high of 51.4 percent in September 2016, an increase of 0.7 percent from the previous year. This increase, another display of Orange County’s economic resilience, while still subdued, suggests a growing economy and improved job creation that encourages many residents to re-engage in the job market. In the longer term, however, major demographic and social changes – an aging population, the retirement of large portions of the Baby Boomer workforce, and the potential loss of jobs due to increasing automation – will likely serve to limit growth in labor force participation.
Orange County is currently undergoing a large demographic shift in terms of age groups and ethnicities. According to projections by the California Department of Finance, the School Age, College Age and Working Age groups will experience 9 percent, 13 percent, and 1 percent decreases, respectively, between 2010 and 2060. Older age groups, on the other hand, will experience dramatic growth: 111 percent for Young Retirees, 167 percent for Mature Retirees, and a massive 312 percent for Seniors, as Exhibit 2.4 illustrates. County stakeholders and policymakers must address the impacts of these changes, which will affect everything from industry employment, as an older population increases demand for healthcare services, to senior services, to the housing market, as retirees may seek to find smaller, more affordable living accommodations.

**Exhibit 2.4 Orange County Projected Population Change by Age Group (2010-2060)**

- **Seniors (85+ Years)**: 312%
- **Mature Retirees (75-84 Years)**: 167%
- **Young Retirees (65-74 Years)**: 111%
- **Working Age (25-64 Years)**: -1%
- **College Age (18-24 Years)**: -13%
- **School Age (5-17 years)**: -9%
- **Preschool Age (0-4 Years)**: -1%

Source: California Department of Finance

Orange County’s demographic makeup is also shifting, as shown in Exhibit 2.5; the California Department of Finance estimates that the white ethnic group will see a 31 percent decrease by 2060 as the Asian and Hispanic groups increase by 34 and 53 percent, respectively, over the same period. The county’s diverse population has already provided major economic benefits by attracting well-educated and talented workers, a trend that will hopefully continue in the future. As the county becomes more diverse, policymakers should ensure support for all ethnic groups. Improving English language programs for young students, for example, will help guarantee a steady supply of young workers to fill job openings created by the retirement of older workers.
Before the turn of the Millennium, Orange County’s population growth stemmed from migration into the region rather than natural increase (births minus deaths), a trend that has since reversed. Since 2000, natural increase has increased the county’s population by 399,144, an average of almost 25,000 per year, whereas net migration (both national and international) has reduced its population by 36,887. While international migration into Orange County has been a steady source of population growth, domestic outmigration has largely been the culprit, being primarily a source of population decline over the last decade. The county’s net migration first turned negative in 2002 and persisted until 2010, reflecting the effects of rising home prices and the Great Recession. As the recession took hold, individuals and families saw their savings depleted, causing housing-related investments to turn negative and many residents to leave Orange County for more affordable areas.
As Orange County continues to recover from the Great Recession, shifting demographic trends, generational differences, and technological improvements have begun to transform the county’s economic landscape. Analysts have identified several potential issues that may impede the county’s future economic growth. Orange County’s growing skills gap, as highlighted in several recent OCBC reports, has already had a negative impact on both businesses and workers. Technological change has outpaced educational and training programs in many disciplines, resulting in a shortage of employees with skills needed for in-demand jobs. Finally, many educational programs have neglected the “soft skills” necessary for today’s team-based work environments.

The combination of these factors suggests that traditional concepts of the career are quickly becoming obsolete. The aforementioned skills gap – the discrepancy between the skills, often technically-oriented, needed by employers and those possessed by potential employees – has led many employers to hire individuals with specific technical skills certifications rather than those with 4-year degrees. In addition, many employers have opted to hire contract and temp workers rather than salaried employees, a strategy that gives them more flexibility in addressing current needs and mitigates the need for annual or semi-annual employee training sessions to ensure that workers have up-to-date skills. These trends will undoubtedly have
significant direct and indirect consequences on job creation and the labor market, economic growth and competitiveness, and regional prosperity.

High cost-of-living is another major concern, primarily driven by high housing (both homeownership and rental) prices. While wages increases have started to accelerate over the past year in Orange County, wage growth has not kept pace compared with increases in the cost of living. The high cost of housing, education and healthcare in Orange County, along with general inflation, prevents many individuals and families from living in the county. This limits economic growth as many talented and up-and-coming workers decide to move elsewhere, draining the county’s talent pool. The county’s high housing costs, in particular, encourage many residents to choose to relocate their residence to surrounding lower cost-regions and commute to Orange County for work. Additional housing supply and affordability metrics are provided in Section 8 of this report that further describe and highlight the extent and impacts of this significant issue for Orange County.

Finally, rapid technological advancement threatens the county’s future economic prosperity, as a large percentage of recent employment growth has been in relatively low-skill retail and tourism jobs with a high likelihood of automation in the near future. Restaurant cashiers and servers may be replaced by touch-screen kiosks, routine manufacturing positions by robots that never take breaks, transportation occupations by self-driving vehicles. Higher-skill positions are also at risk, as accountants, auditors, and even attorneys find themselves competing with software that can potentially perform their jobs more efficiently. While automation has the potential to substantially increase productivity, it may also have a significant effect on the employment landscape.
Section 3 - Key Existing and Emerging Industries

Recent data from the California Employment Development Department (EDD) shows that Professional & Business Services, Leisure & Hospitality, and Educational & Health Services continue to be Orange County’s largest industries in terms of employment. Construction saw the largest percentage growth of employment (9.9 percent) over the past year, followed by Educational and Health Services (4.6 percent) and Leisure and Hospitality (4.5 percent).

Exhibit 3.1 Orange County Industry Employment Breakdown (September 2016)

Exhibit 3.2 provides a six-year overview of employment trends by industry in Orange County, showcasing changes in the county’s key industries. The chart’s employment totals are current as of September 2016.
Alongside traditional industries, Orange County has been able to cultivate a number of industry clusters which promote higher economic growth by creating a self-sustaining, virtuous cycle of innovation, productivity, and employment creation. Cluster formation can create economic competitiveness in a region by generating greater cash inflow, attracting and retaining a skilled labor pool, and providing a clear pathway from specialized education towards in-demand careers. Moreover, industry clusters are associated with reduced environmental impact through efficient supply side management, and a growth in supporting professional and business service industries such as accounting, legal and management consulting services, all of which improve the region’s overall economy. By encouraging the development of industry clusters, the County can strengthen the economic activity in the region and provide a variety of employment opportunities within the clusters themselves and across all industries in the region.

Driven by a continually recovering economy providing increased employment opportunities and slightly higher wages, the Tourism cluster in Orange County added the most jobs between 2014 and 2015, increasing by 4.8 percent or 9,220 jobs. Reflection increasing demand for housing and corresponding home construction, the Construction industry experienced the second highest increase in jobs — up 9.7 percent, and representing an addition of 7,906 jobs. The Healthcare sector ranked third with an increase of 4.9 percent over the past year for an
additional 7,843 jobs, likely a result of the increasing need for healthcare services by an aging population as well as from the implementation of the Affordable Care Act (ACA). The Information Technology and the Biotechnology sectors, which represent the technological base of the county, saw an overall increase in employment of 1,208 and 2,650, respectively; a significant improvement over employment trends experienced the year before which registered drops in employment for both of these industries. This increase represents the improving standing and competitiveness of Orange County as an innovation and research center.


Overall, the average salary for major industry clusters in Orange County experienced considerable increases in 2015, with all industry clusters registering wage increases. The overall average salary for cluster employment in Orange County in 2015 was $66,962, an increase of 6.2 percent compared to 2014 salary averages. The highest increase in average percent salary over the past year occurred in Biotechnology, which increased significantly by 28.9 percent; this was largely driven by wage growth in one particular sub-industry group, Physical, Engineering and Biological Research. The second highest percent increase in cluster salaries was in the Transportation industry cluster, which increased by 9.1 percent, followed by Logistics and Transportation which increased by 7.6 percent and followed by Information Technology which increased by 6.2 percent.
EDD projects that Professional and Business Services will add 75,100 jobs by 2022, followed by Educational and Health Services with 42,500, and Leisure and Hospitality with 38,700. Two industries are expected to contract over the same time period: Mining and Logging, expected to lose 100 jobs, and Durable Goods Manufacturing, expected to lose 7,700 jobs. These employment trends, especially the increase in Healthcare employment, reflect expected demographic changes, as an increasingly older population will require additional healthcare-related services. One worrying trend is the stagnation of the manufacturing industry throughout the Southern California region, a historically strong industry with high multiplier effects. As technology continues to improve operational processes and strategies, industries reliant on low-skill, repetitive tasks will see a large decrease in their required employment levels, as software and robotics reduce the need for on-site employees.
Exhibit 3.5  Projected Changes in Orange County Employment by Industry (2012 – 2022)

Source: California EDD
Section 4 – Innovation in Orange County

Innovation is the lifeblood of economic growth and job creation, helping drive not only significant employment growth in that particular industry, but job creation and economic activity throughout other sectors and the region as a whole due to both high multiplier effects and above-average wages. Industry clusters are regional concentrations of related companies and industries in a particular geographical location that play a unique role in innovation, regional competitiveness, economic growth, and job creation. These industries typically exhibit high clustering effects allowing them to benefit from their proximity to one another, as well as proximity to complimentary industries and their customer base. This section briefly highlights Orange County’s key innovation industry clusters, their ability to drive economic activity, the multiplier effects of various industries, and Orange County’s innovative landscape.

At the heart of a regional industry cluster is usually a world-class employer, or core group of companies, that both compete and collaborate. An ecosystem coalesces from the combination of interrelated suppliers, service providers such as legal and accounting, capital providers such as venture capital, research organizations, and educational institutions such as the University of California that provide specialized training and education, information, research, and technical support.

Competitive industry clusters that develop innovative, high-value added products and services are central to regional economic development, paying dividends many times over and provides a myriad of benefits to the rest of the cluster constituents. Clusters typically generate high-wage employment, enhance productivity, and spur innovation by creating a virtuous cycle that brings together a powerful combination of intellectual capital technology, new knowledge and information, large pools of specialized talent, and venture capital and other financial resources.

There is an emerging understanding in recent regional economic development academic literature about the key role that the high-tech, high-pay innovation economy plays in economic growth and job creation and the significant benefits it confers on regional economies. For example, University of California, Berkeley economist Enrico Moretti’s 2013 book, “The New Geography of Jobs,” finds that not only do innovative industries bring good-paying jobs to the regions where they cluster, but that the true impact is much greater than direct effects and ripples throughout the economy due to high multiplier effects. Dr. Moretti observes that one of the best ways for a city or state to generate jobs for less-skilled workers is to develop and attract high-tech companies that hire highly skilled workers as well.

The U.S. Cluster Mapping Project, an interactive website created to highlight regional industry clusters, provides a detailed view of Orange County’s strongest industries. An industry cluster is defined as a regional concentration of related industries that arise out of the links between
several interconnected industries in a particular area, such as the automotive industry in Detroit, the wine industry in Napa and Sonoma, and the entertainment business in Hollywood.

The concentration of these industries is measured by the “location quotient:” the ratio of an industry’s share of total state employment in a location relative to its share of total national employment. The location quotient, in other words, measures the specialization or concentration of a cluster in a particular location relative to the national average.

Medical Devices, the most concentrated industry in the county, boasts a location quotient of 5.54, indicating industry employment in Orange County is more than 5 times more concentrated than at the national level. As of 2014, Orange County’s Medical Devices industry employed 18,289, the highest in the nation and 7.2 percent of national Medical Device employment. Apparel, the second most concentrated industry in Orange County, employed 3,671 employees, or 2.9 percent of the national share, with an LQ of 2.20. Biopharmaceuticals, Communications, and IT & Analytical Instruments also have notable concentrations in Orange County. Exhibit 4.1 shows industry clusters with the highest Location Quotients in Orange County, illustrating the local and national importance of these industry clusters.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Devices</td>
<td>5.54</td>
<td>18,289</td>
<td>7.20%</td>
<td>1</td>
</tr>
<tr>
<td>Apparel</td>
<td>2.20</td>
<td>3,671</td>
<td>2.86%</td>
<td>3</td>
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<tr>
<td>Biopharmaceuticals</td>
<td>2.12</td>
<td>6,499</td>
<td>2.75%</td>
<td>6</td>
</tr>
<tr>
<td>Communications</td>
<td>1.94</td>
<td>10,648</td>
<td>2.52%</td>
<td>4</td>
</tr>
<tr>
<td>IT &amp; Analytical Instruments</td>
<td>1.90</td>
<td>26,164</td>
<td>2.47%</td>
<td>5</td>
</tr>
<tr>
<td>Hospitality and Tourism</td>
<td>1.83</td>
<td>73,864</td>
<td>2.38%</td>
<td>5</td>
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<tr>
<td>Lighting and Electrical Equipment</td>
<td>1.79</td>
<td>6,585</td>
<td>2.33%</td>
<td>5</td>
</tr>
<tr>
<td>Metalworking Technology</td>
<td>1.79</td>
<td>11,391</td>
<td>2.33%</td>
<td>6</td>
</tr>
<tr>
<td>Financial Services</td>
<td>1.59</td>
<td>39,022</td>
<td>2.06%</td>
<td>6</td>
</tr>
<tr>
<td>Recreational Goods</td>
<td>1.53</td>
<td>3,025</td>
<td>1.99%</td>
<td>4</td>
</tr>
</tbody>
</table>

Orange County’s highly concentrated industry clusters help to not only drive general economic activity but also increase the regional specialization and subsequent innovative capabilities. As a result, Orange County has been able to improve its innovative climate serving to attract and inspire many start-ups in the area. Exhibit 4.2 highlights the annual venture capital investments in Orange County from 2006 to year-to-date 2016. After a significant influx of venture capital funding in 2011 totaling over $900 million, investments in Orange County continually decreased eventually hitting approximately $500 million in 2014 before a large jump was experienced in 2015 where venture capital funding jumped up to $855.5 million. More recently, venture
capital investments in Orange County have slowed somewhat but have already surpassed levels experienced in 2014. As of the third quarter of 2016, venture capital investments in Orange County totaled $581.4 million according to PricewaterhouseCoopers and the National Venture Capital Association. Venture capital investments in Orange County have been focused on high-tech start-ups largely located in the Irvine area; thanks to the large number of incubators and various other business support organizations such as UCI Applied Innovation located at The Cove which will be highlighted later, Irvine has served to attract a large number of start-ups into the region helping to drive innovation, patent growth and venture capital investments.

Exhibit 4.2 Venture Capital Investments in Orange County, 2006 – Q1 2016

Adding to venture capital investments and further highlighting Orange County’s local innovative spirit, Exhibit 4.3 provides the annual patent count and growth over the past 15 years. While patent growth stagnated until 2009, between 2010 and 2014 Orange County consistently registered an increasing number of patents per year before falling slightly from 2,855 patents in 2014 to 2,851 patents in 2015. Overall, Orange County organizations registered a total of 31,541 patents between 2000 and 2015.
Exhibit 4.3  Annual Patent Counts and Growth in Orange County, 2001-2015

Exhibit 4.4 highlights the top patent-generating organizations in Orange County, largely in Information Technology and Life Science industries. With technology continually evolving and demographic trends pointing to a population which will become increasingly reliant on tech- and healthcare-related services, the fact that these patents are focused in these industries suggests that local organizations are not only aware of these trends, but that they will be well positioned to address these expected economic and demographic shifts.

Exhibit 4.4  Top Orange County Organizations by Patent Count, 2009-2013

<table>
<thead>
<tr>
<th>Top 10 Organizations in Orange County by Recent Patent Count, 2009-2013</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broadcom</td>
<td>1,574</td>
<td>1,620</td>
<td>1,645</td>
<td>1,536</td>
<td>1,852</td>
<td>1,574</td>
</tr>
<tr>
<td>Allergan, Inc.</td>
<td>50</td>
<td>78</td>
<td>94</td>
<td>69</td>
<td>133</td>
<td>424</td>
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<tr>
<td>Boeing</td>
<td>35</td>
<td>54</td>
<td>64</td>
<td>56</td>
<td>72</td>
<td>281</td>
</tr>
<tr>
<td>University of California, Regents</td>
<td>31</td>
<td>48</td>
<td>39</td>
<td>55</td>
<td>61</td>
<td>235</td>
</tr>
<tr>
<td>Western Digital</td>
<td>19</td>
<td>25</td>
<td>32</td>
<td>33</td>
<td>59</td>
<td>168</td>
</tr>
<tr>
<td>Hon Hai Precision</td>
<td>48</td>
<td>37</td>
<td>19</td>
<td>25</td>
<td>29</td>
<td>157</td>
</tr>
<tr>
<td>Qualcomm</td>
<td>8</td>
<td>19</td>
<td>28</td>
<td>35</td>
<td>43</td>
<td>133</td>
</tr>
<tr>
<td>Abbott Medical Optics</td>
<td>2</td>
<td>17</td>
<td>26</td>
<td>22</td>
<td>42</td>
<td>109</td>
</tr>
<tr>
<td>Samsung Electronics</td>
<td>29</td>
<td>12</td>
<td>14</td>
<td>27</td>
<td>11</td>
<td>94</td>
</tr>
<tr>
<td>Applied Medical Resources</td>
<td>10</td>
<td>16</td>
<td>17</td>
<td>26</td>
<td>21</td>
<td>90</td>
</tr>
</tbody>
</table>

Source: U.S. Cluster Mapping
While Orange County’s talented and well-educated workforce helps to attract and retain top-tier, innovative organizations into the region, partnerships between educational institutions, economic development organizations and private companies have helped to support and encourage various start-ups in the region, thus cultivating local innovation and entrepreneurship. The most notable example of a successful partnership in this area is the University of California’s “The Cove”, a 31,000 square foot facility of collaborative work space which provides locally based start-ups with access to discovery disclosure, sponsored research, prototyping, funding, incubation and acceleration. As of early 2016, The Cove housed approximately 30 start-ups at various stages of their business life-cycle and in a variety of different industries including Information Technology, Health Care, and Education.

Alongside the emerging growth startups currently calling The Cove home, numerous related groups also operate there including the UCI Invention Transfer Group, which assesses the patentability and commercial potential of inventions by UCI faculty, physicians and researchers. The Transfer Group helps bring these inventions to the market where they can be utilized by industry professionals. In addition to the support provided by the Invention Transfer Group, the Cove is also home to Industry Sponsored Research (ISR) which connects UCI faculty and graduate-level researchers and corporate funding sources to facilitates new research ventures and opportunities in the region, thus serving to further drive innovation in the Orange County. The ISR creates business relationships between researchers and industry professionals while guiding both sides through the funding process in order to create sustainable linkages and relationships between business and academia. Overall, The Cove is the culmination of years of collaboration between industry professionals and educational institutions localized in the business and tech-hub of Orange County, with an overall goal to continually drive innovation through a comprehensive support system designed to guide start-ups through various stages of their business lifecycle.
Section 5 - Occupational Employment and Salary Growth

As seen in Exhibit 5.1, Office & Administrative Support is the largest single occupational category in Orange County, accounting for 17 percent of employment, followed by Sales & Related occupations at 11 percent and Food Preparation & Service-Related occupations at 9.5 percent.

Exhibit 5.1  Orange County Occupational Employment Distribution

Orange County has added 39,280 jobs over the past year alone for a year-over-year increase of 2.6 percent, while average salaries have increased by $1,320 or 2.4 percent. In terms of absolute growth, Sales and Related occupations added the most occupations with 5,490, an increase of 3.4 percent, followed by Business & Financial Operations occupations with 5,370 jobs, an increase of 5.5 percent, and Transportation and Material Moving, which added 5,000 jobs for a 6.7 percent increase.
Legal occupations experienced the largest annual increase in salary; the field’s average salary increased by 10.2 percent, from $108,900 in 2015 to $119,974 in 2016. The average salary of Sales and Related Occupations, on the other hand, experienced the largest drop over that time period, decreasing by $1,016 or 2.2 percent.

Projections provided by the California Employment Development Department predict that the Office and Administrative Support, Food Preparation and Serving Related, and Sales and Related occupational groups will add the most jobs between 2012 and 2022. While these three occupational groups are expected to add a combined 93,620 jobs between 2012 and 2022, the average wages provided by these occupations are relatively low: $41,221 for Office and Administrative Support, $25,402 for Food Preparation and Serving Related, and $45,549 for

Exhibit 5.2 Orange County Occupational and Salary Year-over-Year Absolute Growth

Source: OCBC Analysis of California EDD Data, QCEW Dataset
Sales and Related occupations. Occupational groups providing above-average wages included Business and Financial Operations, which is expected to add 22,830 jobs with average salaries of $82,513, Management, expected to add 17,410 jobs with average salaries of $130,559 and Healthcare Practitioners and Technical, expected to add 11,990 occupations with average salaries of $93,972. Overall, Orange County is expected to add approximately 265,400 jobs between 2012 and 2022 and, as of the first quarter of 2016, the county’s average salary across all occupations is $55,343.

Exhibit 5.3  Projected Orange County Employment Growth by Occupational Group (2012-2022)

Source: OCBC Analysis of California EDD Data, QCEW Dataset
EDD estimates that Fashion Designers (+54.3%), Personal Care Aides (+49.6%), and Brickmasons and Blockmasons (+49.0%) will be the fastest growing occupations on a percentage basis between 2012 and 2022. The latter two occupations are part of Orange County’s most rapidly expanding industries, Healthcare and Construction; Information Technology is also experiencing noteworthy growth.

Exhibit 5.4    Average Salaries of Fastest-Growing Occupations in Orange County (2012-2022)

Source: OCBC Analysis of California EDD Data, QCEW Dataset
Section 6 - Income and Poverty Statistics

Orange County continues to benefit from one of the highest median household incomes in Southern California; the U.S. Census Bureau’s American Community Survey measured the county’s median household income at $78,428 in 2015, a $2,265 (3 percent) increase from the previous year. Orange County’s 2015 medium annual income was $14,000 (21.5 percent) higher than the state average of $64,500, and $22,653 (40.6 percent) higher than the national average. The county’s per capita income of $35,651 - the highest in Southern California - increased by $765 (2.2 percent) between 2014 and 2015.

While both median household income and per capita income have steadily increased in Orange County since the Great Recession, recovering by 10.6 percent and 13.6 percent since 2010, respectively, the county’s poverty rate remains high at 12.7 percent in 2015. While the poverty rate remains above the 12.2 percent rate in 2010, the past few years have registered slight improvements after reaching a recent peak of 13.5 percent in 2013. Although the county’s median income and job creation rate have both improved, they have failed to keep up with cost of living in some communities. In addition, differing definitions of poverty mean that the official poverty rate may fail to reflect actual conditions, particularly in “Red-Zone” areas which suffer from above-average unemployment rates and below-average income. While rising home and rental prices, as mentioned before, have had a major impact on encouraging many young professionals to move away from Orange County, they have had an even more drastic impact on those living in poverty.

Exhibit 6.1 Orange County Income and Poverty Rates (2000-2015)

Source: Census Bureau, 2015 American Community Survey, 1-year Estimates

Exhibit 6.2 provides an illustration of household income distribution across various income groups for 2000 and 2015. As shown in the chart, households making between $50,000 and $74,999 a year were the county’s largest income group in 2000, representing 20.7 percent of the population; by 2015, this income group fell to 15.2 percent and the $100,000 to $149,999 income group represented 17.2 percent of the county’s residents. Since the turn of the
millennium, all income groups making over $100,000 annually have significantly increased, with those making $150,000 to $199,999 and those making over $200,000 increasing by 4.7 and 7.5 percent, respectively. On the other hand, income groups making $75,000 and less decreased in size. While these trends indicate rising incomes across the county, they fail to reflect the economic climate of specific locations within the county, especially those that have not benefited from countywide wage increases to the same degree. In addition, many areas have seen cost-of-living rise faster than incomes due to several factors, including skyrocketing student debt, increasing housing costs, and inflation.

Exhibit 6.2 Orange County Household Income Profile

Source: Census Bureau, 2015 American Community Survey, 1-year Estimates
Additional concerns regarding affordability and poverty rates in Orange County are raised by the major differences between the Orange County’s official poverty rate, measured using federal poverty-level standards by the U.S. Census Bureau, and the California Poverty Measure (CPM), developed by the Public Policy Institute of California (PPIC) and Stanford University. The CPM, unlike the official poverty rate provided by the U.S. Census, takes into account trends specific to California to provide a much more accurate account of the current economic environment. While Orange County, as shown in Exhibit 6.4, has the region’s lowest poverty rate according to the U.S. Census, its CPM was the second highest in Southern California.

Exhibit 6.4  Poverty Rates by Region (2013)

<table>
<thead>
<tr>
<th>County</th>
<th>Percentage in Poverty, Official Poverty Rate Measure</th>
<th>Percentage in Poverty, CPM Measure</th>
<th>Differential</th>
<th>Percentage of Children Ages 17 and Below in Poverty, Official Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orange</td>
<td>12.7%</td>
<td>21.8%</td>
<td>9.1%</td>
<td>18.2%</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>18.3%</td>
<td>25.7%</td>
<td>7.4%</td>
<td>26.8%</td>
</tr>
<tr>
<td>Riverside</td>
<td>16.6%</td>
<td>20.1%</td>
<td>3.5%</td>
<td>23.8%</td>
</tr>
<tr>
<td>San Bernardino</td>
<td>19.2%</td>
<td>19.4%</td>
<td>0.2%</td>
<td>27.0%</td>
</tr>
<tr>
<td>California</td>
<td>16.2%</td>
<td>21.2%</td>
<td>5.0%</td>
<td>23.4%</td>
</tr>
<tr>
<td>United States</td>
<td>15.9%</td>
<td></td>
<td></td>
<td>21.7%</td>
</tr>
</tbody>
</table>

Source: American Community Survey, Public Policy Institute of California, and Stanford Center on Poverty and Inequality
Section 7 - Educational Attainment Demographics

The educational attainment of Orange County’s residents has been a primary driver of economic prosperity over the past several years; a well-educated workforce helps the county attract, retain and create innovative businesses and has allowed it to become a hub for several specialized industry clusters including biotechnology, medical devices, and semiconductors. These industry clusters provide both high wages and significant multiplier effects that help growth in other, related industries. Exhibit 7.1 shows the educational attainment of the county’s population over age 25. In 2015, 46.4 percent of this group had an associate’s degree or higher, an increase of 0.7 percent from 2014. This provides one indicator of county residents’ increasing educational attainment.

Exhibit 7.1 Orange County Educational Attainment, Population over 25 (2015)

Exhibit 7.2 offers another indicator of educational attainment, the increasing number of tech-related degrees awarded at local universities and colleges, including the University of California, Irvine, California State University, Fullerton, and Chapman University. The number of undergraduate tech-related degrees has substantially increased since the turn of the millennium, more than doubling from 1,402 in 2000 to 2,865 in 2015. Tech-related graduate degrees have seen even more dramatic growth over the same time period, increasing from 434 in 2000 to 1,220 in 2015.

Source: Census Bureau, 2015 American Community Survey, 1-year Estimates
Exhibit 7.2  Orange County Tech-Related Degrees Granted (2000 – 2015)

Source: University of California, Irvine; Chapman University; California State University, Fullerton

Exhibit 7.3  Median Wages by Educational Attainment, Orange County Workers over 25 (2015)

Source: Census Bureau, 2015 American Community Survey, 1-year Estimates
Despite the rising cost of education, academic degrees continue to provide significant economic benefits, as seen in Exhibits 7.3 and 7.4; higher educational attainment correlates with both higher median wages and lower rates of poverty and unemployment.

**Exhibit 7.4 Orange County Unemployment & Poverty Rates by Educational Attainment (2015)**

Orange County’s deep talent pool and increasing educational attainment, as mentioned before, provides an important competitive advantage that will most likely continue for the near future. Recent economic and social issues, however, may threaten the county’s competitiveness. The rising cost of education, for example, limits attendance at four-year universities, and the county’s high cost of living and lack of gainful employment positions may force talented workers, once educated within the county, to relocate elsewhere after graduation. Policymakers and county stakeholders should take steps to address these issues so that Orange County retains its young Millennial workforce talent, thereby maintaining one of the county’s most valuable competitive advantages.
Section 8 - Housing Market and Construction Activity

Orange County’s strong housing market demonstrates the county’s economic resilience; supported by job creation, increases in household incomes, and a favorable interest rate environment, post-Recession housing prices have rebounded to surpass pre-Recession levels. Rental rates have seen similar increases as rising demand for rental properties confronts constrained new supply.

Exhibit 8.1 shows Orange County home prices from January 2008 to May 2016, broken down into prices paid for new and existing single-family housing units. As of August 2016, new homes sales have risen in average price to $749,000, while existing home prices have also seen increases, as their August 2016 average of $649,000 represents a 6.4 percent year-over-year increase.

Exhibit 8.1 Orange County Median Home Prices (2008-2016): New vs. Existing Homes

Looking forward, in the presence of an increasing population, increasing wages, tight housing supply and a low interest rate environment, Chapman University estimates that a combination of factors – population growth, wage growth, a limited housing supply and low interest rates – will increase county home prices by 4.6 percent in 2016, significantly more than the 2.7 increase in 2015.

The post-Recession increase in residential building permits offers another sign of Orange County’s continuing economic vitality. As seem in Exhibit 8.2, the number of permits grew
dramatically between 2009 and 2012, increasing by an average of 320 permits per month. Approximately 1,098 residential permits have been granted thus far in 2016, a greater than 600 percent increase over 2009’s average of 182 permits per month. 8,805 building permits have been granted thus far in 2016, with Irvine accounting for 3,399 or 39 percent of the total. While other Orange County cities, including Anaheim, Huntington Beach, and Santa Ana, have also seen significant permit activity, Irvine has been the largest contributor to Orange County’s growing housing market for several years.

Exhibit 8.2    Orange County Housing Permits (2009-2016)

Orange County apartment rental rates have mirrored the rise in home prices, increasing from a 2015 average of $1,854 to $2,001 in June 2016, a growth of 8.0 percent.
The county’s high home prices have, in all likelihood, driven apartment rental rates up as well, as the inability of residents to afford traditional single-family homes increases the demand for multifamily units. The Traditional Housing Affordability Index (HAI) created by the California Association of Realtors (CA) measures the percentage of households who can afford to purchase a home in a specific region. Orange County has historically ranked lower on the HAI than other California counties, an issue that continues to this day. As of the second quarter of 2016, only 22 percent of county households could afford to purchase a home. While this is a slight improvement over 2015’s HAI of 21, it is still well below affordability levels of neighboring counties as illustrated in Exhibit 8.4. Orange County also ranks below its neighbors on CAR’s First-Time Home Buyer Affordability Index; only 43 percent of the county’s first-time homebuyers can actually afford to purchase a new home, a rate that has not improved since 2015. Burdened by student loan debt, increasing healthcare prices, and marginal wage growth, young professionals find themselves effectively priced out of Orange County and other high-cost areas throughout the nation.
Exhibit 8.4  California Association of Realtors Affordability Index

<table>
<thead>
<tr>
<th>California Association of Realtors Affordability Index</th>
<th>First-Time Home Buyer Affordability Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>County</td>
<td>Q2 2016</td>
</tr>
<tr>
<td>Orange County</td>
<td>22</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>30</td>
</tr>
<tr>
<td>Riverside County</td>
<td>41</td>
</tr>
<tr>
<td>San Bernardino</td>
<td>56</td>
</tr>
<tr>
<td>San Diego</td>
<td>26</td>
</tr>
<tr>
<td>Ventura</td>
<td>29</td>
</tr>
</tbody>
</table>

Source: California Association of Realtors

Exhibit 8.5 shows the percentage of income spent by Orange County residents on housing, illustrating the heavy burden faced by many county renters and homeowners. Traditionally, economists and housing professionals have used the 30 percent rule – a person or family should spend around thirty percent of their income or less on housing – as a rule of thumb. 57.7 percent of county renters and 39.5 percent of county homeowners exceed that 30 percent, with almost half of renters spending more than 35 percent of their income on housing. This, in turn, leads to a corresponding decrease in discretionary spending - and the ability to save for the future - and thus serves to inhibit widespread economic prosperity in Orange County over time.

Exhibit 8.5  Orange County Renter and Owner Housing Costs as a Percent of Income (2015)

Source: California Department of Finance, Demographic Research Unit
Section 9 - Final Thoughts

The strength and resilience of Orange County’s economy has become even more apparent in the post-Recession era, as the county has lead Southern California’s economy recovery and enjoys pre-Recession levels of economic activity as well as one of the nation’s highest qualities of life. Orange County must leverage its strengths and address its weaknesses in order to continue on this positive trajectory. Although county employment has seen a significant increase, the skills gap continues to limit economic growth and frustrate both employers and workers. Automation threatens to stop or even reverse the county’s employment growth as self-driving vehicles, computerized kiosks, and other new technologies replace many jobs. High housing costs drive young Millennial workforce talent to move to lower-cost regions and commute to Orange County, or in some cases, out of California all together. Finally, the county’s increasingly older population demography places a heavier burden on government services in terms of healthcare, transportation, and other services.

Orange County elected officials, policymakers, and stakeholders must face these problems head on and preserve – and hopefully even enhance - the county’s competitive advantages. Further increasing the county’s educational attainment rates, for example, could help close the skills gap, while also supporting innovative industry clusters which will pay significant dividends in the form of economic growth, job creation, high wages, and significant multiplier effects on the local economy. Above all, a better understanding of the county’s demographic, education, economic, innovation, and housing trends will help stakeholders and policymakers preserve the county’s high quality of life and competitive business environment far into the future.

In addition to this report, Orange County Business Council also provides a variety of other related economic, workforce, housing, and demographic reports including:

- Orange County Workforce Indicators Report: A product of the research partnership between the Orange County Business Council, County of Orange, and Orange County Development Board, the Workforce Indicators Report examines the growth of industry and employment, salary and wage trends, demographic changes and the educational attainment of Orange County students. Click here for a link to the report.

- Orange County Community Indicators Report: A partnership between Children & Families Commission of OC, United Way OC, Orange County Community Foundation, and CalOptima, the 2015 Orange County Community Indicators Report focuses on three pivotal issues currently facing Orange County related to housing, children’s health, and the opportunity gap between high- and low-income families and their children. At the same time, the report retains the core components of past reports including population, demographic and workforce trends. Click here for a link to the report.
Orange County Workforce Housing Scorecard: The 2015 Workforce Housing Scorecard examines and analyzes the current and projected housing trends and provides a preview of where Orange County is headed in terms of workforce housing, and how it will impact demographic, economic, and business competitiveness factors. Click here for a link to the report.