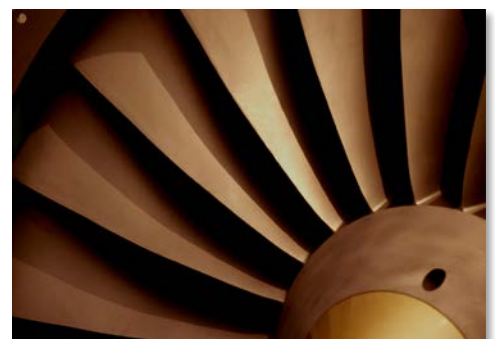
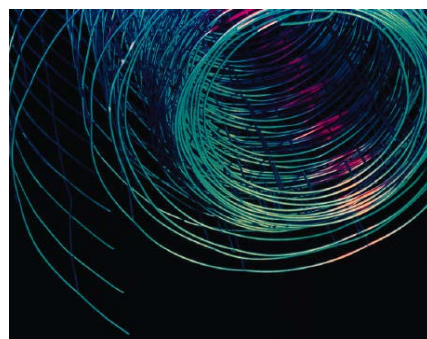


ECONOMIC UPDATE *for* LOS ANGELES COUNTY



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The LAEDC Institute for Applied Economics provides objective and unbiased economic and policy research for public and private entities. The Institute focuses on regional industry cluster and sector-based research and analysis, economic and fiscal impact assessments and labor market studies.

Every reasonable effort has been made to ensure that the data contained herein reflect the most accurate and timely information possible and they are believed to be reliable.

The report is provided solely for informational purposes and is not to be construed as providing advice, recommendations, endorsements, representations or warranties of any kind whatsoever. 20171023

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Executive Summary

Los Angeles is home to unparalleled optimism and opportunity and is home to more than 10.1 million residents and boasts a workforce of more than 4.4 million today. Los Angeles continues to be the center of innovation and creativity with growing emphasis on nascent industries such as biosciences and advanced transportation while bolstering stalwart industries such as professional services and construction.

The County has recovered the jobs lost during the Great Recession and is expected to continue to grow at a moderate rate over the next few years.

Economic Overview and Outlook

The September unemployment rate in Los Angeles County was 5.4 percent (not seasonally adjusted), almost 8.0 percentage points below its July 2010 peak of 13.2 percent but still higher than the pre-recession low of 4.3 percent. Nonfarm employment in August 2017 totaled 4.4 million adding 37,200 jobs over the year for an annual growth rate of 0.8 percent. A large majority of industry sectors experienced growth over the period.

County employment is projected to grow at an average annual rate of 0.7 percent over the next five years, adding 133,000 jobs across a range of industries (Exhibit ES-1).

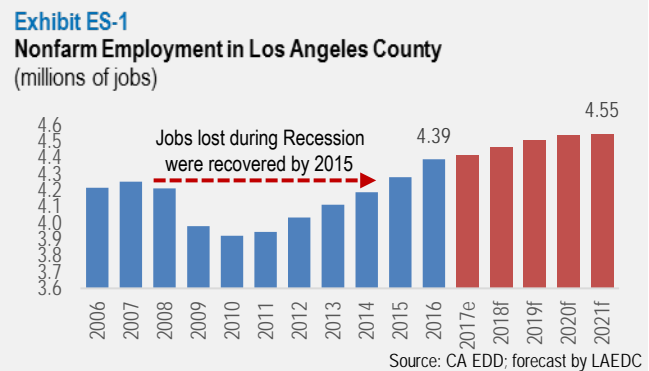
As the economy continues to improve, the labor market will tighten. We expect wages to increase as a result. Those with higher levels of educational attainment can expect a higher rate of wage growth as well.

Although jobs are being added, the distribution of jobs will continue to be a cause for concern to our continued economic growth and prosperity.

Leading and Emerging Industries

Most industries will add jobs over the next five years, but overall, the strongest job growth in terms of numbers of jobs will be in service providing industries, including:

- ▶ *Health Services*, which will grow at 5.9 percent over the next five years and add almost 42,000 jobs.



- ▶ *Administrative Support*, which includes temporary employment is expected to grow at 10.9 percent over the next five years and add more than 29,000 jobs.
- ▶ *Accommodation and Food Services*, is projected to add almost 26,000 jobs over the next five years; and
- ▶ *Education* will add over 23,000 new jobs over the next five years.

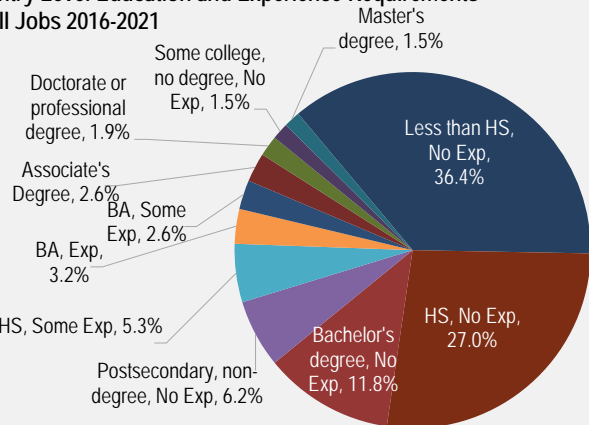
Other industries are evolving through innovation and disruption and will drive our economic growth in the future including advanced transportation, biosciences and digital media. Los Angeles continues to be a driver in supporting and growing these emerging industries through investment and research, industry councils and other strategic endeavors.

Occupational Outlook

While jobs are being added across industries, the highest number of overall openings will be found in those occupations that require a high school diploma or less, and which pay less than the County’s median annual wages of \$40,260. More than one-third of projected openings (including new jobs and replacement jobs) over the next five years require workers without a high school diploma. Another 32 percent will require workers with a high school diploma. (Exhibit ES-2)

Exhibit ES-2

**Entry Level Education and Experience Requirements
All Jobs 2016-2021**



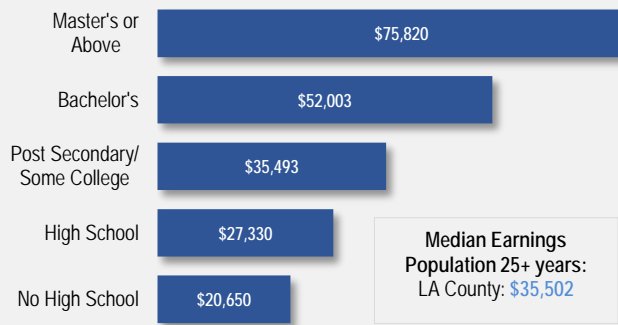
Source: Estimates by LAEDC

Those with a graduate or professional degree earn an annual wage premium of \$55,000 over those with less than a high school education. The strong correlation between educational attainment and earnings signals challenges ahead as those with less than a high school degree face limited jobs prospects, are more likely to be unemployed and are less likely to be able to support their households.

Exhibit ES-3

Median Earnings and Educational Attainment 2016

Population 25 years and older



Source: 2016 ACS 1-yr estimates

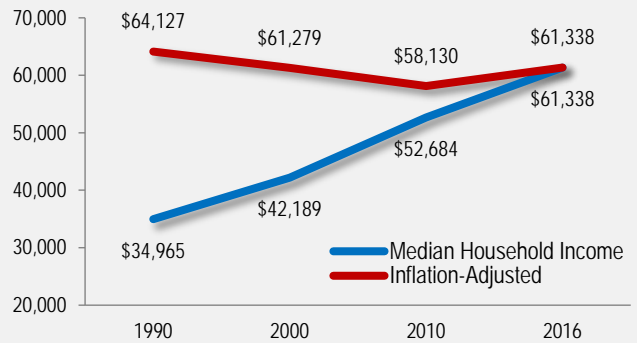
Median Earnings
Population 25+ years:
LA County: **\$35,502**

Income and Poverty

While household incomes have increased steadily for the last 25 years, from \$34,965 in 1990 to \$61,338 in 2016, inflation-adjusted household incomes have fallen steadily, and are still 4.5 percent below where they were in 1990 (Exhibit ES-4).

Exhibit ES-4

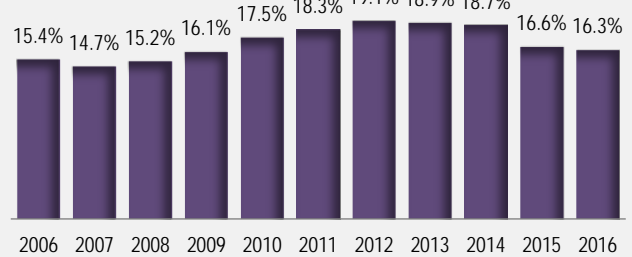
**Median Household Income
Nominal and \$2016**



Source: ACS 2016 1-year estimates; BLS

Exhibit ES-5

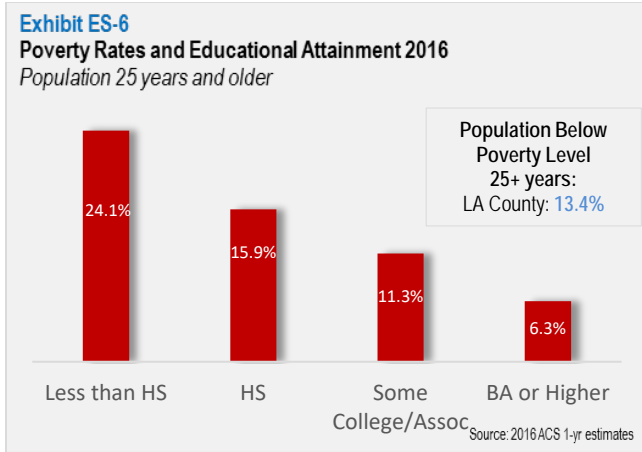
**Individual Poverty Rates 2006 to 2016
Los Angeles County**



Source: ACS 2014 1-year estimates

However, our economic recovery is helping poverty rates to keep falling. We have seen a steady year-over-year decline in individual poverty rates. The individual poverty rate is now at 16.3 percent, a decrease of 2.8 percentage points from the peak of 19.1 percent reached in 2012 (Exhibit ES-5).

As with earnings, there is a strong correlation between lower levels of educational attainment and higher rates of poverty.



Almost one-fourth of adults over the age of 25 are below the poverty level in Los Angeles County. Those with a bachelor’s degree or higher experience substantially lower poverty rates of 6.3 percent (Exhibit ES-6). ❖

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A. Economic Recovery

Los Angeles County is home to more than 10.1 million residents with a workforce of more than 4.4 million today. Manufacturing, global trade, entertainment continue to thrive in the booming metropolis while also embracing new and burgeoning industries such as advanced transportation.

Since recovering from the Great Recession and regaining all lost jobs by the end of 2015, it is expected that Los Angeles will continue on a slow and steady path of economic growth.

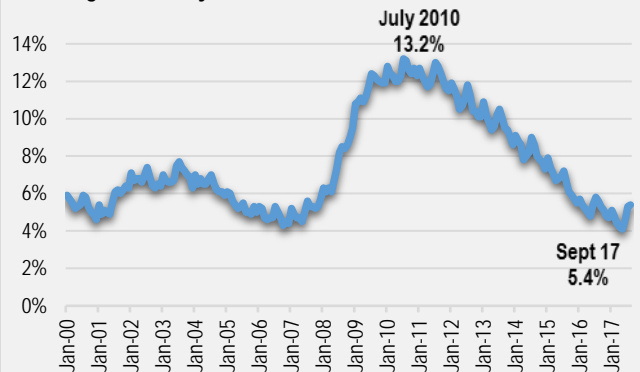
Current Employment Overview

Monthly unemployment rates in Los Angeles County from January 2000 through September 2017 (not seasonally adjusted) are shown in Exhibit A-1. At 5.4 percent, the September unemployment rate in Los Angeles County was 0.2 percentage point below the year-ago rate of 5.2 percent, and higher than the 4.8 percent annual average recorded in 2006 (just prior to the recession). The average unemployment rate for the county since 2000 is 7.6 percent.

Exhibit A-2 measures the performance of major industry sectors in Los Angeles County in terms of job gains on an annual basis in September 2017 (the most recent period for which data are available). However, seasonally-adjusted industry employment data is not available at the county level which can be problematic. Many industries experience seasonality in hiring patterns such as holiday hiring for retail establishments. Year-over-year numbers smooths seasonal trends and therefore, provides a better picture of employment.

Nonfarm wage and salary employment totaled 4.4 million, up by 8,300 jobs over the month and 37,200 over the year. This equates to an annual growth rate of 0.7 percent. Since 2012, nonfarm employment growth in Los Angeles County has averaged 1.8 percent annually. In September, about half of all major industries added jobs over the year, and where losses did occur the absolute numbers were relatively small. Transportation and warehousing lost 4,600 over the last year.

Exhibit A-1
Civilian Unemployment Rate
Los Angeles County, NSA



Source: CA EDD

Exhibit A-2
Industry Employment in Los Angeles County

NAICS	Industry Description	Aug 2017	% Δ from Aug 2016
62	Health Care and Social Assistance	668,700	3.4%
23	Construction	146,700	8.1%
81	Other Services	161,000	5.4%
72	Accommodation and Food Services	432,400	1.3%
53	Real Estate/Rental/Leasing	283,100	0.9%
54	Professional and Technical Services	83,600	1.3%
56	Administrative and Waste Services	275,400	0.8%
42	Wholesale Trade	227,300	0.1%
55	Mgmt of Co's/Enterprises	57,200	0.4%
21	Mining and Logging	3,500	-2.8%
22	Utilities	11,600	-1.7%
61	Educational Services	109,800	-0.3%
51	Information	227,500	-0.7%
52	Finance and Insurance	137,700	-0.6%
71	Arts, Entertainment and Recreation	89,300	-1.3%
44-45	Retail Trade	418,300	-0.4%
92	Government	547,500	-0.5%
31-33	Manufacturing	356,000	-0.8%
48-49	Transportation and Warehousing	167,100	-2.7%
Total Nonfarm Employment		4,403,700	3.3%

Source: CA EDD

While Exhibit A-2 displays the year-over-year percentage change in employment by industry, the actual number of jobs added or lost by industry sector is shown in Exhibit A-3.

In September, the industry sectors with the strongest year-over-year employment growth in terms of number of jobs population-serving industries including health care and social assistance, accommodation and food services, leisure and hospitality, education as well as construction.

Health care and social assistance is the county’s largest private industry by employment. The number of health care jobs expanded by 22,300 over the year in September, an increase of 3.3 percent. An examination by subsector shows job gains in ambulatory health care (4,800 jobs), hospitals (1,400), nursing and residential care facilities (2,500), and social assistance (13,600).

Accommodation and food services employment increased by 1.2 percent over the year in September, adding 5,400 jobs over the year. Most of the job growth in this sector was attributable to food services.

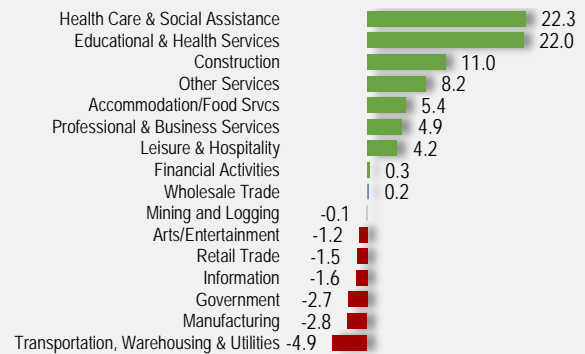
Construction jobs increased by 7.5 percent over the year in September and added 11,000 jobs. The construction industry was hit particularly hard during the economic downturn as decreased demand for new construction and tightening of public infrastructure projects led to a decline in the industry. However, the economic recovery is seeing a resurgence in new construction all over the county including the ongoing revitalization of downtown Los Angeles and major builds being planned in the eastern and northern parts of the county.

Other industries that posted job gains include professional and business services (4,900), leisure and hospitality (4,200) and other services (8,200).

There were several industries that recorded a year-over-year decline in employment:

Mining and logging employment fell by 2.9 percent over the year, losing 100 jobs. Jobs in this sector in Los Angeles County are primarily related to petroleum extraction activities in the region, a sector that has seen a pullback in investment due to which has been affected by relatively low energy prices.

Exhibit A-3
Employment Change by Industry Sector
 Los Angeles County, August 2017
 (Y-Y Numerical Change, thousands)



Sources: BLS, CES; LAEDC

Retail trade employment fell 1.5 percent and the industry lost 1,500 jobs. With the increased growth in e-commerce and online shopping, this industry faces challenges as more and more consumers are opting out of shopping in retail establishments.

Transportation, warehousing and utilities lost 4,900 jobs, a decline of 2.7 percent.

Manufacturing suffered a year-over-year decline in employment of 0.8 percent, losing 2,800 jobs since September 2016. Manufacturing employment has been on a long-term decline for decades and is not likely to reverse anytime soon with the continued pressures of lower-cost manufacturing environments.

Other industries that shed jobs include government (-2,700) and information (-1,600). ❖

B. Industry Outlook

Employment Forecast

Since the nadir of the Great Recession in 2010, nonfarm employment in Los Angeles County has increased by 491,000 jobs. The county regained all jobs that were lost by the end of 2015. However, this recovery has not accommodated population growth labor force changes. Thus, the unemployment rate is still above its pre-recession low of 4.3 percent in October 2006.

Between 2016 and 2021, the economy is expected to add 132,900 new jobs in nonfarm industries across the county, reaching 4.5 million jobs in 2021. The rate of job growth is expected to slow from an average annual rate of 2.2 percent (2010 to 2015) to 0.7 percent (2016-2021).

Over the longer term, employment in Los Angeles County is forecast to grow at its population growth rate of approximately 0.6 percent.

Service-orientated industries will continue to grow at a brisk pace to serve the needs of a growing population. These include health care which will add 42,000 jobs, and education which will add 23,200 jobs over the next five years.

There are risks to continued employment growth in the county. These include the likelihood of a recession, a continued slowdown in global trade particularly as China’s economy slows.

While economic and employment growth may well continue, there are risks emerging from the types of jobs being produced and consequent rising inequality. For example, food service jobs require little to no education and are correspondingly low-paying.

Additionally, an insufficient supply of housing priced within reach of many households may make it difficult for firms to attract or retain the necessary number of workers to sustain a growing economy.



Exhibit B-2
Industry Employment Growth 2016-2021
 Los Angeles County

	Average Annual % Growth	Employment Δ (Thousands)
Total Nonfarm Payroll Employment	0.7%	155.3
Natural Resources and Mining	0.2%	0.1
Construction	2.1%	14.2
Manufacturing	-1.0%	-17.5
Wholesale Trade	0.7%	8.4
Retail Trade	-0.1%	-3.0
Transportation (incl. Postal Services)	0.0%	-0.4
Information	-0.4%	-4.5
Financial Activities	0.7%	7.2
Professional, Scientific, Technical Services	1.2%	16.5
Management	-0.1%	-0.3
Administrative Support	2.2%	29.3
Education (Public and Private)	1.2%	23.2
Health Care (Public and Private)	1.2%	42.0
Arts and Entertainment	0.3%	1.3
Accommodation and Food Services	1.2%	25.9
Other Services	1.4%	10.1
Government (excl Postal Services, Education and Health)	0.3%	2.9

Sources: BLS, QCEW; LAEDC

Leading Industries

It is expected that most industries will add jobs over the next five years. The strongest job growth will be in population-serving service orientated industries that will continue to serve the growing population in Los Angeles County.

► *Education*

The economic recovery means the allocation of state monies to education is expected to grow especially in K-12. Education is expected to grow about 1.2% annually between 2016 and 2021 and add 23,200 jobs to mirror population growth.

► *Professional and Business Services*

Los Angeles is a large and thriving metropolis and the headquarters for many corporations serving as the gateway to the rest of the United States from Asia. This industry includes professional, scientific and technical services and management of companies. Employment in this sector overall is forecast to grow at an average annual rate of 1.2 percent, adding 16,500 new jobs between 2016 and 2021.

► *Health care*

Health care will likewise grow at 1.2 percent annual from 2016 and 201 as the population continues to age and require medical care. According to the California Department of Finance projections, senior citizens, those who are over the age of 65, will growth at an annual rate of 4 percent through 2025, far surpassing general population growth of 0.5 percent. It is expected that health care will add 42,000 jobs between 2016 and 2021.

► *Construction*

Nothing is more emblematic of the end of the Great Recession as seeing new construction throughout Los Angeles County. As the economy recovers, businesses are investing in new building construction and public infrastructure projects are being approved. The industry is expected to grow at a robust 2.1 percent from 2016 and 2021 and add 14,200 jobs.

► *Administrative Support*

Almost half of the jobs in this industry are in temporary employment services. After the economic recovery, firms are more cautious in hiring and having been relying on temporary employment to fill their hiring needs.

The industry is expected to grow at 2.2 percent from 2016 and 2021 and add 29,300 jobs.

► *Financial Activities*

The financial activities industry is closely linked to the housing and construction markets which suffered significant declines during the recession and have been relatively slow in recovery. The sector is expected to add 7,200 new jobs between 2016 and 2021, growing at an annual average rate of 0.7 percent.

Emerging Industries

The industry profile of Los Angeles County is evolving as new and emerging industries are established and existing industries are evolving to incorporate new innovations and technologies.

► *Advanced Transportation and Fuels*

Los Angeles County as well as the rest of the state of California has taken a leadership role in fighting pollution, greenhouse gas emissions and reduced reliance on fossil fuels. As government policies continue to support this nascent industry, it is expected that there will be significant job growth in the county paying high-wages to the highly educated workforce.

► *Biosciences*

The County has indicated that Biosciences is a target industry cluster. As such, the partnerships amongst private, non-profit and public agencies indicates a significant investment in this growing field and Los Angeles is poised to become a central hub of this industry. Biosciences is currently attracting significant research and investment dollars, and providing jobs across a variety of skill and income levels. This is expected to continue to grow.

► *Digital Media*

Los Angeles County is the birthplace of entertainment and cinema and now the home of innovation and advancement in digital media. Media giants such as Google, Youtube and Facebook have discovered the wealth of ideas and opportunity in Los Angeles County and expanded their presence here. The County also supports start-ups that are growing this infant industry. One of the defining characteristics of Los Angeles' new digital media industry is the convergence of technology and entertainment and the County is quickly establishing itself as center of this new media revolution.

Industry Wages

Wages across industry sectors vary significantly. The average wage for payroll employment in Los Angeles County in 2016 was \$58,531. Exhibit A-4 provides the average wage for each industry sector.

The highest-paying industry was mining (petroleum extraction), with an average annual wage of \$128,786, followed by finance and insurance at \$119,098, utilities (private) at \$117,990, management of companies at \$113,275 and information at \$106,113.

The lowest-paying sector was accommodation and food services with an average annual wage of \$23,461. It should be noted that this industry is characterized by a relatively high percentage of part-time workers, thus yielding lower annual wages since the number of hours worked is lower. Other industries that have high percentages of part-time workers are retail trade and administrative services, which includes temporary employment. ❖

Exhibit B-4

Average Annual Wage by Industry 2016 (Los Angeles County)

	Average Annual Wage
Total Payroll Employment	\$ 58,531
Good Producing Industries:	\$ 66,401
Agriculture, Forestry, Fishing and Hunting	37,486
Mining	128,786
Construction	61,003
Manufacturing – Durable Goods	51,519
Manufacturing – Nondurable Goods	81,497
Service Providing Industries	\$ 57,340
Wholesale Trade	62,119
Retail Trade	34,555
Transportation and Warehousing	58,801
Utilities	117,990
Information	106,113
Finance and Insurance	119,098
Real Estate and Rental and Leasing	65,841
Professional and Technical Services	98,886
Management of Companies	113,275
Administrative and Waste Services	39,606
Educational Services	56,800
Health Care and Social Assistance	43,614
Arts, Entertainment and Recreation	100,068
Accommodation and Food Services	23,461
Other Services	36,826
Government	\$ 69,279

Sources: CA EDD; LAEDC

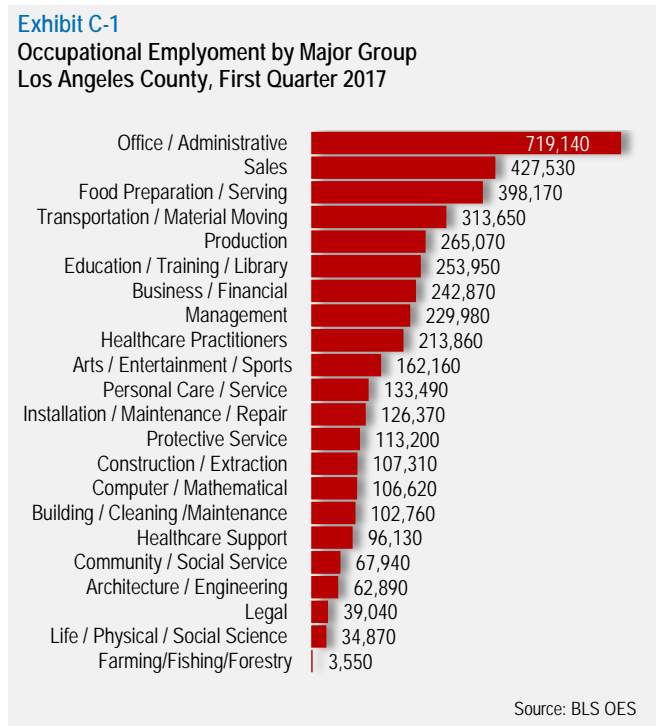
C. Occupations

The composition of the actual work performed within industries is analyzed through occupational data.

Current Occupational Profile

Occupations are classified using the Standard Occupational Classification (SOC) system developed by the Bureau of Labor Statistics. This system classifies all workers into one of 840 detailed occupations with similar job duties, skill, education and training. These detailed occupations are aggregated into 23 major groups, which include broad descriptive categories such as production occupations, management occupations and business and financial occupations.

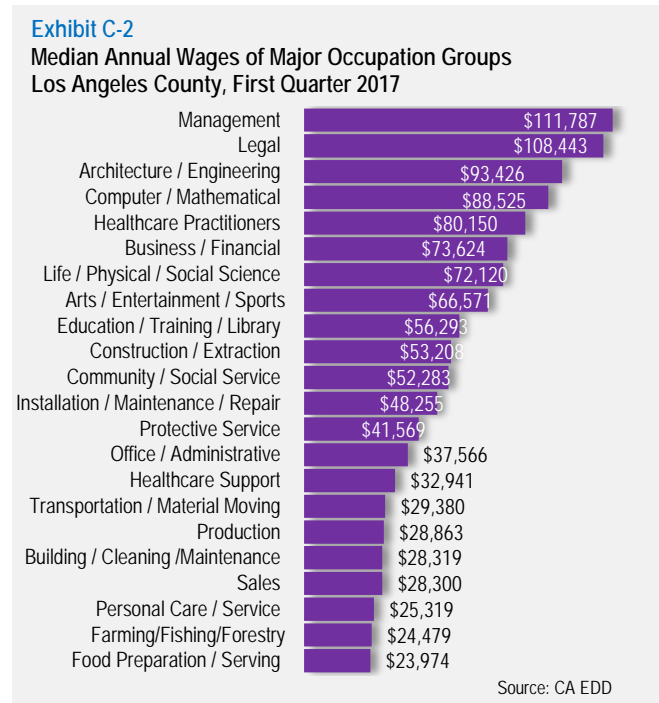
The occupational profile of Los Angeles County in 2016 is shown in Exhibit C-1.



The largest occupational group is office and administrative support, accounting for 719,140 workers. This group includes clerks, and receptionists. The next largest occupational group are sales occupations, which includes cashiers, retail salespersons, real estate brokers

and telemarketers. The third largest group with almost 400,000 workers is food preparation and servers. This group includes wait staff, cooks and bartenders.

Exhibit C-2 presents the annual median wages associated with each major occupational group in Los Angeles County in the first quarter of 2017. The annual median wage across all occupations was \$40,260.



Annual median wages vary significantly among the major groups, ranging from \$23,974 in food serving and related occupations up to \$111,787 in management occupations. It's important to note that these are median annual wage and that wages of detailed occupations within these major groups will also vary based on the level of education and experience required.

The median wage for all workers in Los Angeles County was \$40,260, which is considerably lower than the average annual wage of \$58,531 shown in Exhibit B-4 above. This implies that the majority of workers earn wages below the average wage which may be due to the large number of lower paid workers, or to a smaller number of extremely highly compensated individuals (such as sports figures and movie stars).

Occupational Projections

The growth of industries in the region will determine demand for specific occupations. The overall net growth of an occupation is determined by its presence within industries that are growing and those that are declining. This may result in an occupation experiencing little or no growth as workers that had been employed in a failing industry shift to similar roles in industries that are expanding, or as workers in certain occupations are replaced by automation.

In addition to the growth and decline of industries, workers may leave current positions, either through retirement or through promotion, or for other reasons, leaving positions open and in need of replacement.

Projected new openings are calculated by applying the industry occupational composition to the detailed industry employment forecast. In this analysis, the base employment year is 2016, the most recent year for which complete employment data is available.

The Census Bureau estimates replacement needs using detailed surveys of employers and workers. These estimates are an important component of occupational openings and workforce needs since the retirement and promotion of individual leave openings for newer entrants and those moving up the career ladder.

Projected job openings by major occupational group aggregated across industries in Los Angeles County is presented in Exhibit C-3.

Detailed occupations are differentiated according to job skills, abilities and work experience required. They are not generally industry specific but are common to several industries. For example, retail salespersons are employed in a wide range of industries.

Exhibit C-4 presents the top 20 detailed occupations by projected job openings (new jobs and replacement jobs) between 2016 and 2021. These twenty occupations will account for approximately one-third of all job openings across all occupations expected during this period.

The highest number of overall openings will be found in the largest occupational groups: waitresses and waiters, combined food preparation and serving, which are in the food preparation and serving occupational group; cashiers, which are in the sales occupational group; and laborers and material movers, which are in the transportation group.

Exhibit C-3
Occupational Growth in Los Angeles County 2016-2021

SOC	Occupational Group	New Jobs	Replacement	Total
11-0000	Management occupations	16,729	39,919	56,648
13-0000	Business and financial	24,089	34,636	58,725
15-0000	Computer and mathematical	10,136	12,023	22,159
17-0000	Architecture and engineering	(264)	12,112	11,848
19-0000	Life, physical, social science	2,158	6,874	9,031
21-0000	Community and social services	6,825	11,147	17,973
23-0000	Legal occupations	1,476	4,368	5,844
25-0000	Education, training and library	21,695	37,627	59,321
27-0000	Arts, entertainment, sports	4,584	21,418	26,002
29-0000	Healthcare practitioners	21,695	33,073	54,348
31-0000	Healthcare support	4,584	15,403	21,366
33-0000	Protective services	21,275	13,978	23,085
35-0000	Food preparation and serving	5,963	106,496	134,497
37-0000	Building/grounds maintenance	9,108	16,358	20,402
39-0000	Personal care and service	28,001	21,999	42,945
41-0000	Sales and related	4,044	86,670	91,241
43-0000	Office and administrative	20,947	98,876	117,537
45-0000	Farming, fishing and forestry	4,571	1,058	994
47-0000	Construction and extraction	18,661	12,972	26,512
49-0000	Installation, maint / repair	(63)	20,111	23,486
51-0000	Production	(1189)	38,986	37,798
53-0000	Transportation/material moving	12,460	51,621	64,082
Total		440,565	697,725	928,689

Source: CA EDD; Estimates by LAEDC

Exhibit C-4
Occupational Growth in Los Angeles County 2016-2021
Top 20 Detailed Occupations
(Δ Employment)

SOC	Detailed Occupation	New Jobs	Replacement	Total
35-3031	Waiters and Waitresses	11,237	26,282	37,519
41-2011	Cashiers	2,608	29,149	31,757
53-7062	Laborers and material movers	6,566	18,587	25,153
35-3021	Food Prep/ Serving Workers	684	21,082	21,767
41-2031	Retail salespersons	(7479)	26,806	19,327
29-1141	Registered Nurses	6,346	12,127	18,473
43-5081	Stock clerks and order fillers	3,390	12,734	16,125
11-1021	General and operations managers	1,422	12,846	14,268
35-2014	Cooks, Restaurant	6,979	7,003	13,982
39-9021	Personal care aides	10,977	2,751	13,728
43-9061	Office Clerks, General	(70)	13,683	13,613
43-4051	Customer Service Representative	2,371	10,204	12,576
35-9011	Cafeteria Attendant / Bartender	2,872	7,202	10,074
25-9041	Teacher Assistant	3,134	6,852	9,986
13-2011	Accountants and auditors	1,836	8,091	9,926
33-9032	Security Guards	5,200	4,539	9,739
37-2011	Janitors and Cleaners	1,411	7,968	9,379
35-9021	Dishwashers	1,704	7,610	9,313
41-4012	Sales Representative, Wholesale	2,249	6,157	8,407
25-2031	Secondary School Teachers	3,824	4,566	8,390
Total		67,260	246,240	313,500

Source: CA EDD; Estimates by LAEDC

Other occupations that will provide large number of openings are transportation and material moving occupations, registered nurses and maintenance and repair occupations.

Data do not sum to estimated industry job creation shown above due to non-disclosed data and rounding across all detailed occupations.

Education and Skills Requirements

The education and work experience needed for an entry level position in each of the top 20 occupations is shown in Exhibit C-5. Additionally, the level of the on-the-job training required to gain proficiency for each occupation is also shown.

Entry level education requirements are as follows: 3=Bachelor’s degree; 4=Associate’s degree; 5=Post-secondary non-degree award; 6=Some college, no degree; 7=High school diploma or equivalent; and 8=Less than high school. Short-term on-the-job training is training of less than one month. Moderate on-the-job training is training from 1 to 12 months.

Many of the detailed occupations expected to provide the most job openings in the next five years require only lower levels of education and training. It is important to understand how well anticipated job openings align with the capabilities of the local labor supply.

Most occupations in the exhibit require a high school diploma or less and no work experience. The median annual wage shown for each occupation reflects the degree of preparation and skill levels needed; most are below the average wage paid to workers in Los Angeles County.

The exhibit contains the occupational needs of approximately 36 percent of the overall regional economy. Exhibit C-6 presents the entry level education and training requirements across all occupational projections for the county.

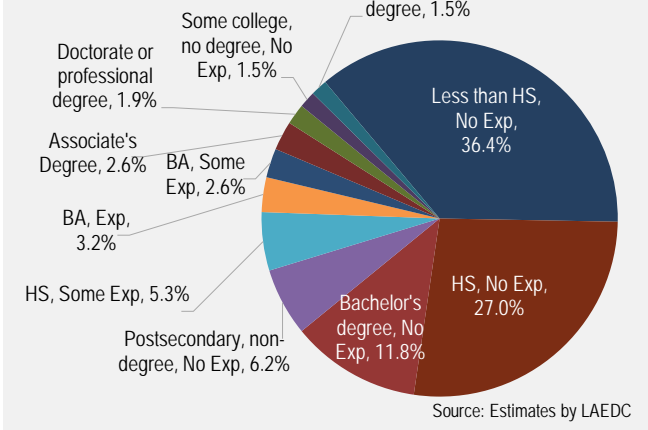
More than one-third of the projected openings for the next five years require workers without a high school diploma and no work experience. Almost another third will require workers with a high school diploma (or equivalent) and no work experience. Together, these represent entry level jobs for unskilled workers across all industries and occupations in Los Angeles County.

Exhibit C-5
Median Wage and Entry Level Requirements for Top 20 Detailed Occupations 2016-2021

SOC	Detailed Occupation	Annual Mean Wage	Entry Level Needs		
			Edu	Work Exp	OJT
35-3031	Writers and Waitresses	\$28,750	8	None	ST
41-2011	Cashiers	24,250	8	None	ST
53-7062	Laborers and material movers	29,860	8	None	ST
35-3021	Food Prep/ Serving Workers	23,400	8	None	ST
41-2031	Retail salespersons	29,780	8	None	ST
29-1141	Registered Nurses	95,400	3	None	None
43-5081	Stock clerks and order fillers	27,670	8	None	ST
11-1021	General and operations managers	135,890	3	≥5 yrs	None
35-2014	Cooks, Restaurant	27,220	8	< 5 yrs	MT
39-9021	Personal care aides	25,770	8	None	ST
43-9061	Office Clerks, General	33,640	7	None	ST
43-4051	Customer Service Representative	38,960	7	None	ST
35-9011	Cafeteria Attendant / Bartender	23,620	8	None	ST
25-9041	Teacher Assistant	31,830	6	None	None
13-2011	Accountants and auditors	82,780	3	None	None
33-9032	Security Guards	30,960	7	None	ST
37-2011	Janitors and Cleaners	30,140	8	None	ST
35-9021	Dishwashers	22,330	8	None	ST
41-4012	Sales Representative, Wholesale	63,500	7	None	MT
25-2031	Secondary School Teachers	76,850	3	None	I/R

ST=short term; MT=moderate-term; I/R=internship/residency
Source: CA EDD

Exhibit C-6
Entry Level Education and Experience Requirements All Jobs 2016-2021

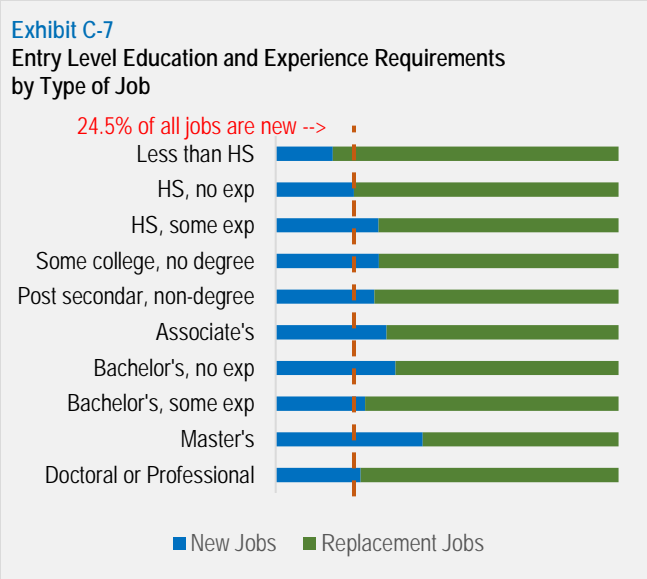


Of the remaining projected openings, 11.8 percent will be suitable for new graduates with a bachelor’s degree, 2.6 percent for workers with associate’s degrees and 6.2 percent for certificated post-secondary candidates.

The entry level education and experience requirements for new jobs only shows a somewhat higher percentage requiring a post-secondary certificate, an associate’s

degree, or a higher level graduate degree (Exhibit C-7). This is an indication of the higher skills levels needed for the projected new jobs due to the change in the mix of industries. It can also indicate that there is higher turnover in jobs at the lower end of the skills ladder.

It should be noted that this analysis assumes that the occupational composition of each industry will not materially change over the next five years, and that the entry level education and experience requirements of occupations remain the same. It is certainly possible that industries will require a different mix of occupations in their workforce, and that firms may expect new hires to have higher levels of education and experience than those currently specified. As these changes may be slow to occur, the five-year projections here are likely to reflect the current occupational trajectory. ❖



D. Income and Poverty

Median household income in Los Angeles County is shown in Exhibit D-1. Two series are presented: nominal median household income and household income adjusted for inflation (shown in 2016 dollars).

Nominal household income has increased steadily since 1990, with an annual average growth of 1.9 percent from 1990 to 2000, and 2.2 percent from 2000 to 2010. The growth rate has stalled since 2010. Since 2010, nominal household income rose on an annual basis by 2.4 percent owing mainly to a large jump in 2015 when median household income rose by 6.1 percent.

Adjusting median household income for inflation, however, illustrates that real median household incomes have been on a *downward* trajectory since 1990, eroding the purchasing power of residents in Los Angeles County for more than two decades. Real median household incomes declined by 0.46 percent per year on average from 1990 to 2000, and by 0.54 percent per year from 2000 to 2010. By 2016, real household income was 5.2 percent higher than it was in 2010 but still 4.5 percent below where it was in 1990.

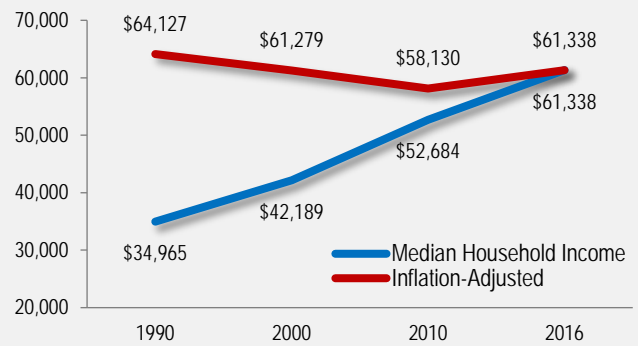
Per capita income in Los Angeles County is shown in Exhibit D-2, again in both nominal terms and adjusted for inflation (2016 dollars).

Per capita income in Los Angeles County is estimated at \$28,373 in 2016. As with median household income, nominal per capita income has seen decadal growth on the order of 2.5 percent per year from 1990 to 2000, 2.2 percent per year from 2000 to 2010 and 1.6 percent per year since 2010.

As with median household income, real per capita income, however, was relatively flat between 1990 and 2000, and actually declined between 2000 and 2010. While it has not suffered a significant drop, real per capita income was slightly lower in 2016 than in 2010 and continues to remain below the 2000 level.

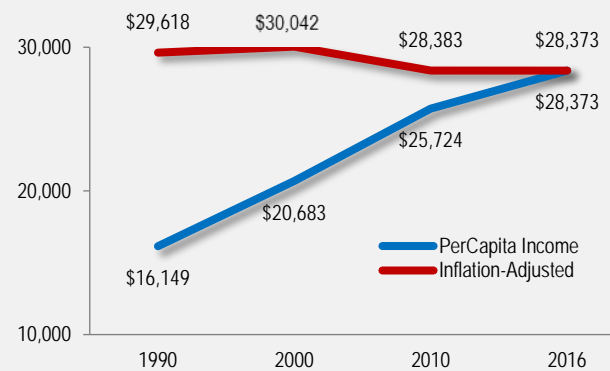
The distribution of household income is shown in Exhibit D-3. Since the median household income in 2016 was \$61,338, more fifty percent of all households earned more than this and slightly less than fifty percent earned less. Almost 12 percent of households earned less than \$15,000, 21.5 percent earned less than \$25,000 and slightly over 31 percent earned less than \$35,000.

Exhibit D-1
Median Household Income
Nominal and \$2016



Source: ACS 2016 1-year estimates; BLS

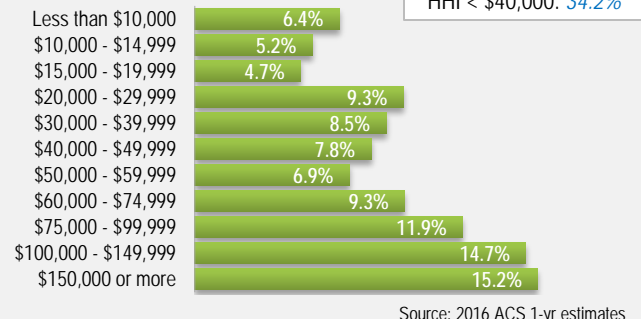
Exhibit D-2
Per Capita Income
Nominal and \$2016



Source: ACS 2016 1-year estimates; BLS

Exhibit D-3

**Households by Income
Los Angeles County 2016**



Poverty status is determined by the U.S. Census Bureau using an individual’s or a family’s pre-tax income and comparing it against a threshold of minimum cash needs. These thresholds are updated annually to account for changes in the prices of basic goods. For example, in 2015, the poverty threshold for an individual 65 years of age or younger was \$12,486. For a family of four, the threshold was \$24,563. An individual or family with cash income of less than these amounts would be considered poor.

Exhibit D-4 shows the percentage of individuals in Los Angeles County living in poverty in 1990, 2000, 2010 and 2016. Using the federal poverty threshold, 16.3 percent of individuals in Los Angeles County were living in poverty in 2016. This rate increased between 1990 and 2000, but declined marginally during the following decade.

Since the end of the Great Recession, poverty rates have continued to fall. Annual rates since 2006 are shown in Exhibit D-5.

Poverty is highly correlated with unemployment, rising as unemployment rates rise, and falling (with a lag) when unemployment rates fall. Since unemployment rates in Los Angeles County have been on a downward trend since 2010, poverty rates have also been falling.

Although the poverty threshold is updated annually, it does not take into account the wide variation of the cost of living across municipalities. Indeed, Los Angeles County is considered to have a relatively high cost of living, the official poverty rate is likely to *understate* the actual incidence of poverty in the county.

Of the 275,180 households in poverty in Los Angeles in 2016, 30.4 percent were married couples with dependent children, and an additional 35.6 percent were single mothers (Exhibit D-6). Another 8.9 percent were families with children headed by single males.

Three-fourths of families living under the federal poverty threshold have children. With children at home, single parents must earn enough to care for them. These parents face particular challenges in affording housing, food, child care and medical care. ❖

Exhibit D-4

**Individual Poverty Rates by Decade
Los Angeles County**

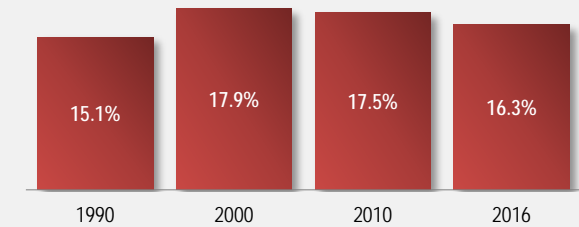


Exhibit D-5

**Individual Poverty Rates 2006 to 2016
Los Angeles County**

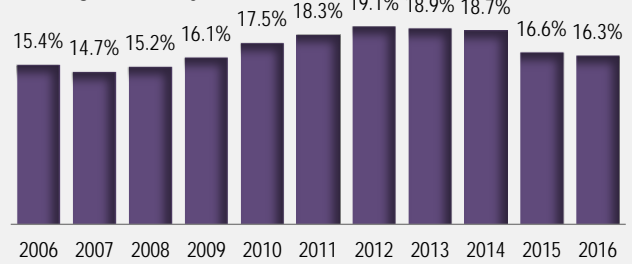
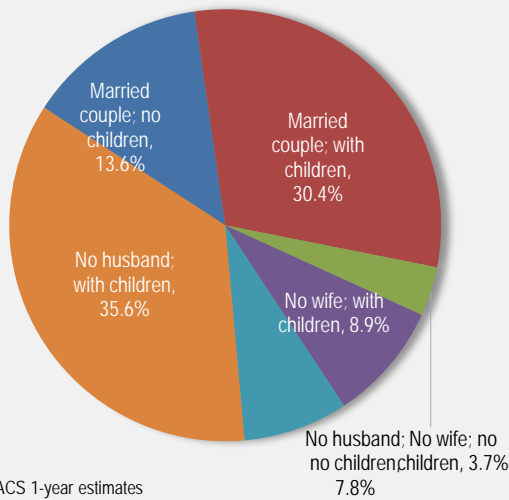


Exhibit D-6
Families and Poverty
Los Angeles County 2016

Income in the past 12 months below poverty level



Source: 2016 ACS 1-year estimates

E. Educational Attainment

The population of residents aged 25 years and older in Los Angeles County numbered 6.9 million in 2016. This population is generally assumed to have reached their highest level of educational attainment, although additional credentials are still certainly possible. The educational attainment of this population is shown in Exhibit E-1.

Almost 22 percent of county residents in this cohort have not earned a high school diploma (or equivalent) while 20.8 percent have graduated high school but have no other education. Approximately 20 percent of the residents have a bachelor’s degree, while 11 percent have a graduate or professional degree. Together, this shows a bi-modal distribution of educational attainment, with large proportions at both the low end and the high end of the spectrum.

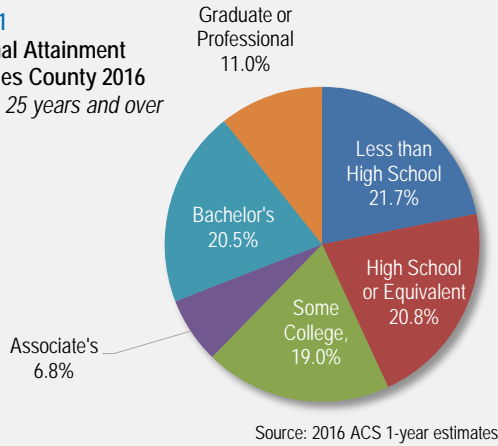
However, a breakdown of educational attainment by age group shows an encouraging trend in that younger cohorts are staying in school longer and are graduating at higher rates (Exhibit E-2). Residents aged 18 to 24 years are, for the most part, still working to meet their higher education goals, but even so, 44.9 percent have attained at least some college education. Completion of a bachelor’s degree was attained by 27.1 percent of those aged 25 to 34 years.

Students that would have entered the labor force during the recession were largely discouraged by their job prospects and likely stayed in school longer than they might otherwise have under a stronger economy.

Wages typically reflect the degree of preparation and skills levels needed for a particular occupation and job, with lower levels of skills and education typically earning commensurately lower median wages. This is shown in Exhibit E-3.

Workers aged 25 years and older in Los Angeles County with less than a high school diploma earned annual median wages of \$20,650, compared to \$27,330 earned by workers with a high school diploma, and \$52,003 for workers with a bachelor’s degree. Those with the highest levels of educational attainment earned median annual wages of \$75,820.

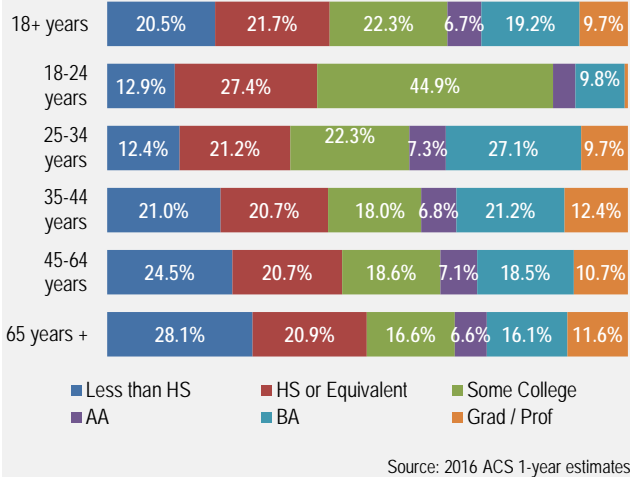
Exhibit E-1
Educational Attainment
Los Angeles County 2016
Population 25 years and over



with lower levels of education are likely to find employment opportunities to be more limited. The relationship between educational attainment and unemployment and poverty is shown in Exhibit E-4.

Residents aged 25 years and older in Los Angeles County with less than a high school diploma experienced an unemployment rate of 6.9 percent in 2016, just lower than residents with a high school diploma (or equivalency). The unemployment rate for residents with some college was 5.6 percent and for those with a bachelor's degree or higher educational attainment was 4.4 percent. Overall, the unemployment rate in Los Angeles County in 2016 for this cohort averaged 6.7 percent.

Exhibit E-2
Educational Attainment by Age Group
Los Angeles County 2016



Although higher levels of education yielded lower rates of unemployment, for those with a high school diploma the unemployment rate is 6.2 percent, comparable to those without a high school diploma at 6.9 percent.

However, the poverty rates among the different groups are strikingly different. The poverty rate among residents without a high school diploma was 31.8 percent, more than 50 percent higher than the poverty rate of those with a high school diploma. This is a clear demonstration of the lower earning power of those at the lowest rung of educational attainment, and represents the preponderance of "working poor" in Los Angeles County.

While the unemployment rate has increased slightly for those with a Bachelor's degree or higher since last year, the unemployment rate for all other groups has fallen. However, the poverty rate has increased for all groups. ❖

Exhibit E-3
Median Earnings and Educational Attainment 2016
Population 25 years and older

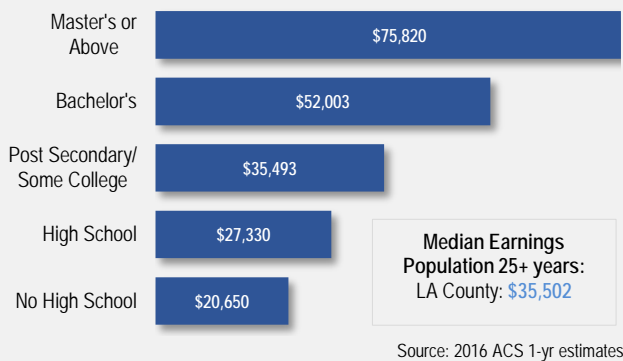
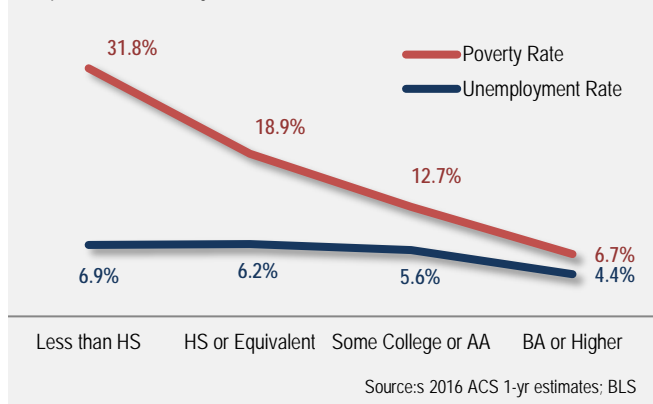


Exhibit E-4
Unemployment and Poverty by Education
Los Angeles County, 2016
Population 25 to 64 years



Since earnings from employment represent the most significant portion of all income, those that earn lower wages will experience higher rates of poverty. Also, those

F. Housing Market

California has one of the tightest housing markets in the country. Los Angeles County is no exception. The median housing price in the County is over \$600,000 in September 2017. As demand for housing grows in the County, there will be a continued upward pressure on house prices and rental rates further exacerbating affordability.

Housing Permits

Building permit data is one of the leading indicators of the housing market. All new construction is required to file and obtain permits, making them a good way to predict changes in the market.

Exhibit F-1 displays the total number of all new housing (residential) permits issued in Los Angeles County from 2004 through 2016.

The number of new residential units permitted fell to its lowest level in 2009, declining to 5,600 new units. Since then, market activity has picked up reaching 19,940 units in 2016. Still, permits for new home construction remain below prerecession peak levels in 2004 to 2006.

Year-to-date through August 2017, a total of 14,600 units have been issued, a 5.6 percent increase over the same period last year.

13,794 14,597

Housing Sales Prices

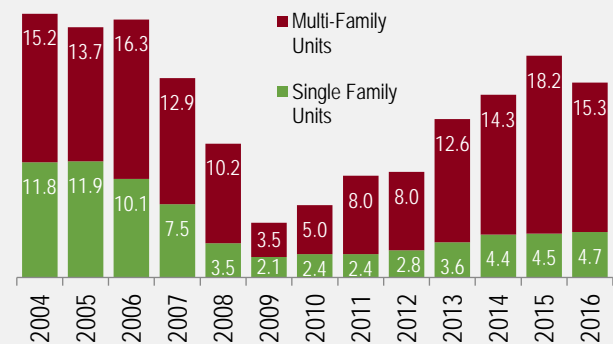
Pricing of homes is a major determinant in the demand for housing. The foreclosure crisis put downward pressure on prices as the market was flooded with distressed properties, as shown in Exhibit F-2.

A large number of these foreclosed properties (mostly single-family homes) have since been absorbed by institutional investors who converted them to rentals. Although this cleared the inventory of distressed homes faster than expected, it also had the effect of removing much of the affordable inventory from the market that would normally have gone to first time buyers.

Home prices together with interest rates, employment and income are major determinants of demand for housing. Marriage and household formation, along with

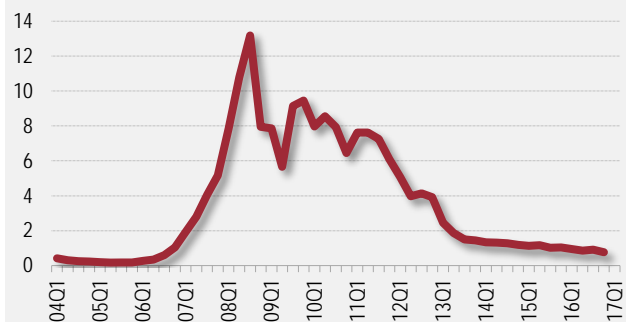
access to mortgage credit also play a major role in the decision to purchase a home.

Exhibit F-1
Housing Permits in Los Angeles County, Thousands



Source: California Homebuilding Foundation, CIRB

Exhibit F-2
Foreclosures - Los Angeles County
Trustees Deeds Filed, thousands



Source: Southern California County Recorders via RERC

Exhibit F-3 shows changes in the median price of new and existing homes in Los Angeles County from 2004 through the first quarter of 2017.

The peak median sales price reached \$537,011 in 2007 before falling to a post-peak trough of \$312,541 in 2011, a decline of 41.8 percent. By 2015, the median price had

appreciated to \$486,507, an increase of 54.4 percent compared with 2011, and just 9.4 percent below the 2007 peak.

The peak median price for new homes was \$503,757 in 2007 and the post-peak trough was \$376,873 in 2012, a decline of 25.2 percent. In 2016, the median home price in Los Angeles County was \$583,807, considerably above the 2007 peak.

Housing Affordability

Affordability indices measure how well a family can meet the expense of purchasing a home in the area.

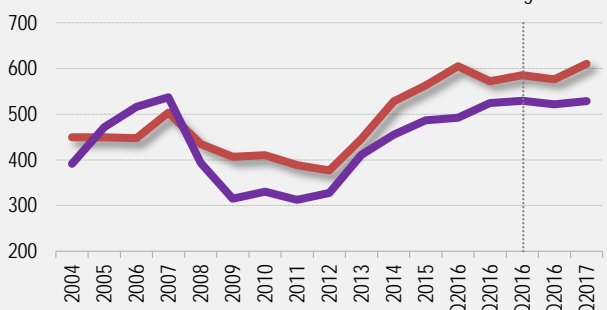
With home prices rising faster than income, housing affordability is back in the spotlight. The California Association of Realtors (CAR) compiles a quarterly Housing Affordability Index (HAI). This index measures the percentage of households in a geographic area that can afford to purchase the median priced home in that region. Tracking the HAI for Los Angeles provides a way to determine whether housing is becoming more or less affordable for the typical household over time.

Exhibit F-4 displays the California Association of Realtors Home Affordability Index for the U.S., California and Los Angeles County from 2006 through the second quarter of 2017.

The HAI in Los Angeles County averaged 11 in 2006 and 2007, meaning only 11 percent of households in the county could afford to buy a median priced home. As the housing crisis intensified and home prices plunged, the HAI peaked at 46 in 2012.

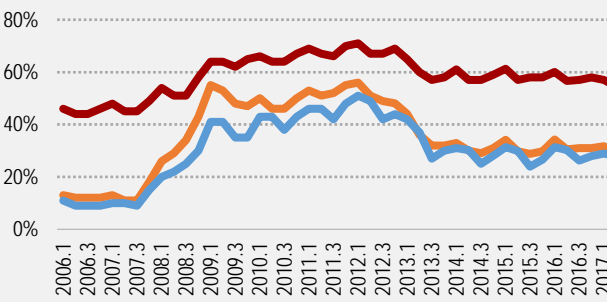
Since 2013, the HAI has averaged 30. While homes in Los Angeles might be considered “affordable” by pre-recession standards, they are still considerably less so when compared with the nation as a whole. ❖

Exhibit F-3
Annual Median Home Prices
Los Angeles County, thousands \$



Source: Real Estate Research Council

Exhibit F-4
Home Affordability
CAR Housing Affordability Index



Source: California Association of Realtors

