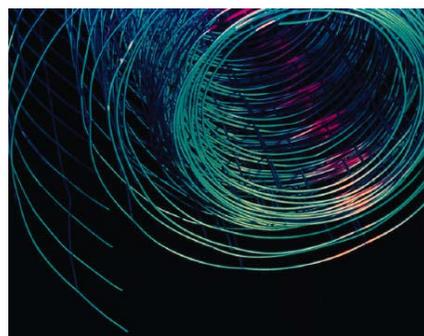


ECONOMIC UPDATE *for* LOS ANGELES COUNTY



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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.

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Executive Summary

A region of unparalleled diversity, optimism and opportunity, Los Angeles County is home to more than 10 million residents and boasts a workforce of more than 4.3 million today. A thriving and vibrant metropolis, the county has one of the largest manufacturing centers in the nation, is a global gateway for trade and tourism, and draws entrepreneurs and risk-takers from around the world.

Although battered during the Great Recession, Los Angeles continues on a steady employment growth path, which looks certain to continue over the next few years.

Economic Overview and Outlook

The September unemployment rate in Los Angeles County was 5.2 percent (not seasonally adjusted), 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 September 2016 totaled 4.36 million, adding 19,400 jobs over the month and 69,700 jobs over the year for an annual growth rate of 1.6 percent. A large majority of industry sectors experienced growth over the period.

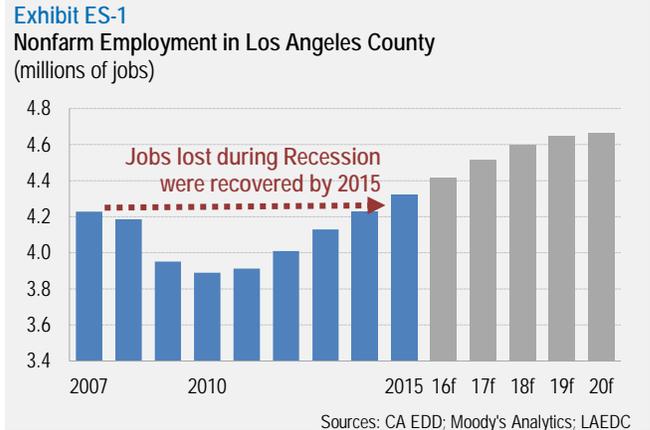
County employment is projected to grow at an average annual rate of 1.5 percent over the next five years, adding 334,000 jobs across a range of industries (Exhibit ES-1).

As the unemployment rate continues to fall, it is expected that the labor market will tighten and wage growth will finally begin. In general, occupations requiring higher levels of educational attainment are those that will experience the largest wage increase.

However, while economic and employment growth may well continue, there are risks emerging from the types of jobs being produced and consequent rising inequality.

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 an average annual rate of 2.7 percent, adding more than 106,000 jobs over the next five years;
- ▶ *Professional and Business Services*, a large and diverse sector that will add jobs at an average annual rate of 2.4 percent, adding more than 75,000 jobs in a range of industries;
- ▶ *Leisure and Hospitality*, a signature industry of Los Angeles, projected to add almost 47,000 jobs over the next five years; and
- ▶ *Information*, encompassing the region's storied entertainment industry, as well as its growing digital media sector, will add almost 20,000 new jobs over the next five years.

Other industries are evolving through innovation and disruption and will drive our future:

- ▶ *Advanced Transportation and Fuels*: From electric and autonomous vehicles, to biofuels, battery storage and energy solutions, Los Angeles is emerging as a leader in this space. Policies targeted at reducing greenhouse gas emissions are motivating investment and research in areas that cross traditional industry boundaries and propel innovation in transportation delivery.
- ▶ *Biosciences*: With the concerted effort of industry and local government leaders, and enriched by the proximity to leading medical and bioscience

research institutions, Los Angeles has the potential to become a major hub for the biosciences industry. The county is already attracting significant research and investment dollars, and providing jobs across a variety of skill and income levels.

- *Digital Media / Entertainment:* One of the defining characteristics of Los Angeles is the convergence of technology and entertainment. Innovative digital platforms are reshaping how media content is created and delivered. Los Angeles County has seen a surge in digital media jobs as Google, YouTube, Amazon and Facebook have opened local offices, joined by numerous start-ups that support jobs across a range of industries, establishing Los Angeles as the center of this new media revolution.

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 wage of \$39,250.

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 and no work experiences. Another 30 percent will require workers with a high school diploma and no work experience (Exhibit ES-2)

The strong correlation between educational attainment and earnings signals challenges ahead for delivering economic prosperity to all residents, as residents with lower-paying jobs are unlikely to be able to support a middle-class household.

Income and Poverty

While household incomes have increased steadily for the last 25 years, from \$34,965 in 1990 to \$59,134 in 2015, inflation-adjusted household incomes have fallen steadily, and are still 6.0 percent below where they were in 1990 (Exhibit ES-3).

In spite of this, the improving economy is helping poverty rates to continue to fall. The individual poverty rate is now at 16.6 percent, a decrease of 2.5 percentage points from the peak of 19.1 percent reached in 2012 (Exhibit ES-4). ❖

Exhibit ES-2
Entry Level Education and Experience Requirements
All Jobs 2015-2020

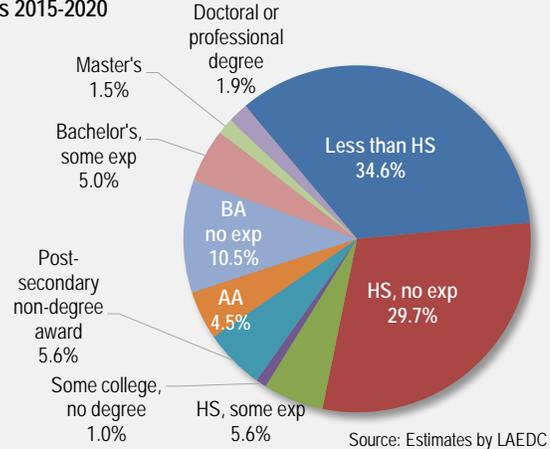


Exhibit ES-3
Median Household Income
Nominal and \$2015

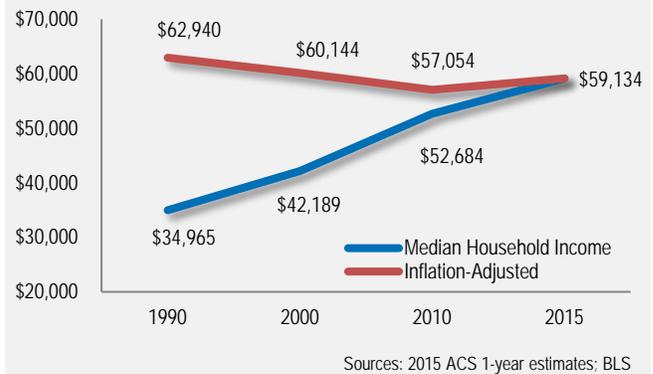


Exhibit ES-4
Individual Poverty Rates 2005 to 2015
Los Angeles County

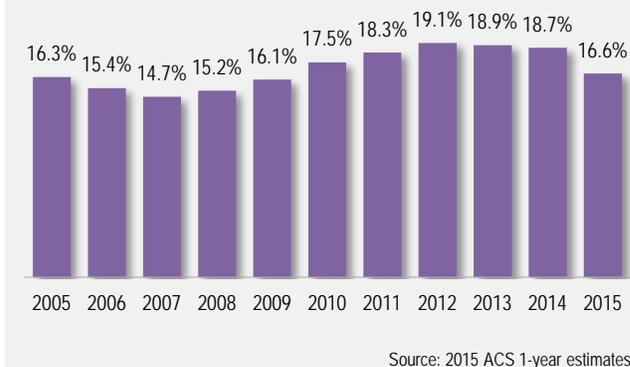


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A. Economic Recovery

A thriving and vibrant metropolis, Los Angeles County is home to more than 10 million residents and boasts a workforce of more than 4.3 million today. It has one of the largest manufacturing centers in the nation, is a global gateway for trade and tourism, and draws entrepreneurs and risk-takers from around the world.

Although battered during the Great Recession, Los Angeles continues on a steady employment growth path, which looks certain to continue for the next few years.

The county recovered all jobs lost during the recession in 2015, one year later than the United States and California took to reach this milestone.

Current Employment Overview

Monthly unemployment rates in Los Angeles County from January 2000 through September 2016 (not seasonally adjusted) are shown in Exhibit A-1. At 5.2 percent, the September unemployment rate in Los Angeles County was 1.0 percentage point below the year-ago rate of 6.2 percent, and slightly higher than the 4.8 percent annual average recorded in 2006 (just prior to the recession). The average unemployment rate for the county since 1990 is 7.9 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 2016 (the most recent period for which data are available). Seasonally-adjusted industry employment data is not available at the county level. This can be problematic because many industries experience seasonality in hiring patterns, such as, for example, holiday hiring at retail outlets. Focusing on the year-over-year numbers smooth the seasonal trends and provide a better picture of employment.

Nonfarm wage and salary employment totaled 4.36 million, up by 19,400 jobs over the month and 69,700 over the year. This equates to an annual growth rate of 1.6 percent. Since 2012, nonfarm employment growth in Los Angeles County has averaged 2.0 percent annually. In September, most major industries added jobs over the year, and where losses did occur, with the exception of manufacturing, the absolute numbers were relatively small.

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	Sept 2016	% Δ from Sept 2015
21	Mining and Logging	3,400	-12.8%
22	Utilities	12,400	0.8%
23	Construction	126,500	-2.0%
31-33	Manufacturing	352,500	-2.4%
42	Wholesale Trade	224,300	-1.4%
44-45	Retail Trade	425,300	1.4%
48-49	Transportation and Warehousing	161,900	0.7%
51	Information	206,200	0.5%
52	Finance and Insurance	136,800	1.9%
53	Real Estate/Rental/Leasing	83,800	3.7%
54	Professional and Technical Services	279,600	0.8%
55	Mgmt of Co's/Enterprises	60,000	2.7%
56	Administrative and Waste Services	279,300	4.3%
61	Educational Services	112,400	2.7%
62	Health Care and Social Assistance	647,100	3.2%
71	Arts, Entertainment and Recreation	87,100	3.2%
72	Accommodation and Food Services	424,800	3.7%
81	Other Services	154,200	0.6%
92	Government	573,100	2.3%
Total Nonfarm Employment		4,360,700	1.6%

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 were health care and social assistance, accommodation and food services, administrative support and waste services, and retail trade:

Health care and social assistance is the county’s largest private industry by employment. The number of health care jobs expanded by 20,300 over the year in September, an increase of 3.2 percent. An examination by subsector shows job gains in ambulatory health care (8,000 jobs), hospitals (5,600), nursing and residential care facilities (2,100), and social services (4,600).

Accommodation and food services employment increased by 3.7 percent over the year in September, adding 15,100 jobs over the year. More than 90 percent of the job growth in this sector was attributable to food services.

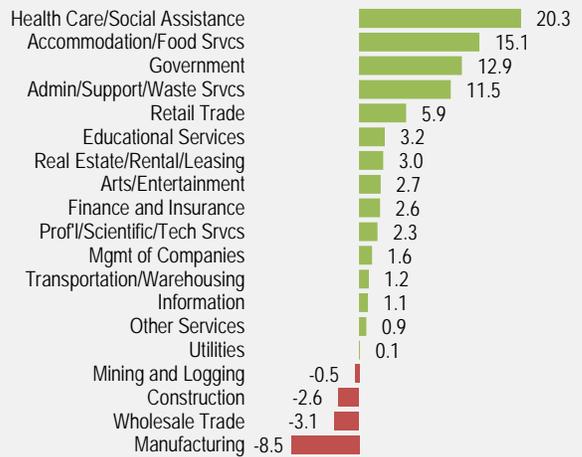
Administrative support and waste services jobs increased by 4.3 percent over the year in September, adding 11,500 jobs. Within this sector, employment services (employment agencies and temp services) added 6,500 jobs.

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

Mining and logging employment fell by 12.8 percent over the year, losing just 500 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 low energy prices.

Construction employment lost 3,400 jobs in September, a decline of 2.0 percent over the year. Loss of jobs

Exhibit A-3
Employment Change by Industry Sector
Los Angeles County, September 2016
 (Y-Y Numerical Change, thousands)



Sources: BLS, CES; LAEDC

occurred across all sub-sectors of this industry during the period.

Wholesale trade employment contracted by 3,100 jobs or by 0.4 percent over the year. September marked the sixth consecutive month of year-over-year employment declines in wholesale trade.

Manufacturing suffered a year-over-year decline in employment of 2.4 percent, losing 8,500 jobs since September 2015. Job losses were almost evenly split between durable and nondurable goods. Manufacturing employment has been on a long-term decline for decades and is not likely to reverse anytime soon. ❖

B. Industry Outlook

Employment Forecast

Since bottoming out in 2010, nonfarm employment in Los Angeles County has increased by 475,800 jobs. Pre-recession peak employment was recovered in 2015. However, this recovery has not accommodated population growth and any change in the labor force, hence the unemployment rate is still above its pre-recession low of 4.3 percent in October 2006.

Between 2015 and 2020, the economy is expected to add 334,200 new jobs in nonfarm industries across the county, reaching 4.6 million jobs in 2020. The rate of job growth is expected to slow from an average annual rate of 2.2 percent (2010 to 2015) to 1.5 percent (2015-2020).

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

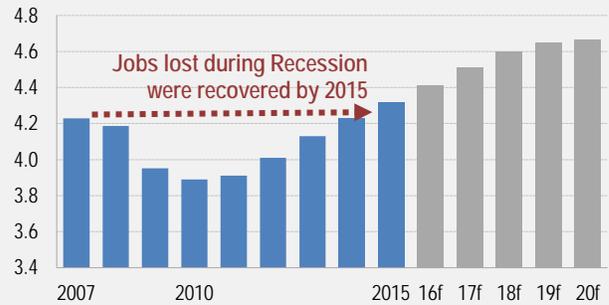
Employment in goods-producing industries is projected to grow at an average annual rate of 0.5 percent over the next five years (Exhibit B-2). The growth of employment in construction will more than offset the decline in manufacturing. Service-providing industries will grow at an annual average rate of 1.9 percent from 2015 to 2020, driven in large part by growth in educational and health services, professional and business services, and leisure and hospitality.

Risks to continued employment growth in Los Angeles County include the likelihood of a national recession within the forecast period (the probability of which is relatively low at the time of this writing) and a continuing slowdown in global trade, which would have a negative effect on the region’s significant logistics and distribution industry.

While economic and employment growth may well continue, there are risks emerging from the types of jobs being produced and consequent rising inequality.

Additionally, an insufficient supply of housing priced within reach of low and middle income households may make it difficult for firms to attract an adequate number of workers to keep the economy growing.

Exhibit B-1
Nonfarm Employment in Los Angeles County
(millions of jobs)



Sources: CA EDD; Moody's Analytics; LAEDC

Exhibit B-2
Industry Employment Growth 2015-2020
Los Angeles County

	Average Annual % Growth	Employment Δ (Thousands)
Total Nonfarm Payroll Employment	1.5%	334.2
Goods Producing Industries:	0.5%	13.4
Natural Resources and Mining	-0.6%	-0.1
Construction	2.6%	17.2
Manufacturing – Durable Goods	-0.1%	-0.6
Manufacturing – Nondurable Goods	-0.4%	-3.1
Service Providing Industries	1.9%	312.3
Wholesale Trade	0.5%	5.9
Retail Trade	1.1%	24.4
Transportation, Warehousing, Utilities	0.5%	4.1
Information	1.9%	19.8
Financial Activities	1.8%	20.2
Professional and Business Services	2.4%	75.3
Educational and Health Services	2.7%	106.4
Leisure and Hospitality	1.8%	46.8
Other Services	1.2%	9.6
Government	0.3%	8.4

Sources: CA EDD; Moody's Analytics; LAEDC

Leading Industries

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

▶ *Health Care and Social Assistance*

A strong pace of growth (2.7 percent annually) is expected for the education and health services industry with the addition of 106,400 jobs between 2015 and 2020, approximately one-third of which will be in ambulatory health care and another third in social assistance.

▶ *Professional and Business Services*

Professional and business services is a large and diverse industry that includes professional, scientific and technical services, management of companies, and administrative support services and waste remediation. Employment in this sector overall is forecast to grow at an average annual rate of 2.4 percent, adding 75,300 new jobs between 2015 and 2020.

▶ *Leisure and Hospitality*

The leisure and hospitality sector will show better-than-average growth over the forecast period. The sector is projected to add 46,800 new jobs from 2015 to 2020, growing by 1.8 percent annually on average. Most of the new jobs added will continue to be in food services.

▶ *Retail Trade*

Retail trade activity in Los Angeles has been improving since bottoming out in 2010, and will continue to add jobs through 2020. However, this industry is also undergoing transition as more transactions are conducted online and fewer customers are visiting retail outlets. Growth will be relatively moderate at 1.1 percent per year, and the sector is forecasted to add 24,400 new jobs between 2015 and 2020.

▶ *Financial Activities*

Many of the services in the financial activities sector are related to the housing and construction markets which suffered significant declines during the recession and have faltered during the recovery. The sector is expected to add 20,200 new jobs between 2015 and 2020, growing at an annual average rate of 1.8 percent.

▶ *Information*

The information sector, which includes motion picture production, broadcasting, publishing and new media industries, is projected to grow at an annual average of 1.9 percent per year, adding 19,800 new jobs in the next five years.

▶ *Construction*

Construction industry employment experienced severe declines through 2011, losing more than 52,000 jobs. The losses finally stopped in 2012, but job growth has been slow as the housing market and financial system recover. The average annual growth rate between 2015 and 2020 is projected to be 2.6 percent, adding 17,200 jobs, more than half of which will be specialty trade contractors.

Emerging Industries

The industry profile of Los Angeles County is evolving as new and emerging industries are established or old industries evolve into providing innovative products and services. These include:

▶ *Advanced Transportation and Fuels*

Long identified as the car capital of the nation, Los Angeles is a recognized center of automotive design and transportation innovation. From electric and autonomous vehicles, to biofuels, battery storage and energy solutions, Los Angeles is emerging as a leader in this space. Policies focused on reducing greenhouse gas emissions are motivating significant investment and research in areas that cross traditional industry boundaries to propel innovation in transportation delivery. This momentum suggests that there is high growth potential in Los Angeles County.

▶ *Biosciences*

Los Angeles County is home to some of the leading medical and bioscience research institutions in the nation. The biosciences industry encompasses medical devices, pharmaceuticals, laboratories and clinics, and related research and development. Motivated in part by partnerships among private, non-profit and public agencies, Los Angeles has the potential to become a major hub for the biosciences industry. With the concerted effort of industry and local government leaders, this promising industry sector is already attracting significant research and investment dollars, and providing jobs across a variety of skill and income levels.

► Digital Media /Animation/Gaming

Los Angeles County has seen a surge in digital media jobs as companies like Google, YouTube, Amazon and Facebook have opened local offices. These well-known names have been joined by numerous start-ups that support jobs across a range of industries including arts and entertainment, computer services, sports and media, and film production. One of the defining characteristics of Los Angeles' new digital media industry is the convergence of technology and entertainment. Innovative digital platforms are reshaping how media content is created and delivered, and Los Angeles is establishing itself a 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 2015 was \$58,742. 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 \$130,781, followed by utilities (private) at \$118,826, finance and insurance at \$115,844, management of companies at \$113,845 and information at \$110,809.

The lowest-paying sector was accommodation and food services with an average annual wage of \$22,004. 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 A-4

Average Annual Wage by Industry 2015 (Los Angeles County)

	Average Annual Wage
Total Payroll Employment	\$ 58,742
Good Producing Industries:	\$ 62,664
Agriculture, Forestry, Fishing and Hunting	34,544
Mining	130,781
Construction	59,540
Manufacturing – Durable Goods	74,607
Manufacturing – Nondurable Goods	50,015
Service Providing Industries	\$ 56,564
Wholesale Trade	61,692
Retail Trade	34,386
Transportation and Warehousing	57,285
Utilities	118,826
Information	110,809
Finance and Insurance	115,844
Real Estate and Rental and Leasing	67,030
Professional and Technical Services	98,350
Management of Companies	113,845
Administrative and Waste Services	38,380
Educational Services	55,206
Health Care and Social Assistance	42,077
Arts, Entertainment and Recreation	100,271
Accommodation and Food Services	22,004
Other Services	36,151
Government	\$ 67,917

Sources: CA EDD; LAEDC

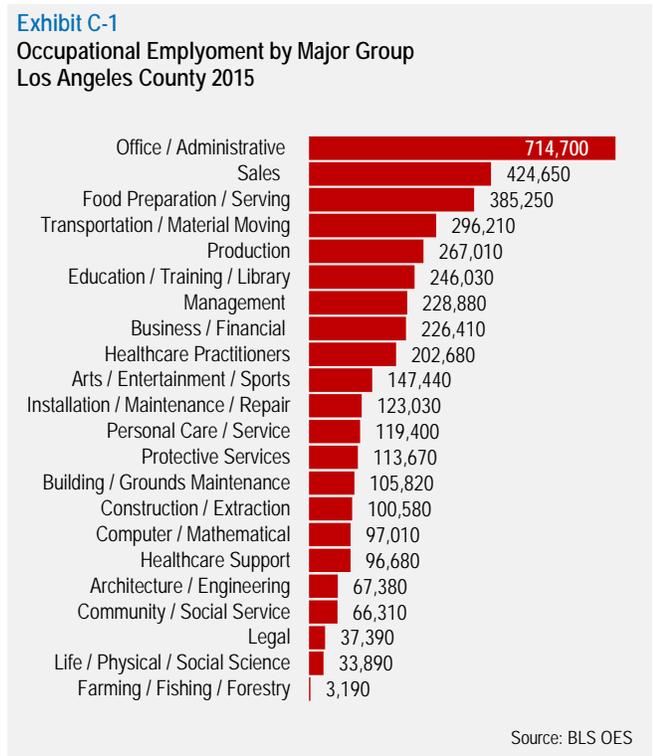
C. Occupations

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.

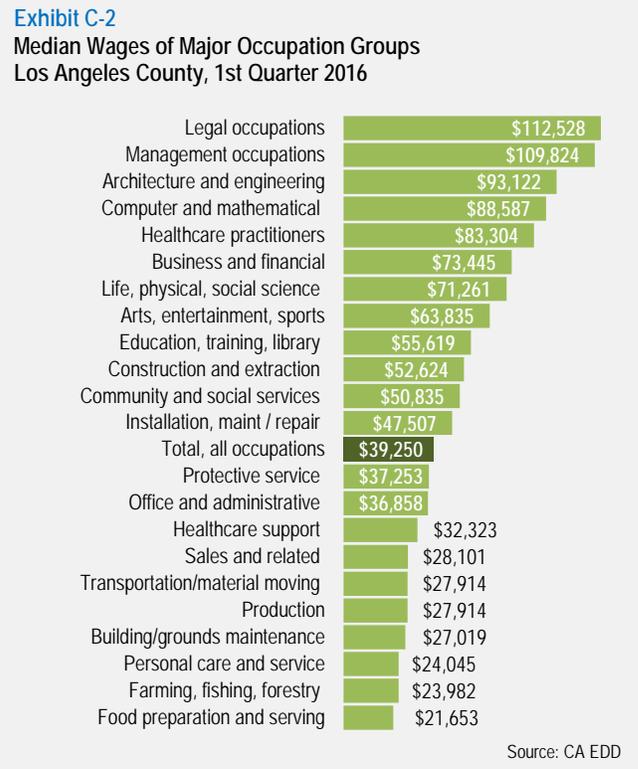
The occupational profile of Los Angeles County in 2015 is shown in Exhibit C-1.



The largest occupational group is office and administrative support, accounting for 714,700 workers. This group includes clerks, receptionists, meter readers, and data entry keyers. This is followed by sales

occupations, which include cashiers, retail salespersons, real estate brokers and telemarketers.

Exhibit C-2 presents the annual median wages associated with each major occupational group in Los Angeles County in the first quarter of 2016. The annual median wage across all occupations was \$39,250.



Annual median wages vary significantly among the major groups, ranging from \$21,653 in food serving and related occupations up to \$112,528 in legal occupations. 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 \$39,250, which is considerably lower than the average annual wage of \$58,741 shown in Exhibit A-2 above. This implies that the majority of workers earn wages below the average wage. This may be due to a 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 2015, 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 2015 and 2020. These twenty occupations will account for approximately 36 percent 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: combined food preparation and serving, waitresses and waiters, which are in the food preparation and serving occupational group; cashiers and retail salespersons, which are in the sales occupational group; and office clerks and customer service representatives, which are in the office and administrative support occupational group.

Exhibit C-3

Occupational Growth in Los Angeles County 2015-2020

SOC	Occupational Group	New Jobs	Replacement	Total
11-0000	Management occupations	14,910	29,910	35,820
13-0000	Business and financial	14,700	22,320	37,020
15-0000	Computer and mathematical	8,800	9,390	18,190
17-0000	Architecture and engineering	3,600	8,630	12,240
19-0000	Life, physical, social science	2,150	4,900	7,060
21-0000	Community and social services	8,160	9,800	17,960
23-0000	Legal occupations	2,580	3,210	5,790
25-0000	Education, training and library	14,440	11,980	26,420
27-0000	Arts, entertainment, sports	10,490	10,690	21,190
29-0000	Healthcare practitioners	25,110	20,480	45,590
31-0000	Healthcare support	15,380	11,070	26,450
33-0000	Protective services	7,000	20,160	27,160
35-0000	Food preparation and serving	38,610	74,740	113,350
37-0000	Building/grounds maintenance	15,150	12,540	27,610
39-0000	Personal care and service	22,590	20,600	43,190
41-0000	Sales and related	23,400	62,920	86,320
43-0000	Office and administrative	50,490	70,300	120,790
45-0000	Farming, fishing and forestry	90	680	770
47-0000	Construction and extraction	12,360	9,820	22,180
49-0000	Installation, maint / repair	7,710	17,060	24,770
51-0000	Production	5,280	25,190	30,470
53-0000	Transportation/material moving	14,670	31,070	45,750
Total		317,680	478,390	796,070

Source: CA EDD; Estimates by LAEDC

Exhibit C-4

Occupational Growth in Los Angeles County 2015-2020

Top 20 Detailed Occupations (Δ Employment)

SOC	Detailed Occupation	New Jobs	Replacement	Total
35-3021	Combined food prep and serving	9,490	18,690	28,180
41-2011	Cashiers	7,690	20,390	28,080
35-3031	Waiters and waitresses	7,490	18,710	26,200
41-2031	Retail salespersons	3,390	22,110	25,500
43-9061	Office clerks, general	7,520	9,500	17,020
43-4051	Customer service representatives	5,970	10,140	16,110
53-7062	Laborers and material movers	4,640	10,680	15,320
29-1141	Registered nurses	8,210	6,330	14,540
37-2011	Janitors / cleaners, not maids	7,230	5,530	12,760
43-5081	Stock clerks and order fillers	3,620	9,280	11,900
39-9021	Personal care aides	9,030	2,320	11,360
11-1021	General and operations managers	4,710	6,230	10,950
35-3022	Counter attendants, cafeteria	2,710	7,280	9,990
43-6014	Secretaries and admins	5,410	3,900	9,310
39-9011	Childcare workers	4,140	4,530	8,670
13-2011	Accountants and auditors	2,870	5,780	8,650
43-1011	First-line supervisors of admins	3,360	5,050	8,410
31-1014	Nursing assistants	4,870	3,530	8,400
43-4170	Receptionists / information clerks	3,350	4,060	7,410
31-1011	Home health aides	4,250	2,880	7,130
Total		109,970	175,910	285,880

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.

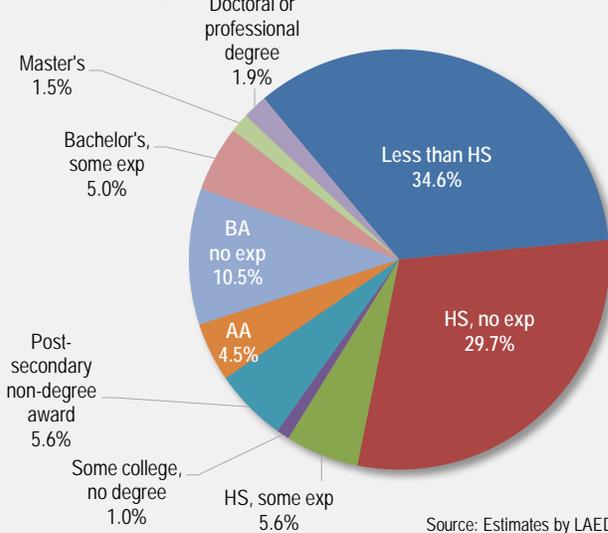
More than one-third of the projected openings for the next five years require workers without a high school diploma and no work experience. Another 30 percent will require workers with a high school diploma (or equivalent) and no work experience. Together, these represent entry level jobs for unskilled workers across industries and occupations.

Exhibit C-5
Median Wage and Entry Level Requirements for Top 20 Detailed Occupations 2014-2019

SOC	Detailed Occupation	Annual Mean Wage	Entry Level Needs		
			Edu	Work Exp	OJT
35-3021	Combined food prep / serving	\$21,745	8	None	ST
41-2011	Cashiers	28,092	8	None	ST
35-3031	Waiters and waitresses	20,795	8	None	ST
41-2031	Retail salespersons	22,863	8	None	ST
43-9061	Office clerks, general	25,107	7	None	ST
43-4051	Customer service representatives	28,040	7	None	ST
53-7062	Laborers and material movers	32,342	8	None	ST
29-1141	Registered nurses	95,455	4	None	None
37-2011	Janitors / cleaners, not maids	38,705	8	None	ST
43-5081	Stock clerks and order fillers	129,464	8	None	ST
39-9021	Personal care aides	77,366	8	None	ST
11-1021	General and operations managers	25,979	3	< 5 yrs	None
35-3022	Counter attendants, cafeteria	27,774	8	None	ST
43-6014	Secretaries and admin assistants-not legal/medl/exec	59,570	7	None	ST
39-9011	Childcare workers	39,030	7	None	ST
13-2011	Accountants and auditors	27,334	3	None	None
43-1011	First-line supervisors of admins	21,234	7	< 5 yrs	None
31-1014	Nursing assistants	24,402	5	None	None
43-4170	Receptionists / information clerks	44,868	7	None	ST
31-1011	Home health aides	30,083	8	None	ST

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

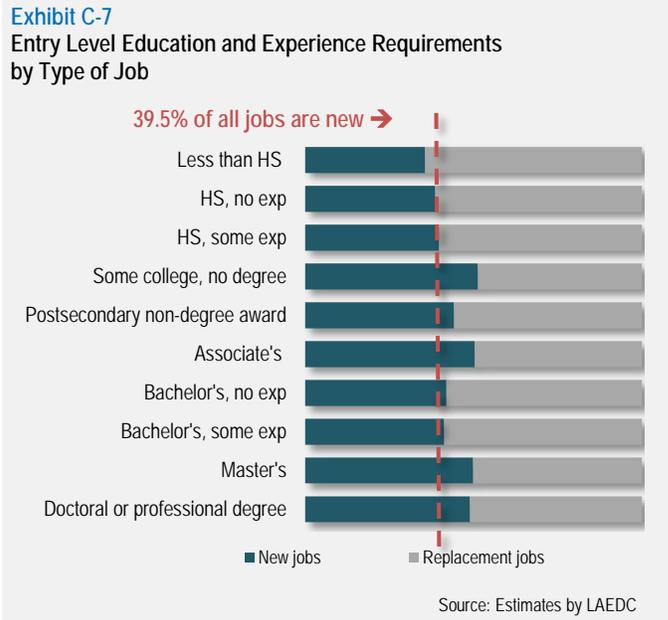
Exhibit C-6
Entry Level Education and Experience Requirements All Jobs 2015-2020



Of the remaining projected openings, 10.5 percent will be suitable for new graduates with a bachelor’s degree, 4.5 percent for workers with associate’s degrees and 5.6 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 2015 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 2.3 percent owing mainly to a large jump in 2015 when median household income rose by 6.1 percent in that year alone.

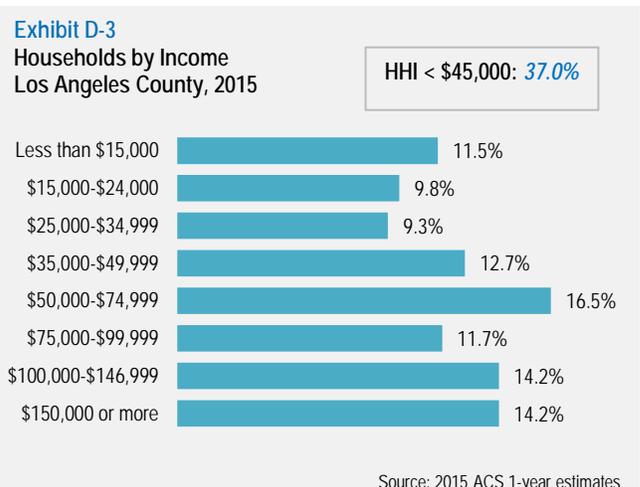
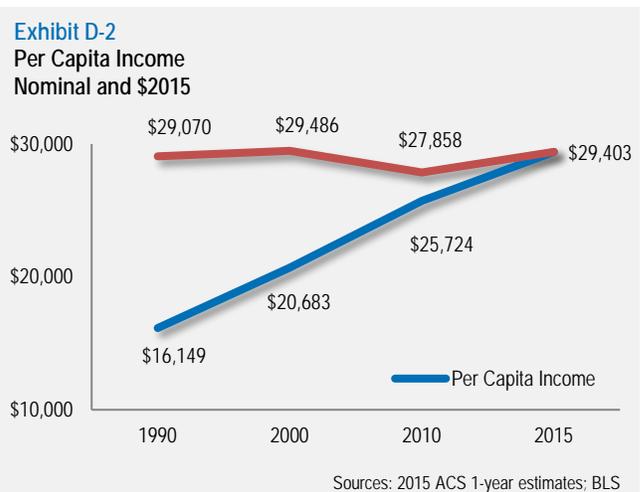
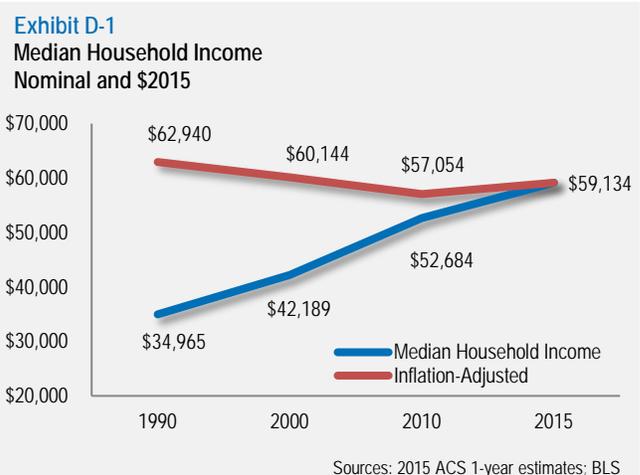
However, adjusting median household income for inflation shows that real median household incomes have been on a downward trajectory since 1990, eroding the purchasing power of residents in Los Angeles County for more than two decades. Real median household incomes declined by 0.45 percent per year on average from 1990 to 2000, and by 0.53 per year from 2000 to 2010. By 2015, real household income was 3.6 percent higher than it was in 2010 but still 6.0 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 (2015 dollars).

Per capita income in Los Angeles County is estimated at \$29,403 in 2015. 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 2.2 percent per year since 2010.

Real per capita income, however, was flat between 1990 and 2000, and declined between 2000 and 2010. While it is not on an upward trend, real per capita income was marginally higher in 2015 than in 2010, but remains below its 2000 level.

The distribution of household income is shown in Exhibit D-3. Since the median household income in 2015 was \$59,134, fifty percent of all households earned more than this and fifty percent earned less. More than 11 percent of households earned less than \$15,000, 21 percent earned less than \$25,000 and almost 31 percent earned less than \$35,000.



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 \$12,331. For a family of four, the threshold was \$24,036. 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 2015. Using the federal poverty threshold, 16.6 percent of individuals in Los Angeles County were living in poverty in 2015. This rate increased between 1990 and 2000, but declined marginally during the following decade.

Since the recession, poverty rates have continued to fall. Annual rates since 2005 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. Since 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 278,700 households in poverty in Los Angeles in 2015, 29.5 percent were married couples with dependent children, and an additional 36.1 percent were single mothers (Exhibit D-6). Another 8.8 percent were families with children headed by single males.

With children at home, household income must necessarily be higher to cover increased costs for food, housing, medical care and child care. This is particularly problematic for single parent-single income households whose ability to earn a stable income while also caring for children is challenged. ❖

Exhibit D-4
Individual Poverty Rates by Decade
Los Angeles County

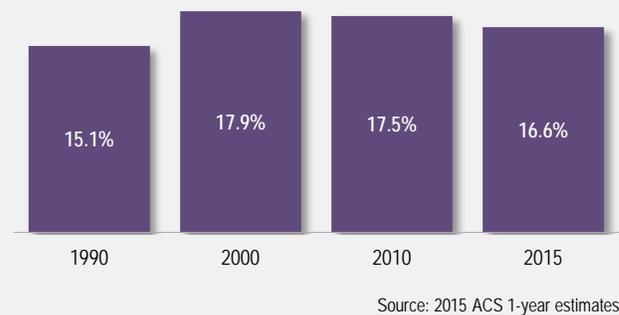


Exhibit D-5
Individual Poverty Rates 2005 to 2015
Los Angeles County

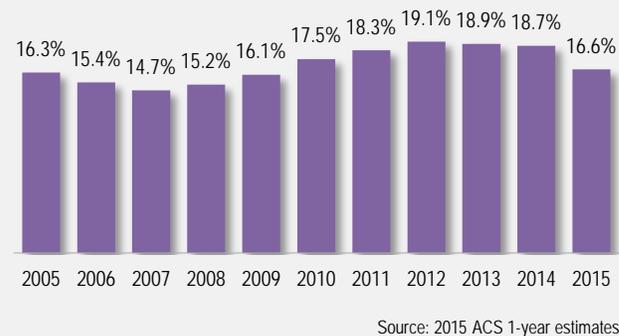
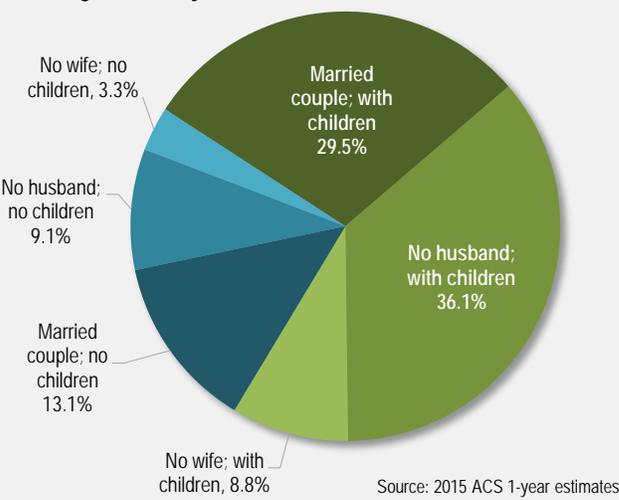


Exhibit D-6
Families and Poverty
Los Angeles County 2015



E. Educational Attainment

The population of residents aged 25 years and older in Los Angeles County numbered 6.8 million in 2015. 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.

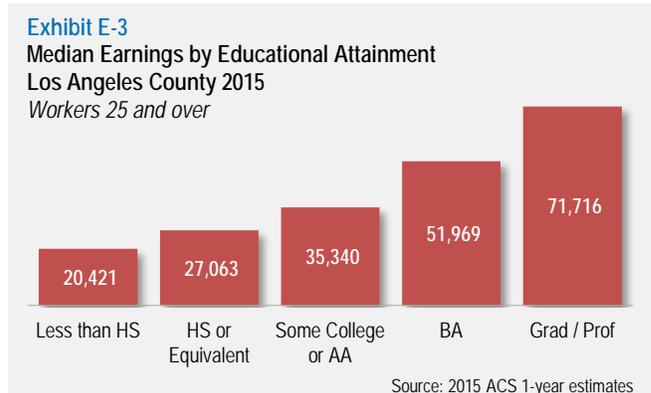
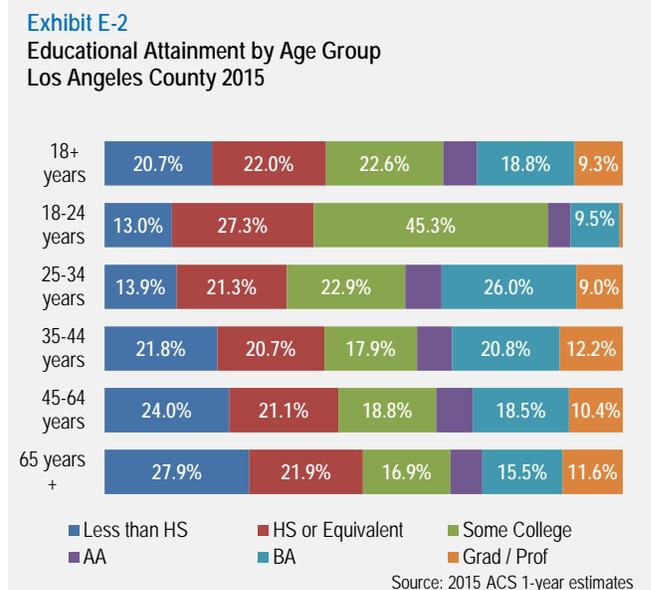
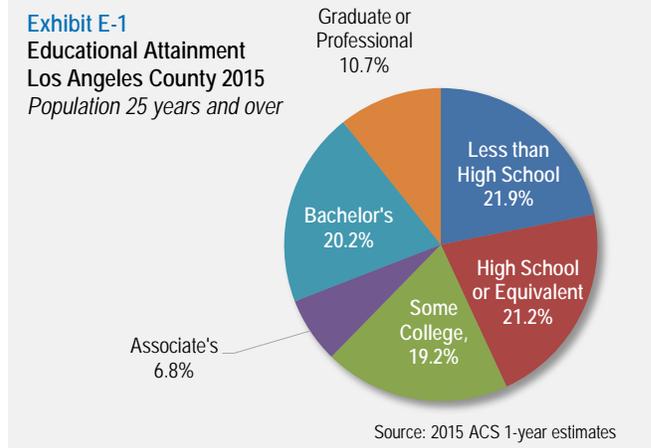
Almost 22 percent of county residents in this cohort have not earned a high school diploma (or equivalent) while 21.2 percent have graduated high school but have no other education. Approximately 20 percent of the residents have a bachelor's degree or higher. Together, this shows a bi-modal distribution 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, 45.3 percent have attained at least some college education. Completion of a bachelor's degree was attained by 26.0 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 \$20,421, compared to \$27,063 earned by workers with a high school diploma, and \$51,969 for workers with a bachelor's degree. Those with the highest levels of educational attainment earned median annual wages of \$71,716.



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 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.

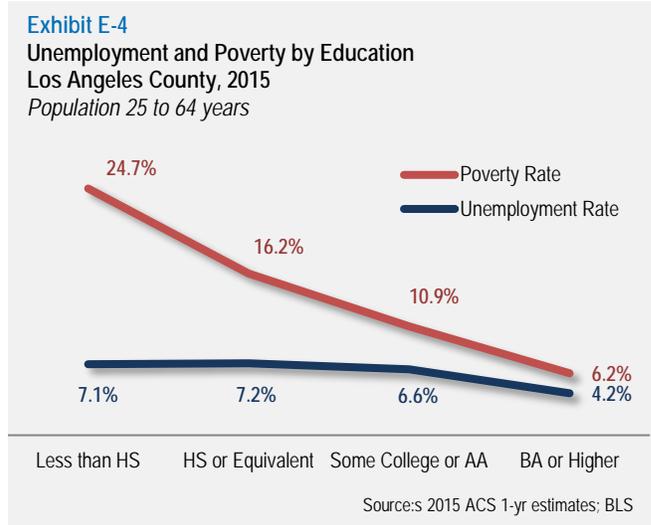
Residents aged 25 years and older in Los Angeles County with less than a high school diploma experienced an unemployment rate of 7.1 percent in 2015, just lower than residents with a high school diploma (or equivalency). The unemployment rate for residents with some college was 6.6 percent and for those with a bachelor’s degree or higher educational attainment was 4.2 percent. Overall, the unemployment rate in Los Angeles County in 2015 for this cohort averaged 6.7 percent.

Although higher levels of education yielded lower rates of unemployment, for those with a high school diploma the unemployment rate is 7.2 percent, comparable to those without a high school diploma at 7.1 percent.

However, the poverty rates among the different groups are strikingly different. The poverty rate among residents without a high school diploma was 24.7 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.

For all groups, however, the poverty rate has fallen since last year. ❖



F. Housing Market

California’s housing market is still working its way through an extended recovery. The median home price in Los Angeles has risen for 53 consecutive months (as of September 2016), but sales of homes are lagging due to low inventories. Meanwhile new home construction has been slow to ramp up, particularly for new homes in the low- to mid-price ranges.

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 the first half of 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 increased four-fold, growing at an average annual rate of 26 percent to reach 22,650 units in 2015. Still, permits for new home construction remain below prerecession peak levels in 2004 to 2006.

Year-to-date through July 2016, a total of 10,800 permits have been issued, 21 percent below the same period a year ago, implying that new home construction in Los Angeles County is likely to slow.

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.

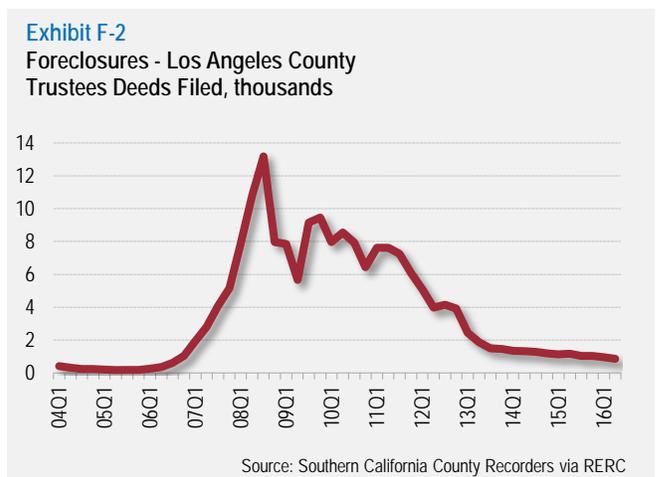
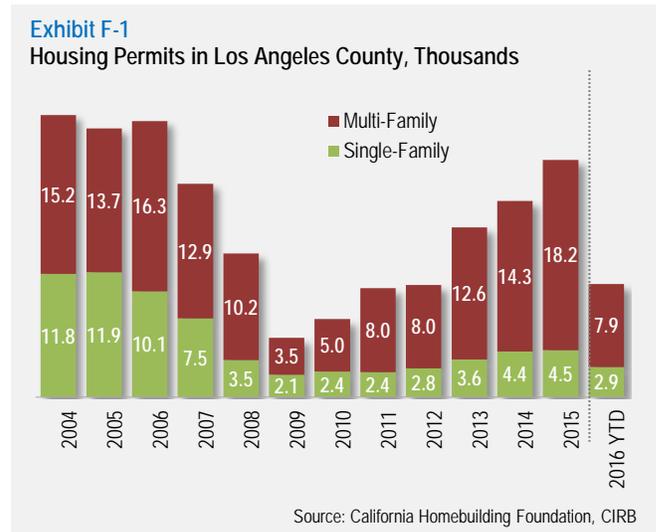


Exhibit F-3 shows changes in the median price of new and existing homes in Los Angeles County from 2004 through the first half of 2016.

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. By 2015, the median sales price of new homes in Los Angeles County had appreciated to \$563,155, which 11.8 percent 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 2016.

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. Homes in Los Angeles are still “affordable” by pre-recession standards but are considerably less so when compared with the nation as a whole. ❖

