

Los Angeles County High-Tech Industry Evolution

Focus on Post-Recession Recovery

Q2 -2015 Update

Produced by:

Marin Economic Consulting

January 8, 2016

Jon Haveman, Principal

415-336-5705 or Jon@MarinEconomicConsulting.com

Contents

Tech Sector Employment Growth Since 1990	2
Overview of Employment Changes Since Onset of Recession	3
Graphical Display of 4-digit Location Quotient Evolution by Industry	4
Descriptions and References	9

Tech Sector Employment Growth Since 1990

Table: Tech Employment Summary for Q2 -2015

	Share of Total Empl	Current Employment	Inc. Over Last Qtr (#)	Percent Growth Relative to:				
				Last Qtr	Last Year	.COM Peak*	Q4-07	Q1-10
Los Angeles County	6.7	278, 734	2, 188	0.8	-1.3	-35.1	-5.0	5.3
California	9.8	1, 493, 733	22, 087	1.5	3.2	16.3	7.4	17.6
United States	6.8	9, 542, 359	126, 669	1.3	2.7	24.7	4.8	13.1

Source: BLS, QCEW; Calculations by Marin Economic Consulting

* .COM Peak refers to the quarter of peak employment for Los Angeles County during the Tech bubble.

Figure 1: Tech Employment Growth Comparison with California and U.S.

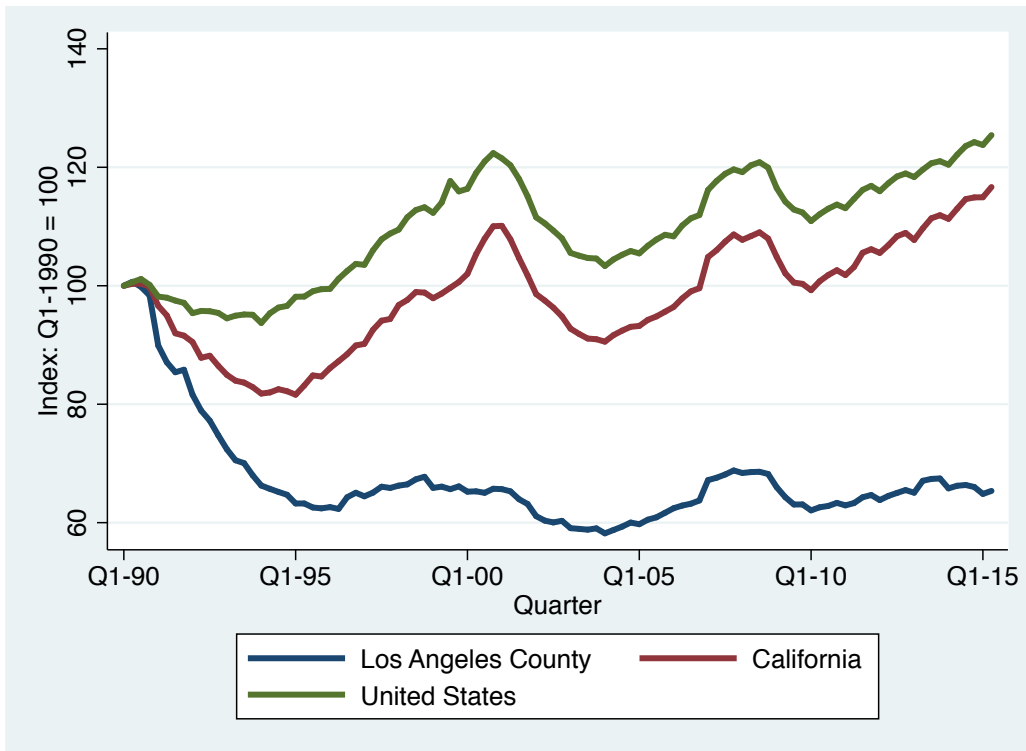


Figure 2: Employment Growth

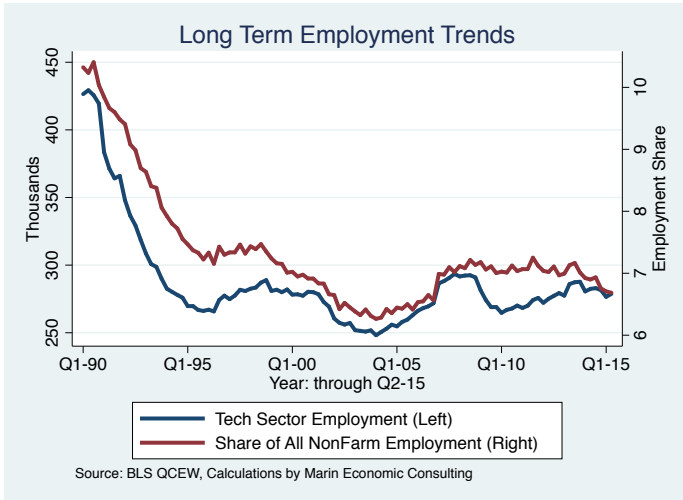
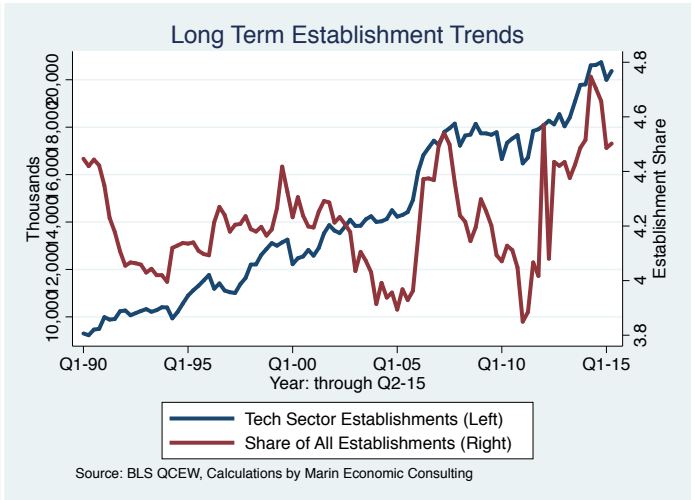
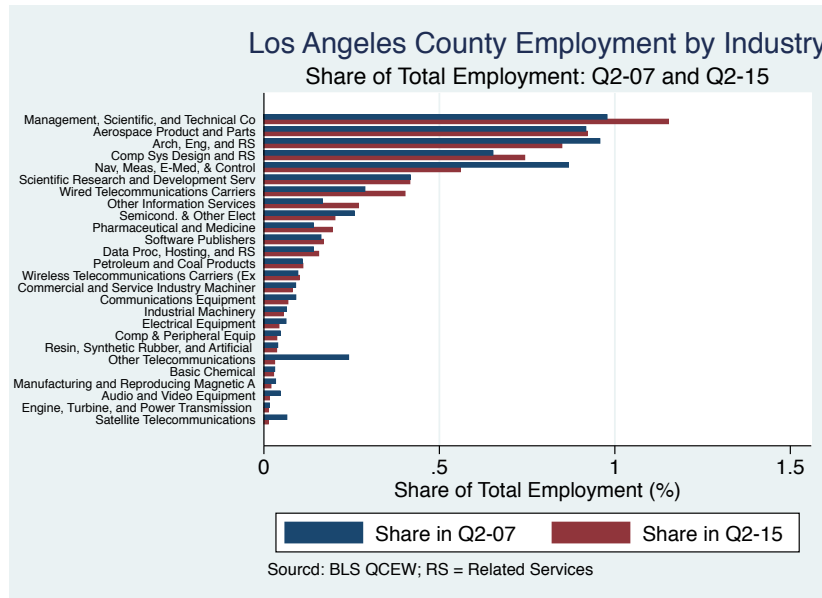


Figure 3: Establishment Growth



Overview of Employment Changes Since the Onset of the Great Recession

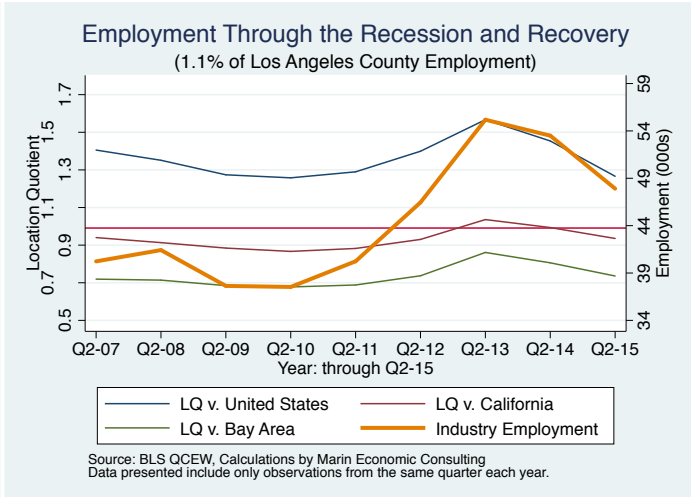
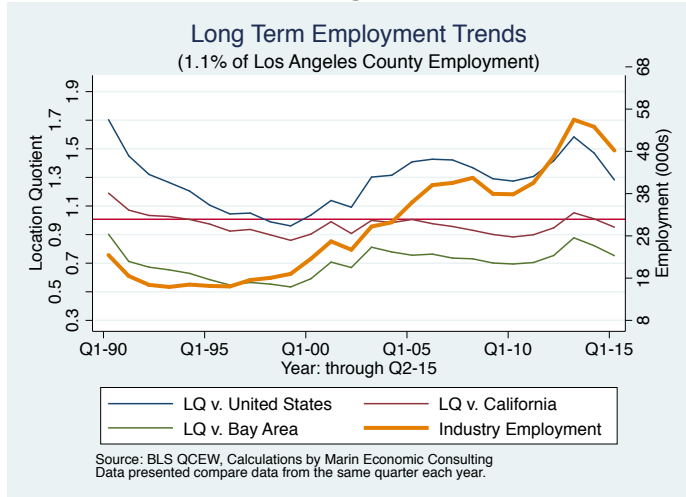
Figure 4: 4-Digit Technology Sector Shares



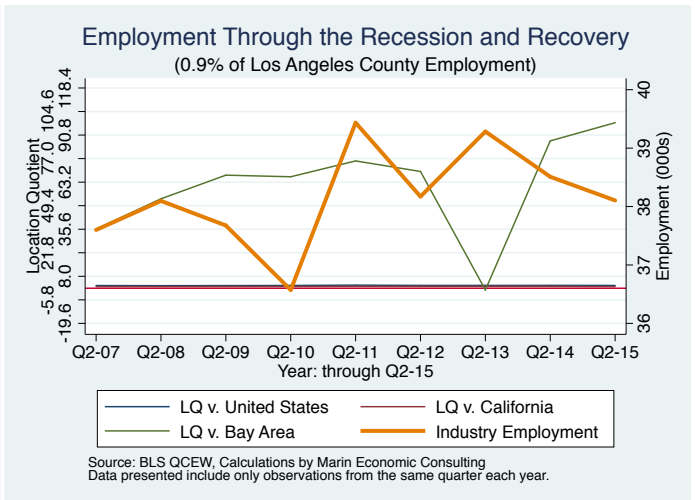
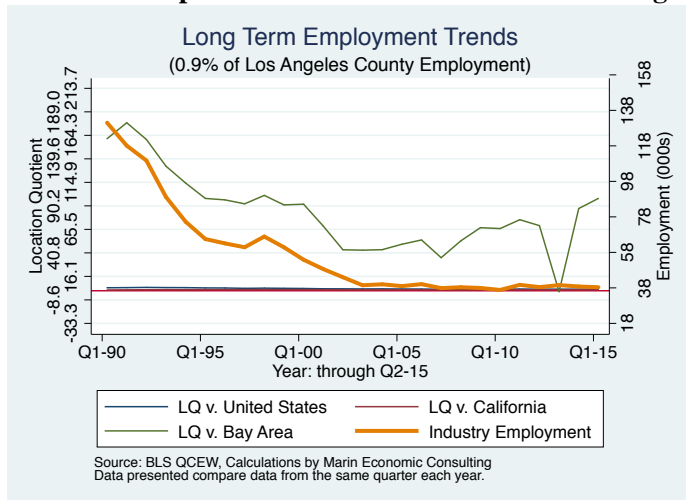
Graphical Display of 4-digit Location Quotient Evolution by Industry

Graphs present only Q2 data for each year for the 10 4-digit NAICS sectors with the largest share of total employment.

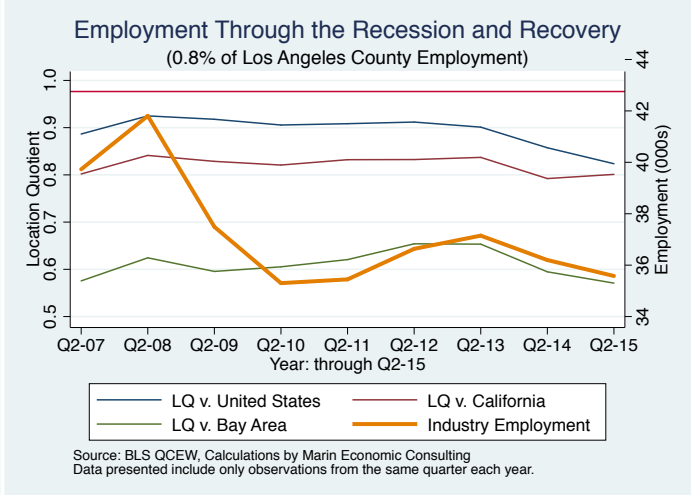
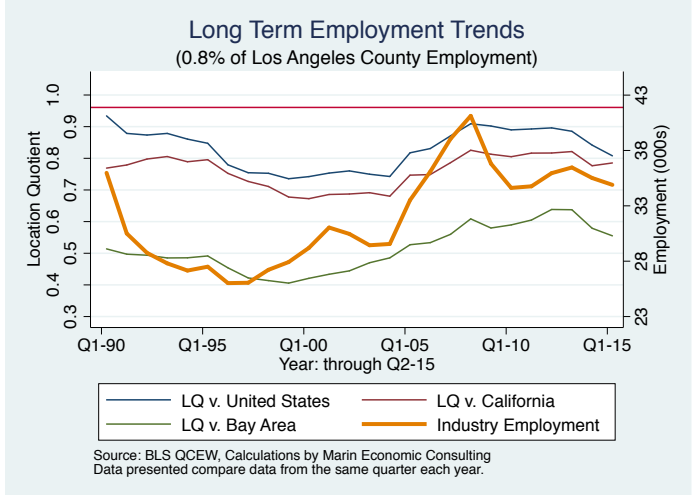
5416: Management, Scientific, and Technical Consulting Services



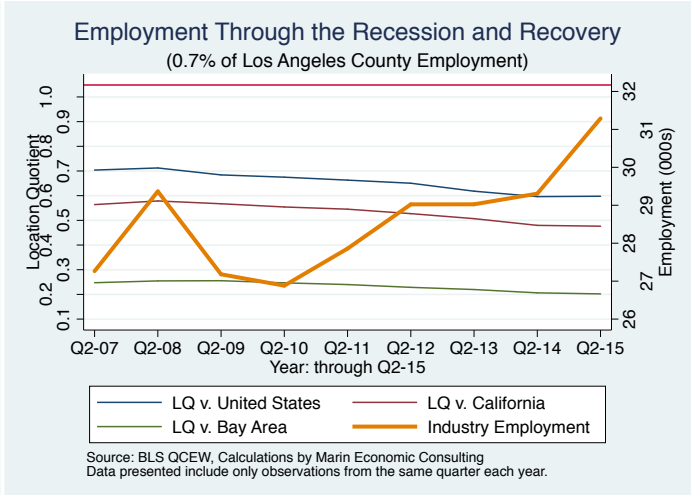
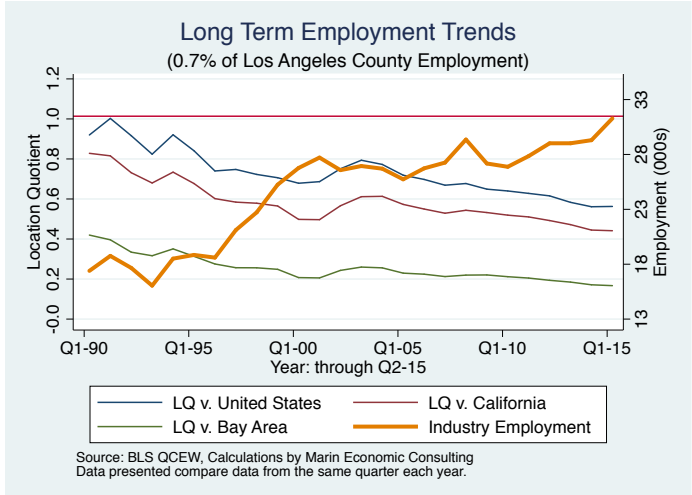
3364: Aerospace Product and Parts Manufacturing



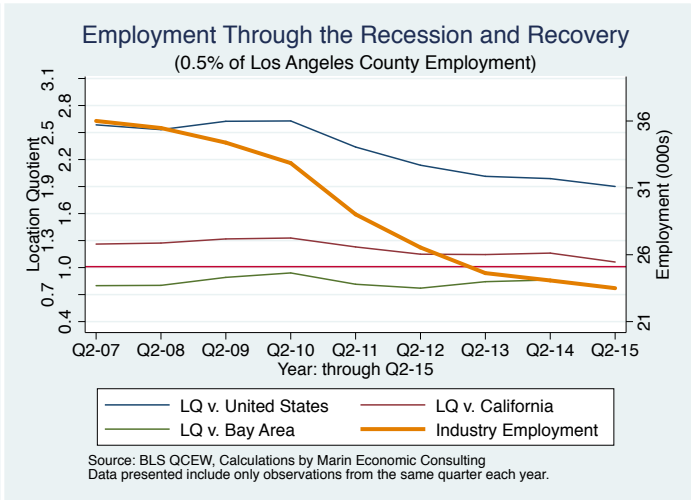
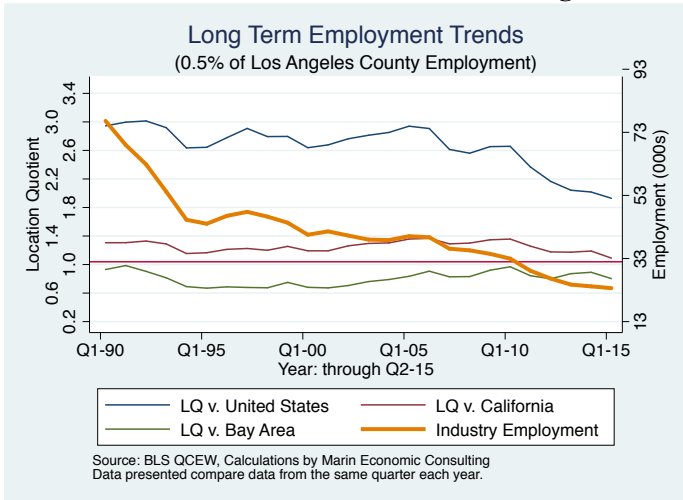
5413: Architectural, Engineering, and Related Services



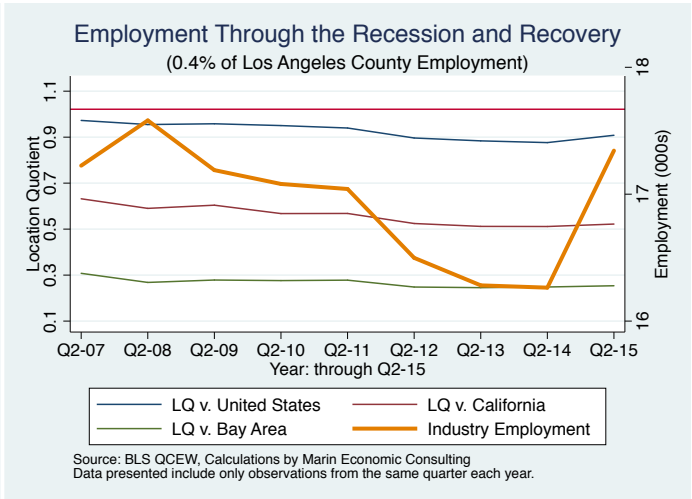
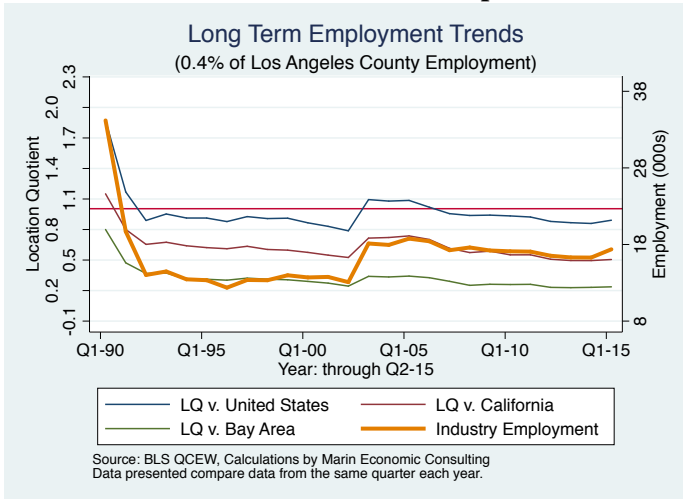
5415: Computer Systems Design and Related Services



3345: Navigational, Measuring, Electromedical, and Control Instruments Manufacturing

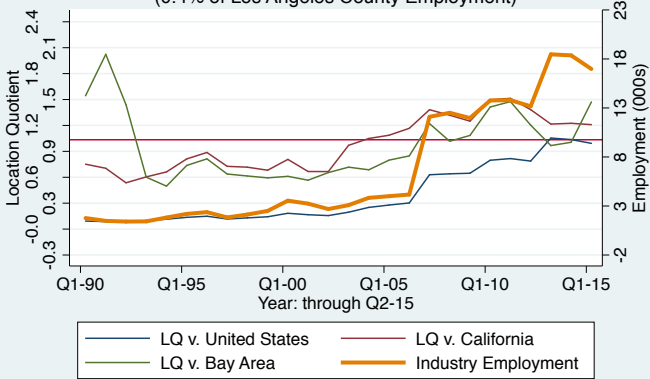


5417: Scientific Research and Development Services



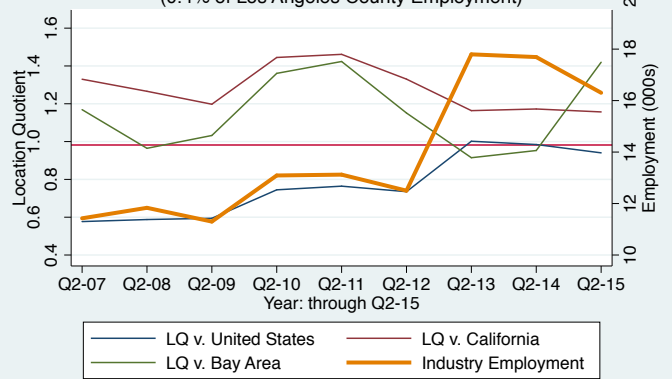
5171: Wired Telecommunications Carriers

Long Term Employment Trends
(0.4% of Los Angeles County Employment)



Source: BLS QCEW, Calculations by Marin Economic Consulting
Data presented compare data from the same quarter each year.

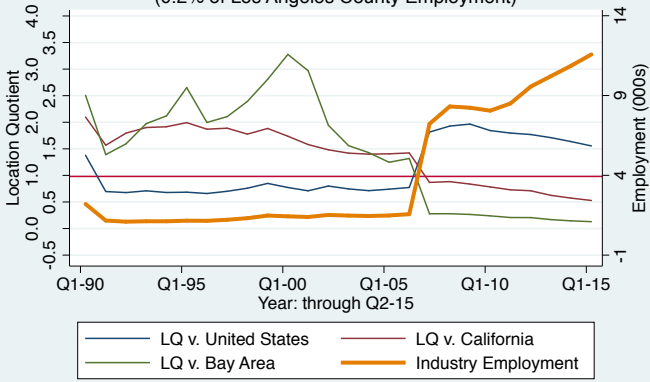
Employment Through the Recession and Recovery
(0.4% of Los Angeles County Employment)



Source: BLS QCEW, Calculations by Marin Economic Consulting
Data presented include only observations from the same quarter each year.

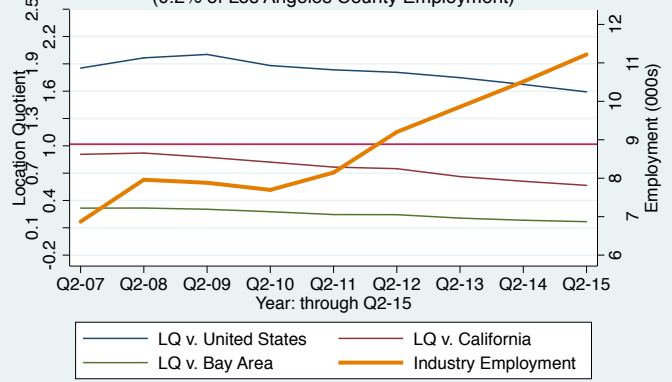
5191: Other Information Services

Long Term Employment Trends
(0.2% of Los Angeles County Employment)



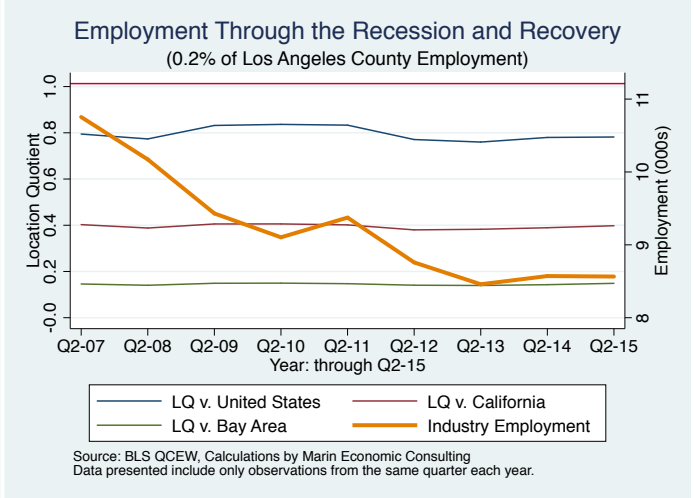
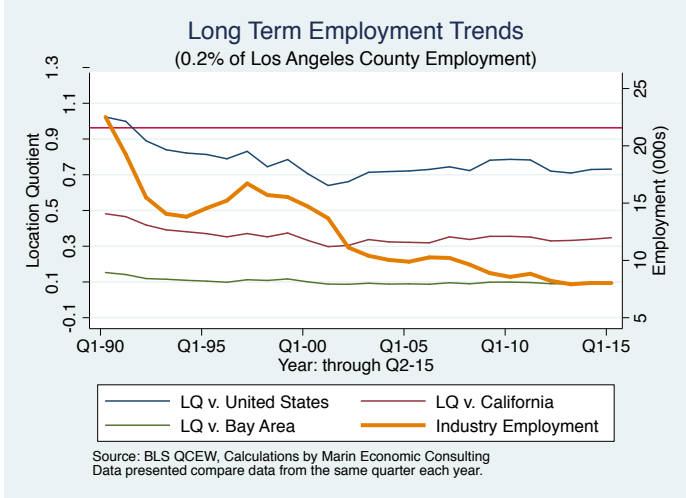
Source: BLS QCEW, Calculations by Marin Economic Consulting
Data presented compare data from the same quarter each year.

Employment Through the Recession and Recovery
(0.2% of Los Angeles County Employment)

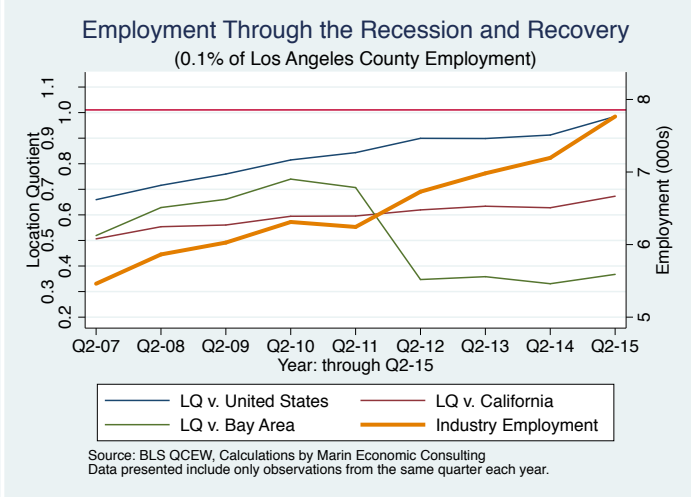
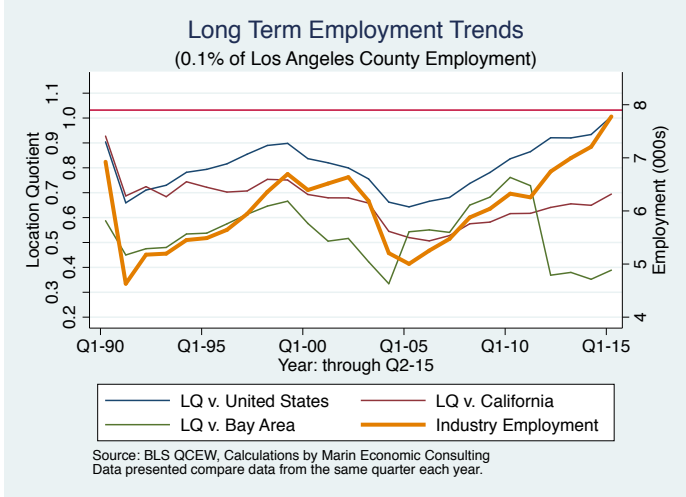


Source: BLS QCEW, Calculations by Marin Economic Consulting
Data presented include only observations from the same quarter each year.

3344: Semiconductor and Other Electronic Component Manufacturing



3254: Pharmaceutical and Medicine Manufacturing



Descriptions and References

The contents of this report illustrate the evolution of Los Angeles County technology employment patterns over time. A particular focus of this report is on the post-Great Recession recovery. This is accomplished by comparing the most recent quarter of data to the same quarter in 2007, the last non-recessionary year for most of California and the United States.

There are several types of data presented. They include:

Employment Levels: Employment levels indicate the number of non-farm payroll employees in each industry.

Employment Shares: Employment shares indicate the proportion of the region's employment that is accounted for by each industry.

Location Quotients: Location quotients are ratios of employment shares. When indicating a location quotient versus the California, it is the region's employment share divided by the employment share in California. Therefore, values greater than one indicate a higher concentration of employment in the industry in question and values less than one indicate a lower concentration. Location quotients are presented versus the Bay Area, California, and the United States, separately.

The data underlying this report are from the Bureau of Labor Statistics: Quarterly Census of Employment and Wages (QCEW). These data are available on a quarterly basis, generally with a 5 month lag from the end of the quarter to the release of the data.

QCEW: The Quarterly Census of Employment and Wages (QCEW) program publishes a quarterly count of employment and wages reported by employers covering 98 percent of U.S. jobs, available at the county, MSA, state and national levels by industry. <http://www.bls.gov/cew/home.htm>

Time Period: The data extend from Q1-1990 through Q2 -2015

Seasonality: There is a significant seasonal component to many industries. The QCEW data are not seasonally adjusted. Rather than seasonally adjusting the data, most comparisons in this report are between the same quarter in different years. The data presented are therefore the actual employment levels compared across years.

Tech Sector Definition: The 4-digit NAICS codes included in the definition of the High Tech sector are listed in the table below. This list is taken from a recent study by the Workforce Information Council: *Exploring the High-Tech Industry*¹ The Workforce Information Council is a partnership between the U.S. Bureau of Labor Statistics, state employment statistics agency representatives and other federal agencies, working together to plan, guide

¹ <http://www.workforceinfocouncil.org/Documents/High%20Tech%20Suite%20reduced.pdf>

and oversee the nationwide workforce information system. These NAICS sectors were determined as having 2.5 times the national proportion of employment in STEM occupations. Some of the industries identified in the report were excluded in this report (at the discretion of MEC, see table) as not reflecting the standard notion of the technology sector.

Table: 4-Digit NAICS Industries Included in Tech Sector Definition

NAICS	Description
3241	Petroleum and Coal Products Manufacturing
3251	Basic Chemical Manufacturing
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing
3254	Pharmaceutical and Medicine Manufacturing
3332	Industrial Machinery Manufacturing
3333	Commercial and Service Industry Machinery Manufacturing
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing
3341	Computer and Peripheral Equipment Manufacturing
3342	Communications Equipment Manufacturing
3343	Audio and Video Equipment Manufacturing
3344	Semiconductor and Other Electronic Component Manufacturing
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing
3346	Manufacturing and Reproducing Magnetic and Optical Media
3353	Electrical Equipment Manufacturing
3364	Aerospace Product and Parts Manufacturing
5112	Software Publishers
5171	Wired Telecommunications Carriers
5172	Wireless Telecommunications Carriers (except Satellite)
5174	Satellite Telecommunications
5179	Other Telecommunications
5182	Data Processing, Hosting, and Related Services
5191	Other Information Services
5413	Architectural, Engineering, and Related Services
5415	Computer Systems Design and Related Services
5416	Management, Scientific, and Technical Consulting Services
5417	Scientific Research and Development Services
The following industries are excluded from the studies findings:	
2111	Oil and Gas Extraction
2211	Electric Power Generation, Transmission and Distribution
4234	Professional and Commercial Equipment and Supplies Merchant Wholesalers
4236	Household Appliances and Electrical and Electronic Goods Merchant Wholesalers
4242	Drugs and Druggists' Sundries Merchant Wholesalers
4861	Pipeline Transportation of Crude Oil
5211	Monetary Authorities-Central Bank

Source: BLS - *Exploring the High-Tech Industry*