INDUSTRY CLUSTERS IN LOS ANGELES COUNTY

ECONOMIC AND POLICY ANALYSIS GROUP
By all measures, Los Angeles County is large. It is the most populous county in the nation, with 10 million residents in a land area of over 4,000 square miles. It is home to a diverse and dynamic workforce of almost 4 million, producing a gross regional product estimated to be $544 billion—larger than Switzerland, Saudi Arabia or Taiwan.

As the second decade of the 21st Century unfolds, we face challenges in preparing an educated and skilled workforce that is able to compete in the global marketplace, in allocating sufficient resources to maintain or deliver critically-needed infrastructure projects under strained budgets, in fostering a climate of technological innovation and product development, and in pursuing sustainable growth in the face of economic realities.

To sharpen our knowledge and better focus and tailor our policy and economic development efforts, we look towards new research in how industries compete, succeed and prosper, and new methods that will allow comparison of our performance against that of other regions.

Professor Michael E. Porter’s enduring work on the competitiveness of businesses and more recently of regions brings into focus how economic prosperity can be driven. Through groundbreaking work done at the Institute for Strategy and Competitiveness at Harvard Business School, and supported by the Economic Development Administration of the U.S. Department of Commerce, Professor Porter’s Cluster Mapping Project has defined industry clusters based on locational correlation of employment.

The geographic clustering of industries enables firms to both compete and collaborate, increasing demand for supplier industries, encouraging the growth of specialized local infrastructure, developing a pool of specialized labor, and, through rivalry and proximity, spurring innovation and new advancements.

The investments made by these firms in technology, innovation and the upgrading of their goods and services results in improved productivity. With the global market at their reach, improved productivity increases competitiveness, which in turn increases market share and drives industry growth, creating high-wage jobs and regional prosperity.

The first step of this virtuous cycle is to foster an environment where industry clusters can grow organically. Knowing our regional strengths and weaknesses provides us with a useful baseline on which we can build economic development strategies.

While there are a variety of methodologies to identify clusters, we chose the Cluster Mapping Project’s definitions primarily because they allow us to more clearly differentiate between traded industry clusters, in which competitive pressures spur innovation and expansion, and local-serving industry clusters, where the possibilities of expanding by selling outside of the region are limited.

In this catalog, we present a quantitative description of the L.A. County private sector economy using these new cluster definitions—data which we hope will highlight our strengths and weaknesses as we continue to implement the 12 objectives and 52 strategies of the Los Angeles County Strategic Plan for Economic Development.

INDICATORS
To assess the importance of our clusters, we use several measures.

- We first look at the size of the cluster in terms of employment, with the thinking that size does matter. We show the breakdown of the cluster by industry employment, providing a view of the composition of each cluster and the importance of each component industry.

- For the largest individual industries in the cluster, we report the average wages paid in Los Angeles County. Although these can vary widely from one industry to another, this may provide an indication of the productivity of the employees and the potential to address workforce challenges such as the up-skilling required by employers and the expected skill gaps of segments of our workforce.

- To account for business cycle activity, which can disproportionately depress some industries more than others, we also review how each cluster has performed over the decade, both in numbers of jobs and in jobs as a share of total county employment. By examining these trends we may be able to identify those clusters which are emerging, those which are mature, and those which appear to be in decline.

- Finally, for each traded industry cluster we calculate the location quotient. This is a measure of the employment concentration of the cluster in Los Angeles County compared to the nation. A location quotient of 1 indicates that our regional cluster employment concentration is equal to the national average, while a higher location quotient is indicative of regional specialization.

At this stage, we focus on our 14 largest traded industry clusters and the five largest local industry clusters. However, it is important to remember that these clusters reflect only private sector employment; for example, the Education and Knowledge Creation cluster does not include UC or CSU payrolls, and the Local Health Services cluster does not include county health care workers.

Finally, this is not a final analysis. We leave for future research more in-depth consideration of location quotients, growth prospects, historical trends, opportunities, wage growth, relative competitiveness with other regions, and the many other indicators of performance that will deepen our understanding of our regional economy.
Almost 28 percent of total county employment in 2010 was in traded industries.

Average annual wages in traded industry clusters are almost 40 percent higher than the county average, and more than 70 percent higher than the average wages in local industry clusters. However, not all traded clusters enjoy higher-than-average wages.

Traded industry employment has been steadily declining as a share of total employment, a worrisome trend.

Compared to the nation as a whole, Los Angeles County has a larger share of its employment in traded industry clusters, suggesting the increased potential for wealth creation through exports.
ENTERTAINMENT IS THE LARGEST TRADED INDUSTRY CLUSTER IN LOS ANGELES COUNTY, WITH 159,900 EMPLOYEES IN 2010.

More than 70 percent of the cluster’s employment is in motion picture and video industries, but performing arts and spectator sports are also large employers.

Entertainment as a share of total employment in the county over the past decade reached a high of 4.4 percent in 2004, but has remained fairly steady since, hovering at 4.1 percent.

Average annual wages in Entertainment are twice the county’s average, but there is a wide disparity among the individual industries that make up the cluster.

LA County Entertainment employment makes up 63 percent of California’s Entertainment employment and 15 percent of the nation’s Entertainment employment.
A COMBINATION OF TRANSPORTATION, LOGISTICS AND DISTRIBUTION SERVICES, TRADE IS THE SECOND LARGEST TRADED INDUSTRY CLUSTER IN LOS ANGELES COUNTY, WITH 157,200 EMPLOYEES IN 2010.

Wholesaling industries accounted for over half of the Trade cluster’s employment, with another 22 percent in transportation support activities.

Annual employment levels in 2009 and 2010 were the lowest of the decade. However, as a share of total employment in the county, Trade has remained fairly steady at 4.1 percent.

Computer & Supply Wholesale
Other Electronic Parts Whole
Electronic & Mail-Order Houses
Druggists’ Goods Wholesale
Transportation Support Activities
Air Transportation
Wholesale Agents & Brokers
All Other Trade
Trade Cluster Average
L.A. County Average
Fruit & Veg Wholesale
Apparel Wholesale
Warehousing & Storage
Travel Agencies

$88,302
$72,118
$67,926
$67,839
$62,085
$59,671
$59,390
$58,540
$58,344
$53,143
$51,686
$46,347
$45,860
$44,798

The cluster’s average annual wage is slightly higher than the county average. The highest wages are related to the wholesaling of technology-related products and to using technology in wholesaling activities.

With 4.2 percent of the nation’s Trade cluster employment, Los Angeles County’s location quotient of 1.4, although significant, may yet underestimate our regional strength since many self-employed workers, including long haul truckers, are not counted.

The ports of Los Angeles and Long Beach moved 14.1 million TEUs in 2010, fully one third of all container traffic in the U.S.
MORE THAN 16,000 ESTABLISHMENTS PROVIDE BUSINESS SERVICES IN LOS ANGELES COUNTY, WITH 143,200 EMPLOYEES IN 2010.

The largest three industries in the cluster account for 61 percent of the cluster’s employment.

A wide disparity exists between the highest- and lowest-earning industries in this cluster. Average annual wages in engineering services are five times that of employment placement.

Over the past decade, Business Services as a share of total employment in the county has risen steadily, peaking at 3.8 percent in 2008. While employment fell during the recession, prospects for this cluster remain promising.

Although Los Angeles County enjoys a regional concentration in management and technical consulting, the cluster as a whole is somewhat less concentrated than the nation.

Headquartered in Pasadena, the environmental consulting firm of Tetra Tech Inc. earned $2.2 billion in revenue in 2010 and reported 460 employees in Los Angeles County.
WITH A WEALTH OF EDUCATIONAL AND ENRICHMENT RESOURCES, LOS ANGELES COUNTY EMPLOYED 89,900 IN THIS PRIVATE SECTOR CLUSTER IN 2010.

Almost half of the cluster’s employment is in colleges and universities, and another 20 percent works in scientific research and development.

Average annual wages in the cluster are higher than the county average, but there is a wide disparity among the individual industries. The highest industry average annual wage is nearly five times that of the lowest.

Education and Knowledge Creation employment grew annually from 2002 through 2009, increasing its share of county employment by 0.3 percentage points. This growth suggests positive prospects for the cluster in Los Angeles County.

Los Angeles enjoys a higher concentration of employment in Education and Knowledge Creation than the nation.

The traded Education and Knowledge Creation cluster includes only private sector employment, not employees of institutions such as the UC or CSU systems, or of the many public community colleges.
THE FASHION CLUSTER, WHICH INCLUDES APPAREL, TEXTILES, FOOTWEAR, JEWELRY AND LEATHER GOODS INDUSTRIES, RANKS SECOND IN LOS ANGELES COUNTY IN TERMS OF REGIONAL CONCENTRATION, AND EMPLOYED 68,500 IN 2010.

The apparel manufacturing industry accounts for almost 70 percent of the cluster’s employment; an additional 8 percent work in the textile and fabric finishing and coating industry.

Fashion employment has steadily declined over the last decade, with the cluster’s share of total employment in the county falling by 0.8 percentage points since 2002.

While a significant industry cluster in terms of employment and concentration, average annual wages are relatively low. Average annual wages in most Fashion industries are below the county average.

More than 73 percent of California’s Fashion cluster employment is in Los Angeles County.

AT-A-GLANCE
2010

# of Employees
68,500

Average Annual Wage
$36,234

Location Quotient
4.2

With almost 13 percent of the nation’s Fashion cluster employment, Los Angeles County’s high location quotient of 4.2 reflects our regional strength in this industry.
HOSPITALITY AND TOURISM INCLUDES HOTELS, AMUSEMENT PARKS, PASSENGER CAR RENTAL, TRAVEL ARRANGEMENT SERVICES AND MORE, WITH 61,100 EMPLOYEES IN LOS ANGELES COUNTY IN 2010.

The accommodation industry is at the forefront of the cluster’s employment in Los Angeles County, accounting for almost two-thirds of total cluster employment.

Average annual wages in Hospitality and Tourism are lower than the county average by almost $20,000. The industry with the most employment also has one of the lowest average annual wages.

Hospitality and Tourism post-recession employment levels have declined since reaching their peak in 2008, but the share of total county employment has remained fairly steady at 1.6 percent since 2002.

While Hospitality and Tourism in Los Angeles County is large, its location quotient indicates its employment is less concentrated than in the nation.

Los Angeles hosted an estimated 26.9 million overnight visitors in 2011, with direct spending totaling $15.2 billion.
Financial Investment, credit intermediation and related industries comprise 80 percent of the total employment in Los Angeles County’s Financial Services cluster.

Financial Investment is a large traded industry cluster in Los Angeles County, with 53,700 employees in 2010.

<table>
<thead>
<tr>
<th>Industry</th>
<th># of Employees</th>
<th>Average Annual Wage</th>
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<tr>
<td>Financial Investment and Related</td>
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<td>$133,189</td>
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<td>Offices of Bank Holding Companies</td>
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<td>$129,913</td>
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<td>Financial Services Cluster Average</td>
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<td>$96,726</td>
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<tr>
<td>Offices of Other Holding Companies</td>
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<td>Insurance Carriers</td>
<td>$96,726</td>
<td>$73,554</td>
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<td>Monetary Authority - Central Bank</td>
<td>$85,690</td>
<td>$60,397</td>
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<td>Funds/Trusts/Other Financial</td>
<td>$73,554</td>
<td>$53,143</td>
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<tr>
<td>Credit Intermediation and Related</td>
<td>$60,397</td>
<td>$46,546</td>
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<tr>
<td>L.A. County Average</td>
<td>$53,143</td>
<td></td>
</tr>
<tr>
<td>Passenger Car Leasing</td>
<td>$46,546</td>
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Average annual wages in Financial Services are twice the county’s average. All industries in this cluster, with the exception of passenger car leasing, pay average annual wages that exceed the county average.

Employment reached a peak in 2006 with 67,000 employees. Since then, both Financial Services employment and its share of total county employment have steadily declined.

During the first half of 2011, total deposits made to commercial banks, savings institutions and U.S. branches of foreign banks located in Los Angeles County totaled $252.9 billion.

Although Los Angeles County has a relatively large Financial Services cluster, it is less concentrated than in the nation.
PROCESSED FOOD IS THE EIGHTH LARGEST TRADED INDUSTRY CLUSTER IN LOS ANGELES COUNTY, WITH NEARLY 39,000 EMPLOYEES IN 2010.

The distribution of employment among the individual industries in this cluster is broad. **Bakeries and tortilla manufacturing** accounts for the largest share, with **27 percent** of the cluster’s employment.

Processed Food employment has been **declining steadily** since 2002, as has its share of total county employment.

A wide variety of foods is manufactured in Los Angeles County, including breads and tortillas, meat products, frozen foods, dairy products, confections and pet foods.

**PROCESSED FOOD**

**AT-A-GLANCE**

2010

<table>
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<th># of Employees</th>
<th>38,900</th>
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<td>Average Annual Wage</td>
<td>$50,152</td>
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<td>Location Quotient</td>
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</table>

The employment concentration of this cluster in Los Angeles County is equal to that for the nation.
WITH HISTORIC ROOTS IN LOS ANGELES COUNTY, THERE WERE 36,800 EMPLOYED IN THE PRIVATE AEROSPACE CLUSTER IN 2010.

In Los Angeles County, employment in this cluster is almost entirely working in the manufacture of aerospace products and parts.

Although employment has been on a downward trend, the cluster’s share of total county employment has demonstrated some resilience since the recession.

While not large, Aerospace’s employment concentration in Los Angeles County reflects a continuing regional strength in this industry.

Over half of the state’s employment in this vitally-important cluster, and more than 7 percent of the nation’s employment, occurs in Los Angeles County.
More than 75 percent of this industry cluster is employed in the manufacture of sophisticated aerospace and aeronautical instrumentation.

The high-skilled nature of occupations in the Analytical Instruments cluster command average annual wages almost double the county’s average.

The trends in both employment levels and in employment share of the county total reveal that this industry cluster is facing challenges.

Providing instrumentation for the Aerospace cluster, Analytical Instruments is a cluster with a high employment concentration, reflecting our regional strength.

Raytheon’s Space and Airborne Systems, headquartered in El Segundo, is a leader in space and missile technology, producing airborne radar systems, precision guidance systems and intelligence and surveillance systems.
PUBLISHING AND PRINTING, INCLUDING BOOK AND DIRECTORY PUBLISHING, MUSIC PUBLISHING, INTERNET PUBLISHING AND BROADCASTING AND WEB SEARCH PORTALS, HAD 28,900 EMPLOYEES IN LOS ANGELES COUNTY IN 2010.

Three industries account for over 70 percent of the cluster’s employment: printing and related support activities, internet publishing and broadcasting and web search portals and book and directory publishers.

Average annual wages in Publishing and Printing exceed the county average by more than $20,000, but there is a wide disparity among the individual industries that make up the cluster.

Publishing and Printing employment levels have declined significantly since the recession, losing 7,500 jobs since its peak in 2007, a loss of 20 percent. The declining share of total county employment masks recent growth in digital publishing employment.

Closely aligned with entertainment industries, Publishing and Printing employment is more highly concentrated in Los Angeles County than in the nation.

Web portal search engine giants Google and Yahoo are large employers in Los Angeles County, and video game developers such as Naughty Dog, Activision Blizzard, Electronic Arts and Insomniac have been developing a strong sub-cluster.
METAL MANUFACTURING, PROVIDING A RANGE OF METAL PRODUCTS AND SERVICES TO REGIONAL INDUSTRIES, EMPLOYED 26,100 IN LOS ANGELES COUNTY IN 2010.

Coating, engraving and heat treating accounts for 25 percent of total cluster employment, and the manufacture of threaded products contributes another 20 percent.

The Metal Manufacturing cluster has been declining in Los Angeles County over the past decade in terms of both employment levels and employment share, demonstrating the challenge of retaining this cluster.

Average annual wages in Metal Manufacturing fall below the county average, but there are some individual industries in which workers enjoy higher wages.

The Metal Manufacturing cluster continues to demonstrate a regional specialization in Metal Manufacturing compared to the nation, but this specialization is under threat.

Providing specialized products for the ports, refineries and water distribution and transmission industries, Metal Manufacturing has played an important role in the development of infrastructure in Los Angeles County.
THE BIOMEDICAL CLUSTER COMBINES THE BIOPHARMACEUTICAL AND MEDICAL DEVICE CLUSTERS, WHICH TOGETHER EMPLOYED 23,100 IN LOS ANGELES COUNTY IN 2010.

Fully one-third of the cluster’s employment is in the manufacturing of medical equipment and supplies, and an additional third is employed in pharmaceuticals and electromedical apparatus manufacturing. Toilet preparations, such as perfume, face creams and sunscreen, accounted for 18 percent.

The highly skilled nature of most occupations in the Biomedical cluster command higher wages than the county average.

While this small industry cluster has shown some year-over-year variation, its share of total county employment has remained relatively stable over the past decade and has shown promise since the recession.

While employment in this cluster is only somewhat more concentrated than the nation as a whole, Los Angeles County has been the home of numerous biomedical breakthroughs, including the most advanced cochlear implant technology worldwide, the first insulin pump, and the only FDA-approved integrated diabetes management system.

In the third quarter of 2011, over $43.2 million in venture capital was invested in biotech companies in Los Angeles County.
INFORMATION TECHNOLOGY

INFORMATION TECHNOLOGY, INCLUDING COMPUTER AND PERIPHERAL MANUFACTURING, SOLAR CELL MANUFACTURING, SOFTWARE PUBLISHING AND SATELLITE COMMUNICATIONS, EMPLOYED 20,900 IN LOS ANGELES COUNTY IN 2010.

More than 25 percent of the cluster’s employment is in software publishing, but wireless carriers and semiconductor and printed circuit board manufacturers are also large employers.

The highly skilled occupations in this industry cluster command higher average annual wages than the county average, many significantly higher.

While the Information Technology cluster is still quite small, its share of total county employment has been trending upwards since the recession, an encouraging sign.

Spectrolab, Inc., a leading manufacturer of space solar cells and panels and terrestrial concentrator solar cells, broke industry records with its development of a solar cell with the ability to convert 41.6 percent of the sun’s rays into electric power.
LOCAL HEALTH SERVICES IS THE LARGEST LOCAL INDUSTRY CLUSTER IN LOS ANGELES COUNTY, WITH 378,800 EMPLOYEES IN 2010.

Nearly half of the employment in this cluster is in ambulatory health care (offices of health practitioners); almost 30 percent is employed in hospitals.

Average annual wages in Local Health Services are just less than the county average, but disparities exist among the individual industries that make up the cluster, and among the occupations within each industry.

Employment in this cluster has been growing steadily, both in terms of levels of employment and as a share of total county employment. By 2010, this cluster accounted for ten percent of total county employment.

AT-A-GLANCE
2010

# of Employees 378,800
Average Annual Wage $52,489
LOCAL COMMERCIAL SERVICES IS THE SECOND LARGEST LOCAL INDUSTRY CLUSTER IN LOS ANGELES COUNTY WITH 350,800 EMPLOYEES IN 2010.

This is a diverse cluster composed of a variety of industries and occupations.

Average annual wages in Local Commercial Services are just slightly higher than the county average, but there is a wide disparity among the individual industries in the cluster.

Employment in this cluster and its share of total employment in the county were relatively stable earlier in the decade, but both measures have been in steep decline since the start of the recession. By 2010, this cluster accounted for nine percent of total county employment.

AT-A-GLANCE
2010

# of Employees
350,800

Average Annual Wage
$55,632
LOCAL HOSPITALITY

LOCAL HOSPITALITY ESTABLISHMENTS IS THE THIRD LARGEST LOCAL INDUSTRY CLUSTER IN LOS ANGELES COUNTY, WITH 302,700 EMPLOYEES IN 2010.

Food services and drinking places account for the majority of this cluster, with an employment share of 92 percent.

Employment in this cluster has been resilient: as a share of total county employment, it has risen by nearly a full percentage point over the past decade. By 2010, this cluster accounted for eight percent of total county employment.

Average annual wages in Local Hospitality are one third of the county average, probably reflecting the part-time nature of most occupations in this cluster.

AT-A-GLANCE 2010

# of Employees
302,700

Average Annual Wage
$18,330
LOCAL REAL ESTATE, CONSTRUCTION AND DEVELOPMENT IS THE FOURTH LARGEST LOCAL INDUSTRY CLUSTER IN LOS ANGELES COUNTY, WITH 198,600 EMPLOYEES IN 2010.

More than 34 percent of the cluster’s employment is in specialty trade contractors, and another 25 percent is in real estate.

Employment in this cluster was directly affected by the housing bubble: more than 75,000 jobs were lost from the peak in 2006 to 2010. As a share of total county employment, the cluster’s fell from a high of 6.6 percent to 5.2 percent during that period.

The average annual wage in local real estate, construction, and development is only slightly less than the county average, but there is a wide disparity among the individual industries that make up the cluster.
Food, beverage and tobacco stores account for 70 percent of total cluster employment, while wholesalers account for an additional 20 percent.

Average annual wages in the cluster are significantly less than the county average, a function of the occupational makeup of these industries and possibility their part-time nature.

In spite of a fall in employment since the recession, the cluster’s share of total county employment has risen steadily over the past decade. By 2010, this cluster accounted for 3.3 percent of total county employment.

LOCAL FOOD AND BEVERAGE PRODUCTION AND DISTRIBUTION IS THE FIFTH LARGEST LOCAL INDUSTRY CLUSTER IN LOS ANGELES COUNTY, WITH 126,100 EMPLOYEES IN 2010.
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Information on the Institute for Strategy and Competitiveness and the Cluster Mapping Project can be found at http://www.isc.hbs.edu/index.html
Cluster data for Los Angeles County were compiled using the NAICS definitions of industries from:
California Employment Development Department, Labor Market Information Division, Quarterly Census of Employment and Wages http://www.labormarketinfo.edd.ca.gov/qcew/cew-select.asp

Page 5:
Port of Los Angeles http://www.portoflosangeles.org/idx_maritime.asp
Port of Long Beach http://www.polb.com/economics/stats/default.asp
American Association of Port Authorities http://www.aapa-ports.org/Industry/?&navItemNumber=494

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National Science Foundation http://nsf.gov/statistics/

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Federal Deposit Insurance Corporation http://www.fdic.gov/bank/statistical/

Page 13:
Raytheon Company Web-site http://www.raytheon.com/

Page 14:
Google http://www.google.com/about/
Yahoo http://info.yahoo.com/center/us/yahoo/
Naughty Dog http://www.naughtydog.com/company/
Treyarch (Activision) http://www.treyarch.com/about
Electronic Arts http://aboutus.ea.com/home.action
Insomniac http://www.insomniacgames.com/about/

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