

## GROWTH and EMPLOYMENT



*Reversal of Fortune:*

*Will San Francisco*

*Suffer L.A.'s Fate?*

*by*

*Michael Dardia and Elisa Barbour*

In the late 1990s, the San Francisco Bay Area economy seemed to defy gravity in its role as the center of the “new economy” created by information technology. Regional unemployment almost vanished while the stock market - and personal income and housing prices along with it - soared ever higher. Regional leaders worried about finding enough workers for local firms and building enough housing and transit to accommodate them. Business cycles were seen as a vestige of the “old economy”. The severe recession ten years earlier in Los Angeles – driven by declines in aerospace and construction - seemed to belong to a different world.

*continued inside...*

# Reversal of Fortune: Will San Francisco Suffer

*The San Francisco Bay Area, often viewed as the home of the new economy, has suffered worse job losses than L.A. did when its aerospace industry went bust. The region is much more dependent upon information technology than L.A. was on aerospace, raising concerns that San Francisco might face years of sluggish growth. This issue compares the two regional recessions and assesses the prospects for the Bay Area.*



*continued from the cover*

When the internet bubble and its stock market boom went bust in early 2000, few realized at first how quickly the regional economy would mirror the “old economy” experience of Los Angeles. Although employment continued to increase through 2000, a year later the region had lost more than 200,000 jobs and regional leaders and residents began to worry that the Bay Area might be doomed to repeat the earlier fate of Los Angeles. Tales of moving van shortages appeared in local newspapers as vacancy signs reappeared at apartment buildings and scores of newly-completed office buildings sat empty.

This article compares the experience of California’s two largest metro areas over the past twenty

years and considers whether the Bay Area’s economic rebound is likely to be as slow and unsteady as it was in Los Angeles. After the 1990 recession in Los Angeles, total employment did not regain its December 1989 peak for almost ten years. The Los Angeles recession was seen as largely driven by the sharp decline in its aerospace industry – and yet information technology industries represented a much larger share of employment in the San Francisco Bay Area in 2000 than aerospace did in the Los Angeles region in 1990. Despite this greater dependency upon its leading sector, and even deeper job losses, the Bay Area may escape Los Angeles’ prolonged stagnation thanks to favorable interest rates and demographics (such as its more highly-educated workforce). The race between rising interest rates and increasing job growth will determine whether the Bay Area will be lucky or not.

## **Regional Employment Patterns in the 1980s and 1990s**

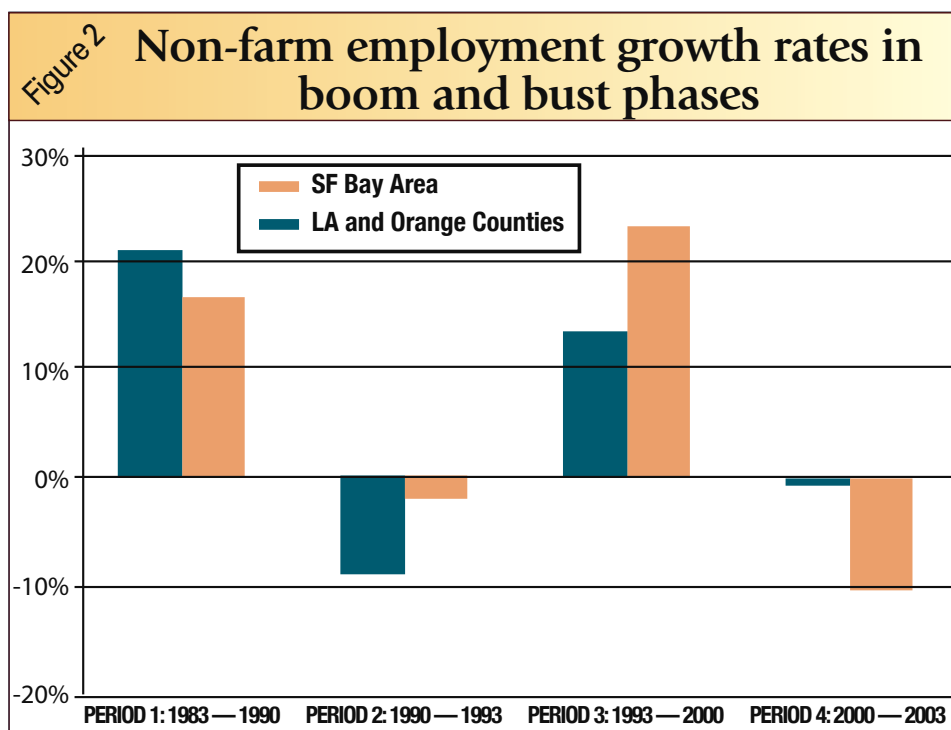
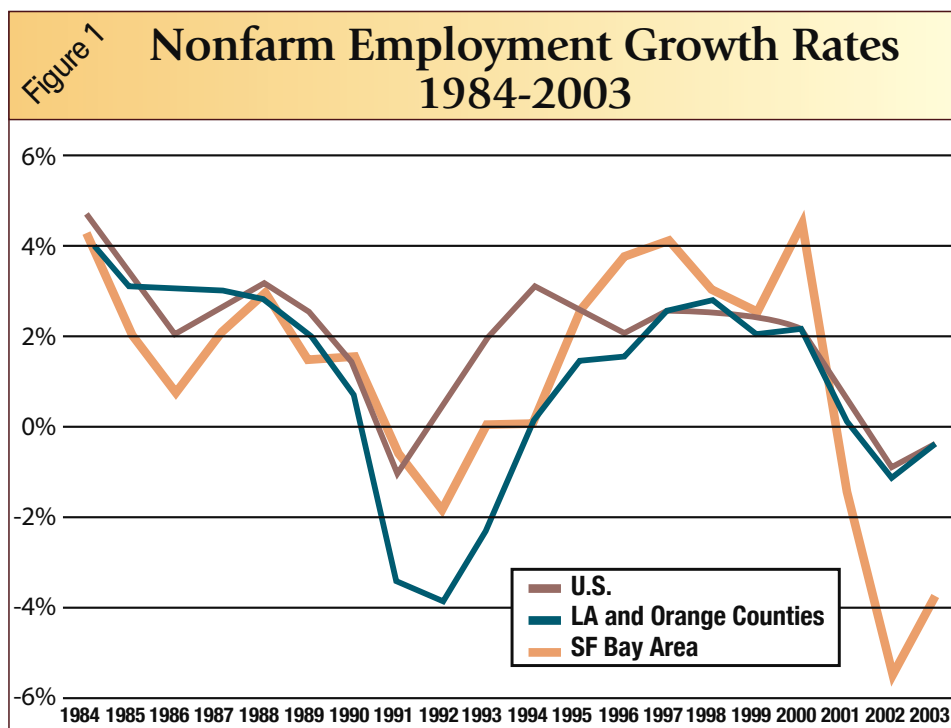
Over the past two decades the national economy experienced

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two major business cycles. During the 1980s expansion, employment growth in California's two largest regions - the Los Angeles and San Francisco metropolitan areas - did not diverge dramatically from national rates, as **Figure 1** shows. The Los Angeles economy benefited enough from the defense buildup to avoid any slowdown in the middle of the decade but never diverged from the national growth rate by more than one percentage point. However, during the 1990s the two regional economies lagged behind the national recovery, with San Francisco then outpacing the nation from 1995 to 2000 and Los Angeles merely matching national growth from 1997 on. An important explanation for this divergence is the changing fortune of the regions' leading high-tech industries.

Four time periods are examined in this article - two expansion cycles followed by two recessions. (**Figure 2**) The periods are defined by the peaks and troughs in total non-farm employment in the two regions. Economic cycles are related to employment within



the two regions. The Los Angeles region includes the Los Angeles and Orange County metropolitan areas, while the San Francisco Bay Area region includes the San Jose, Oakland, and San Francisco metropolitan areas.<sup>1</sup>

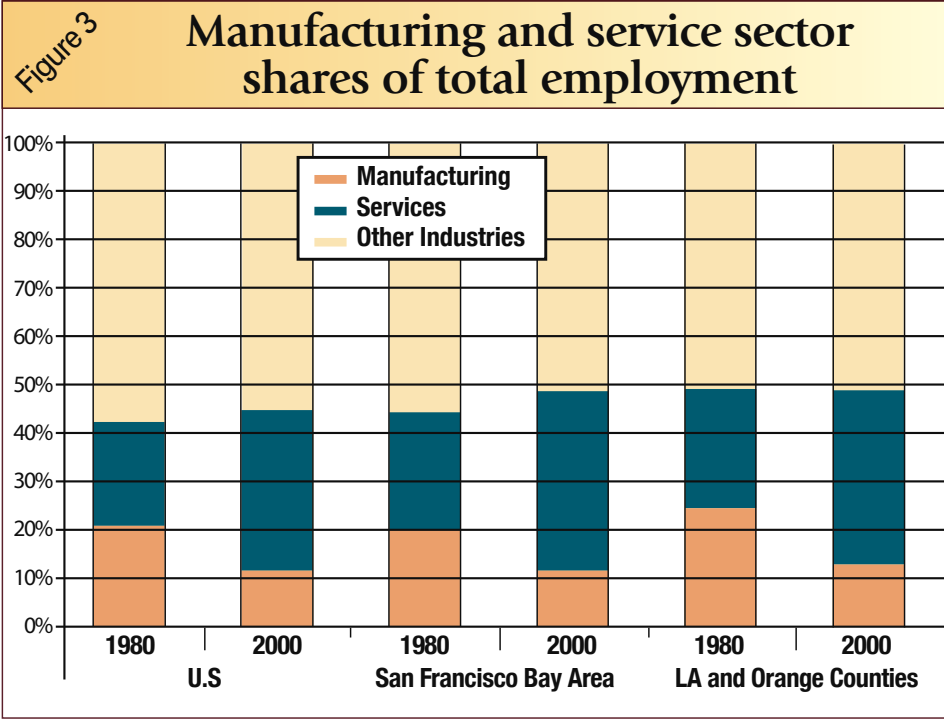
During the 1980s, growth in the Los Angeles area outpaced the San Francisco Bay Area, but then the Los Angeles region slid into a much more severe recession at the end of the decade. Almost

exactly ten years later the regions' roles were reversed. The Bay Area economy grew even more rapidly than Los Angeles had, while the Los Angeles region lagged behind. The recession of the early 2000s also forms a parallel, although it has not lasted as long as the recession of the early 1990s. From 2000 to 2003, employment in the Bay Area declined by 10%, compared to less than 1% in Los Angeles during the same period.

**Aerospace Industries and Growth in the Los Angeles Region**

During the past two decades, California's regions underwent the same broad shift from a manufacturing-based economy to one based more on service industries (Figure 3). The chart shows that manufacturing employment declines were primarily steep in the Los Angeles area, long the nation's largest manufacturing concentration, while the rise in service employment was most pronounced in the Bay Area.

Underlying this overall trend were the fates of individual industrial sectors that help explain the differing regional business cycles. During the 1980s, the Los Angeles region was the center of the national defense buildup, receiving more Department of Defense contracts and related research and development spending than any other region.<sup>2</sup> Federal contracts – along with commercial aircraft production – helped make aerospace California's dominant high-tech industry in



<sup>1</sup>The Los Angeles Metropolitan Statistical Area (MSA) consists of Los Angeles County, the Orange County MSA consists of Orange County, the San Jose MSA consists of Santa Clara County, the Oakland MSA consists of Alameda and Contra Costa Counties, and the San Francisco MSA consists of San Francisco, Marin, and San Mateo Counties. Employment figures come from the Employment by Industry Data compiled by the California Employment Development Department, unless otherwise noted.

<sup>2</sup>Robert D. Atkinson, "Defense Spending Cuts and Regional Economic Impact: An Overview," *Economic Geography*, Volume 69, No. 2, pp. 107-122, April, 1993

the 1980s.<sup>3</sup> The industry had a highly-educated and highly-paid workforce, along with a dense local network of specialized subcontractors that had developed over forty years of military aerospace production. The growth in the Los Angeles regional economy in the 1980s was propelled not only by the defense buildup, but by large-scale immigration and a construction boom as well. At the peak of employment in 1986, aerospace jobs represented a third of manufacturing employment, and 7.4% of total regional employment.<sup>4</sup> Other manufacturing jobs related to the aerospace sector brought that share up to 10% or more. Job gains due to aerospace and related manufacturing accounted for approximately one in six new jobs in the 1980s expansion in Los Angeles.

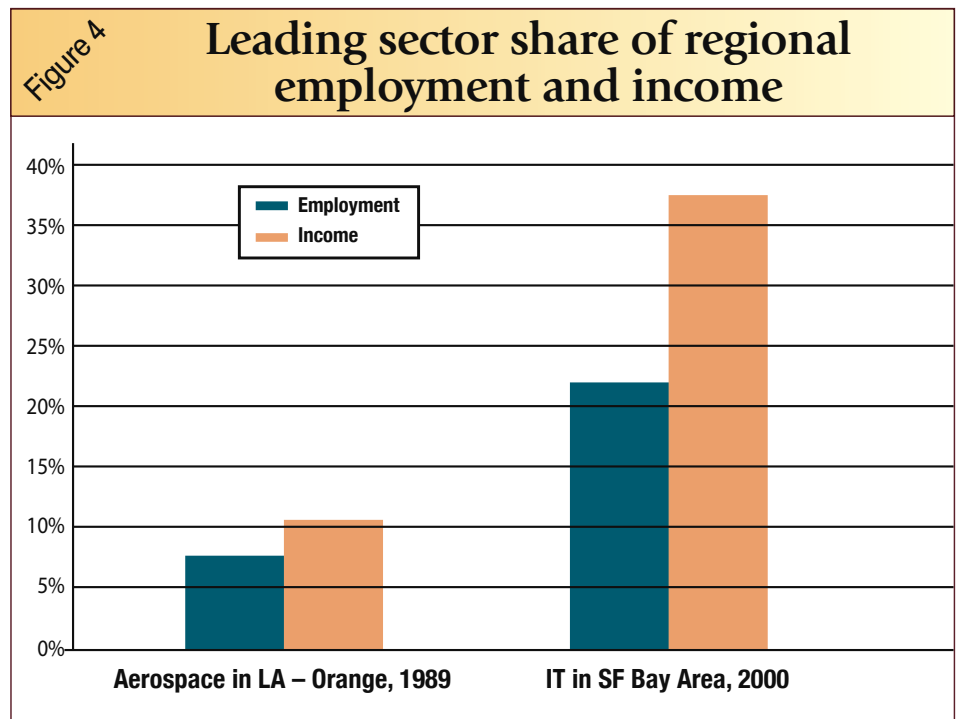
### Information Technology and Growth in the Bay Area

Like the Los Angeles economy during the 1980s and early 1990s, the Bay Area boom and bust in the following decade was also

driven largely by the trajectory of its main high-tech sector – information technology (IT). However, the nature of the high-tech sector itself was changing rapidly during this period. During the 1990s, the software side of technology grew in importance as computer service-related applications such as software, multimedia, and internet development grew rapidly.<sup>5</sup> Thus, the broader shift from manufacturing to service employment

was amplified within high-tech industries themselves. In the San Francisco Bay Area, the service-related share of employment in IT industries increased from 46% of jobs in 1988 to 59% of jobs in 2001.

The growth in IT industries benefited the San Francisco Bay Area economy tremendously, particularly in the San Jose metropolitan area, which was the world’s leader in software development



Source: California Employment Development Department, Covered Employment and Wages (2000); authors’ calculations from U.S. Bureau of Economic Analysis Local Area Personal Income data (1990).

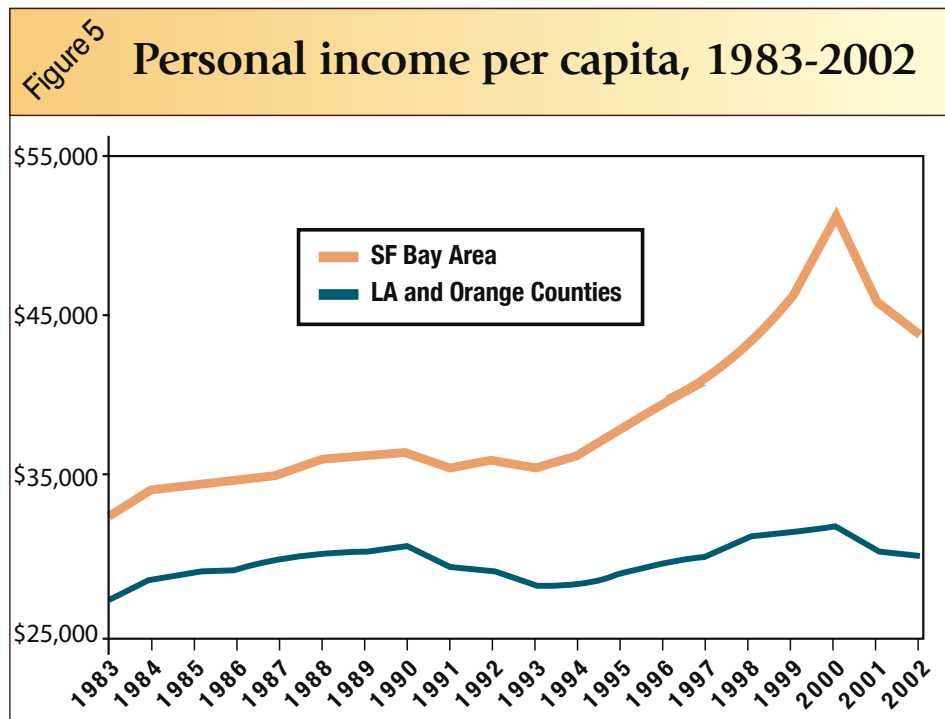
<sup>3</sup>Milken Institute, *California in the 21st Century: State of the State*, Santa Monica, CA, November 5, 1999

<sup>4</sup>In this analysis, the aerospace sector is defined by employment for the following Standard Industrial Classification (SIC) codes: 366 (communications equipment), 367 (electronic components), 372 (aircraft and parts), 376 (missiles, spacecraft, and parts), 381 (search and navigation equipment), 382 (measuring and controlling devices), and 346 (metal forgings and stampings).

<sup>5</sup>Our definition of information technology (IT) industries is consistent with that used in “Information Technology and Growth in the Twelfth District,” by Mary Daly, *Federal Reserve Bank of San Francisco Economic Letter*, November 9, 2001, to capture “the vast majority of the District’s technology firms”. In this analysis, the IT sector consists of the following SIC codes: all employment in SIC 357 (computer and office equipment), SIC 36 (electronic equipment), SIC 38 (instruments and related products), SIC 87 (engineering and management), and, for the 6-county San Francisco Bay Area, half of employment in SIC 73 (business services); for Los Angeles and Orange Counties, 20% of employment in SIC 73. The included share of employment in SIC 73 by region was based

and production during the 1990s.<sup>6</sup> Although employment in IT industries grew rapidly in many U.S. metropolitan areas during the decade, the San Jose metropolitan area outranked all others by a wide margin in terms of the local and national importance of its high tech concentration.<sup>7</sup> From 1993 to 2000, the Bay Area IT sector grew by 45%, twice as rapidly as overall job growth in the region. Supporting industries - especially business services - were also fueled by the information technology boom.

Growth in business service employment<sup>8</sup> was phenomenal, at 98% during the same period. Although much of this was due to widespread use of technical contractors through personnel agencies, there was also a large increase in specialized legal and financial services. Together, information technology and business services accounted for half of all job growth in the Bay Area from 1993 to 2000. In contrast, these sectors accounted for 25% of all job growth in the Los Angeles region during the same period.



Source: U.S. Bureau of Economic Analysis, regional accounts data.

Even more dramatic than the effect of the information technology sector on employment in the Bay Area was its effect on income. As **Figure 4** shows, the information technology sector represented 38% of the total payroll in the Bay Area in 2000, almost twice the sector's share of total non-farm employment.<sup>8</sup> High salaries and bonuses in the information technology sector helped propel a rapid rise in personal income during the period (**Figure 5**).

From 1993 to 2000, personal income per capita, adjusted for inflation, rose by 44% in the Bay Area compared to only 12% in the Los Angeles area from 1983 to 1990.<sup>9</sup>

### Comparing Recessions

With the end of the Cold War and the corresponding decline in spending on military equipment, aerospace job growth in Los Angeles dramatically reversed after its strong growth in the 1980s.

on a calculation of the share of SIC 73 employment in 2000 that was comprised of SIC 737 (computer and data processing services), using the California Employment Development Department's Covered Employment and Wage Data. <sup>6</sup>ibid;

<sup>7</sup>Ross C. DeVol, *America's High-Tech Economy: Why Should Real Estate Care?*, Milken Institute, Santa Monica, CA, March, 2000;

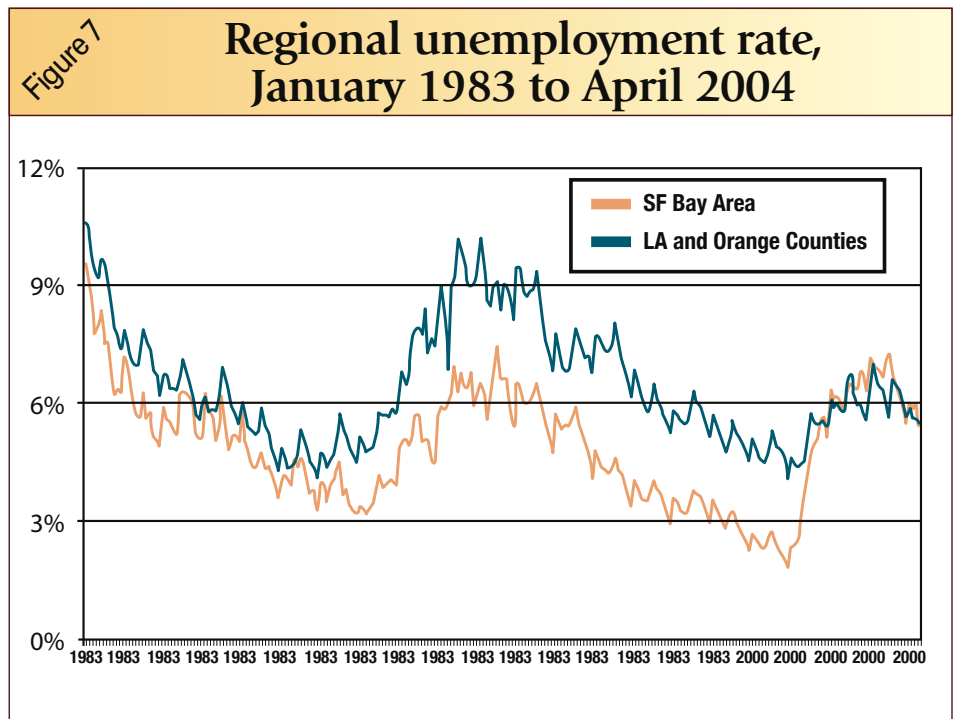
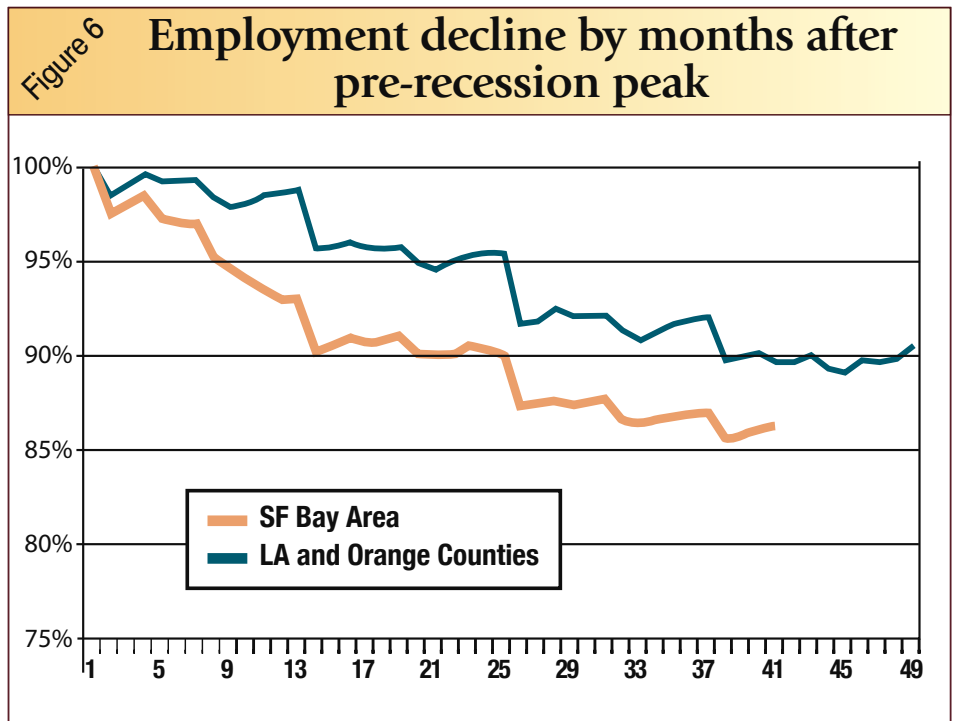
<sup>8</sup>Data for Figure 4 derive from a different source, for which more detailed information is available. In this case, the IT sector is comprised of the following SIC codes: 357, 36, 38, 737, and 87. In this case, data on employment in SIC 737 is directly available, rather than needing to be estimated. The estimated share of non-farm employment represented by the IT sector is almost exactly the same in each case.

<sup>9</sup>Personal income data is adjusted for inflation using the California Consumer Price Index for All Urban Consumers (CPI-U).

From 1986 to 1995, more than 175,000 aerospace jobs - half the peak employment in the sector - were lost. This helped provoke a regional recession that was deeper and more prolonged than any since the Great Depression. Aerospace job losses accounted for over one-fifth of the regional employment decline from 1990 to 1993; construction job losses were another 10%. Some analysts put the cumulative impact of defense-related job losses much higher, at half or more of all jobs lost during the recession.<sup>10</sup>

In 2001, the California economy once again entered a recession. The challenges faced by the state included the high-tech slowdown, declines in stock-market related income and wealth, soaring energy prices to businesses, threats of rolling blackouts, and declining exports. The September 11 terrorist attacks aggravated these trends, as travel-related businesses were forced to lay off additional workers.

With the bursting of the internet and stock market bubbles, the same concentration of IT industries that



<sup>10</sup>California Research Bureau, *California Economic Update*, Sacramento, CA, October, 1994

had spurred such rapid growth suddenly drove the Bay Area economy into a serious recession. IT employment in the region fell by 39% from 2000 to 2003, accounting for 37% of the region's total job loss over that period (almost exactly its share of total employment in 2000).

Total employment in the Bay Area declined 13% from December 2000 to December 2003. That decline was even deeper and faster than the one suffered by the Los Angeles region in the 1990 recession. As **Figure 6** shows, at a similar point in the recession – thirty-six months after the Los Angeles area economy began to decline in December 1989 – employment losses were just over 8%. **Figure 7** depicts the rapid rise in the Bay Area's unemployment rate during the recent recession, bringing it on par with the rate in the Los Angeles area for the first time in more than a decade.

Bay Area job losses were concentrated in business services and manufacturing, primarily due to the slump in high-tech activity. Thus, the information technology

sector - which helped propel the astounding rise in employment - played a role similar to that of aerospace and construction in the Los Angeles recession of the early 1990s. Job losses in information technology pushed Bay Area employment down rapidly and unemployment soared.

In both recessions, the real estate industry played an important role in both boom and bust phases. Construction jobs are highly procyclical, responding to shifts in the business cycle. Other than software and personnel agencies, no other major industry sector matched the swings in growth rates seen in the construction industry. Economic growth in the Los Angeles area during the 1980s was fueled in part by the real estate boom for both commercial and residential properties, and the subsequent recession was exacerbated by its collapse. During the 1990s, the Bay Area's construction industry was driven primarily by demand for commercial space, reflecting both the growth in IT industries and related legal and financial services, as well

as widespread obstacles to most new residential construction.

## Employment and Migration

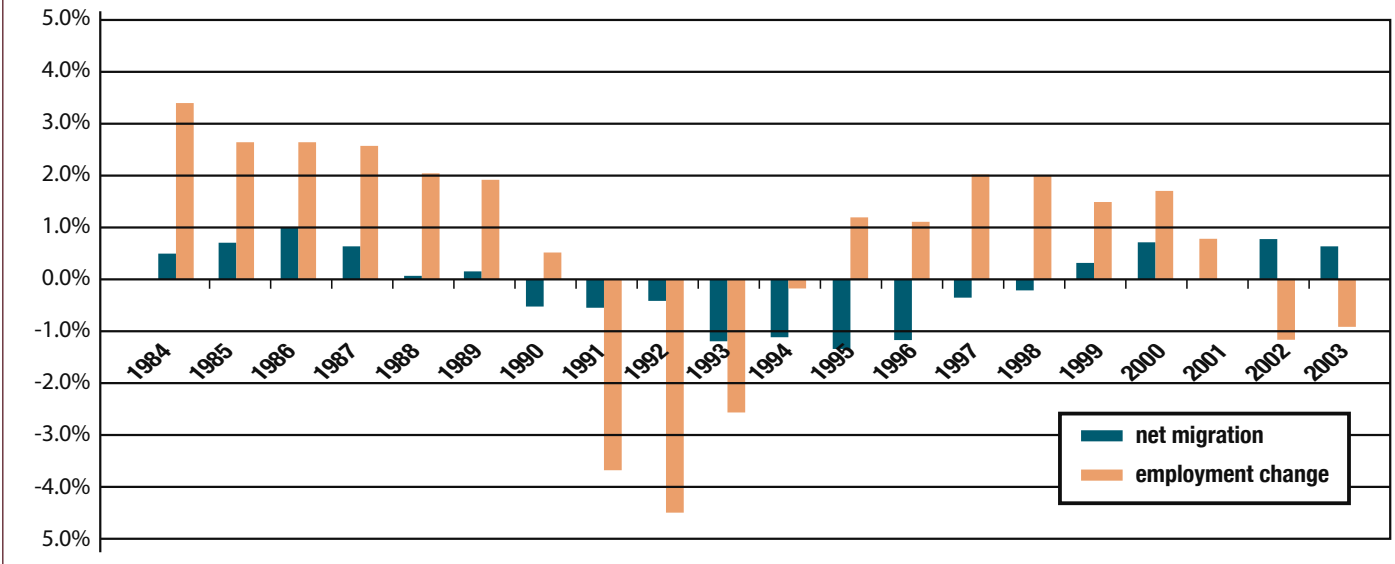
One of the reasons the Los Angeles economy took so long to rebound was that the region suffered a net outflow of people for eight consecutive years, totaling over 600,000 people from 1990 to 1998.<sup>11</sup> Net migration tends to lag employment changes, so the outflow of residents from Los Angeles continued for three years after job growth returned to the region (**Figure 8**). As large numbers of residents left the region, home prices weakened, further depressing local demand. After peaking in 1991, the median home price in Los Angeles County fell by 21% over the next five years. Such price declines put financial pressure on many homeowners -- by raising monthly payments for those with adjustable-rate mortgages and shrinking home equity – even while they pave the way for future residents by making housing more affordable.

The long-term outlook for the

<sup>11</sup>Population changes are composed of two sources: natural increase (the difference between births and deaths) and net migration (the difference between migrants coming in from other states or countries and residents leaving the state). For the purposes of this analysis, net migration figures are for Los Angeles County alone.

Figure 8

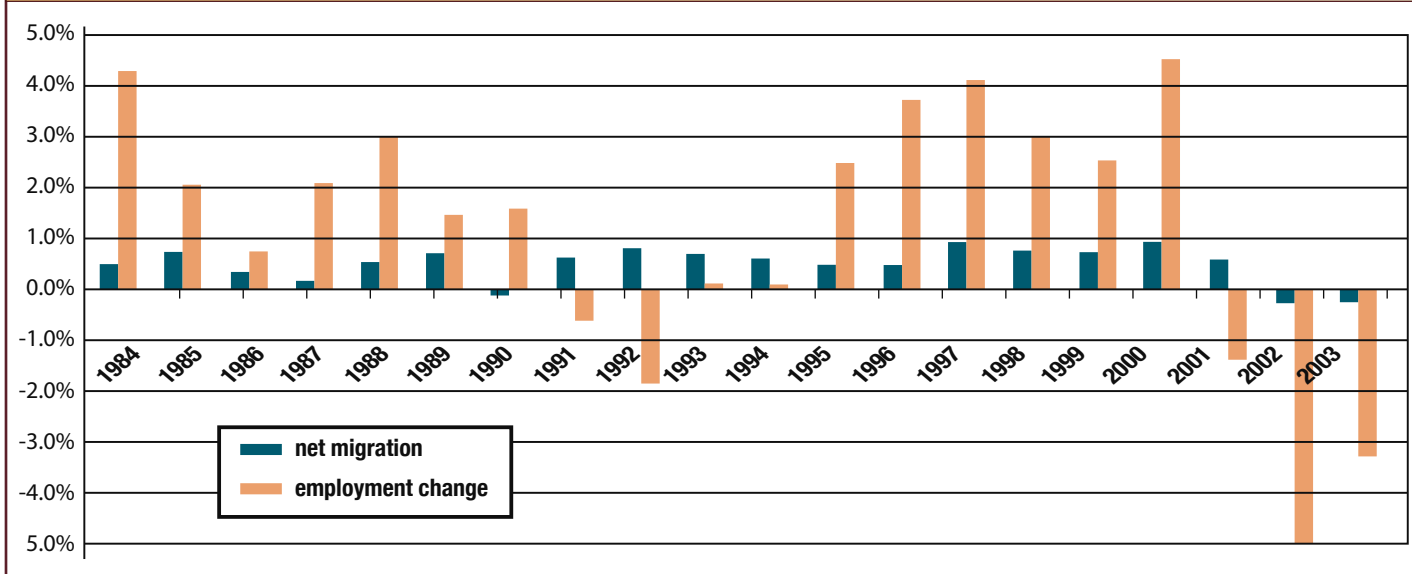
### Employment change and net migration in L.A. County, 1984-2003



Source: California Department of Finance, Demographic Research Unit.

Figure 9

### Employment change and net migration in SF Bay Area, 1984-2003



Source: California Department of Finance, Demographic Research Unit.

San Francisco Bay Area is still uncertain. As **Figure 9** shows, the relatively mild recession in the early 1990s only slowed in-migration into the region. Despite the torrid pace of job creation, in-migration was muted in the late 1990s boom due to the limited amount of homebuilding and the high cost of housing in the region. As job losses mounted, however, out-migration did occur over the last two years. The magnitudes were quite low – less than 0.3% in each year – but due to the lag between employment changes and net migration, it is too early to know whether the out-migration will accelerate over the next few years.

The Bay Area has been helped by the sustained drop in interest rates due to Federal Reserve Bank policies and the weak economy. The decline in thirty-year fixed rate mortgage rates from 2000 to 2004 allowed the required monthly payment on a median-priced home in 2000 to cover the mortgage on a home worth 30% more in 2004.<sup>12</sup> This not only spurred many renters to switch to owner-occupied

housing, but it also allowed unemployed homeowners to reduce their monthly payments and even pull out some of their home equity to cover living expenses until they could be reemployed. The median home price in the Bay Area has actually risen by over 25% since 2000, and even in Santa Clara County, the most hard-pressed county in the region, 2004 prices are back to their 2000 levels thanks to interest rates.<sup>13</sup> The key factor going forward will be whether job growth returns before rising interest rates put too much pressure on the housing market – which then may induce more residents to leave while they can still capture some of their capital gains.

The Bay Area has also been aided by the composition of its workforce. Its workers were much more likely to have a four-year degree or more in 2000 (37%) than was the case in the Los Angeles region in 1990 (24%), and were less likely to be foreign-born (27%) than was the case in Los Angeles<sup>14</sup> (42%). A better-educated workforce is strongly associated with long-run

regional growth, and native-born workers may have a stronger attachment to the region and be less likely to out-migrate in a weak job market.

### Conclusion

The roles of California's two major economic regions have switched over the past decade. Their patterns of growth and decline have reflected each region's leading industries as well as their respective workforces and populations. The long stagnation in the Los Angeles region after its recession in 1990 was driven by large-scale out-migration as well as the permanent decline of one of its leading industries by more than half. Diversification has been key to the greater resilience now evident in the Southern California economy, and aerospace may even stand to gain over the next few years from recent increases in defense and homeland security spending. Furthermore, the region's lower relative housing costs now serve as a boon to new growth.

The San Francisco Bay Area, by contrast, suffered one of the

<sup>12</sup>Authors' calculations based on thirty-year fixed rate mortgages in February 2000 and February 2004, for a loan covering 80% of the median-priced home in San Mateo County.

<sup>13</sup>Home price data comes from the California Association of Realtors and Dataquick. These figures are not adjusted for inflation to keep the figures consistent with those being reported in the news media. Santa Clara County home prices have actually declined in inflation-adjusted terms.

<sup>14</sup>Authors' calculations from U.S. Census, STF-3 files for 1990 and 2000.

swiftest reversals in 2001, from being the envy of the world as the epicenter of the “new economy” to suffering one of the largest declines in metropolitan area employment in the last fifty years. Despite its widespread job losses, the region’s economy has managed to avoid some of the symptoms that are associated with longer-term declines, such as significant out-migration, falling home prices, and bankruptcies. Although it is too early to declare the San Francisco Bay Area out of the woods, there is reason to believe that the region may not suffer the same prolonged downturn that Los Angeles did a decade before.



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