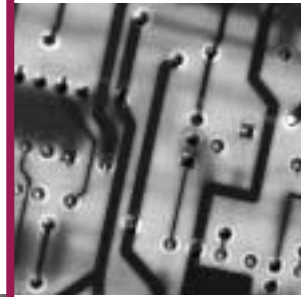
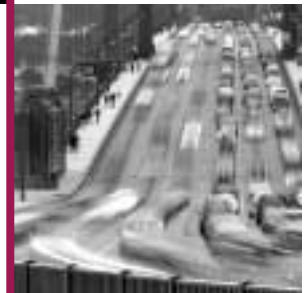


# **After the Bubble:** **Sustaining Economic Prosperity**



***Bay Area Economic Profile***  
***January 2002***  
***Third in a Series***



**Bay Area Council**  
**Bay Area Economic Forum**  
**Association of Bay Area Governments**

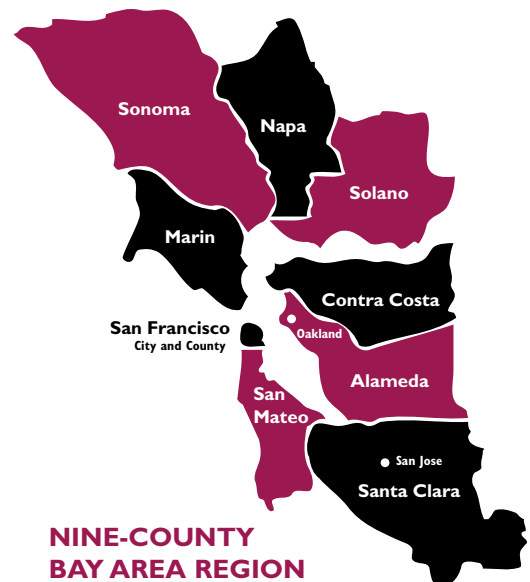
This report represents the third volume in the *Bay Area Economic Profile* series that began in 1996 with *The Bay Area: Leading the Transition to a Knowledge-Based Economy*. In that report, and in the one that followed in 1999, *The Bay Area: Winning in the New Global Economy*, a research team led by McKinsey & Company analyzed the strengths and weaknesses of the Bay Area economy relative to other regional economies across the United States. Taken together, those two volumes tell a remarkable story of how technology and innovation have helped the Bay Area achieve unprecedented levels of economic prosperity.

*After the Bubble: Sustaining Economic Prosperity*, the third in the series, continues the tradition of benchmarking the Bay Area's economic performance against that of other regions. This report, however, goes a step further than previous editions. In light of the recent turn of economic events, it examines the drivers of the Bay Area's past performance and the prospects for continued economic success. In short, this report concludes that, despite the current slowdown, the Bay Area is well positioned to return to a path of healthy and sustainable growth.

Yet there are critical issues that could prevent the Bay Area from achieving its potential. The lack of affordable housing in particular and the high cost of living in general threaten to undermine the Bay Area's economic success by diminishing the standard of living of many of its residents. Moreover, an insufficient transportation infrastructure has led to a deteriorating quality of life for commuters, and the public school system continues to under perform. While the *Economic Profile* series has raised these issues in the past, the economic impact of these problems has been exacerbated by the recent economic bubble and is now being felt in a substantial way.

The Bay Area Council, Bay Area Economic Forum, the Association of Bay Area Governments, and their many partners are working to address these issues through a broad range of initiatives, including these:

- The Bay Area Alliance for Sustainable Development, a consortium of more than 45 business, environmental, social equity, and government organizations, is addressing the related issues of a Prosperous Economy, Quality Environment, and Social Equity—the “3 Es” of smart growth. The Steering Committee includes the Bay Area Council, Sierra Club, Urban Habitat Program, and the Association of Bay Area Governments.



- The Bay Area Alliance has negotiated a *Compact for a Sustainable Bay Area*, which sets forth a new vision for how the region can grow in a smarter, more sustainable manner. A majority of the Bay Area counties and cities have endorsed in principle the *Draft Compact*.
- The Bay Area Alliance and the five regional agencies (Association of Bay Area Governments, Metropolitan Transportation Commission, Bay Area Air Quality Management District, Bay Conservation and Development Commission, and Regional Water Quality Control Board), through the Smart Growth Strategy and Regional Livability Footprint Project, are coordinating public workshops across the region to develop consensus on a preferred land-use scenario that will accommodate a sufficient supply of affordable housing and an adequate transportation infrastructure.
- The Community Capital Investment Initiative and Bay Area Family of Funds are attracting private investment to revitalize poor and older neighborhoods in partnership with their communities. This initiative will simultaneously tackle poverty with market-based solutions and promote smart growth. The National Economic Development and Law Center and PolicyLink are joining with the Bay Area Council in leading this initiative.
- Top CEOs and 15 employer organizations have joined forces in the Regional Transportation Initiative (RTI) to develop a comprehensive, multimodal integrated transportation system. The RTI recognizes the need to use existing capacity more efficiently, harness market forces, deploy smart technology, and promote more efficient land-use patterns, while protecting the environment, in order to improve both mobility and the quality of life.
- The Regional Trade Development Alliance provides a platform for Bay Area economic leaders to address common concerns and interests in international trade, and the international trade website operated by the Bay Area Economic Forum and the Los Angeles Area Chamber of Commerce, TradePort.org, provides important online support to small- and medium-sized companies seeking to develop overseas business.
- The Bay Area Science Infrastructure Consortium (BASIC), an association of university, national laboratory, business, and other leaders in the research community, addresses issues affecting the region's research infrastructure and its contribution to regional economic competitiveness and prosperity.

This volume is titled *After the Bubble: Sustaining Economic Prosperity* because we are convinced that the Bay Area not only will recover from the current slowdown, but also will channel its creativity and capacity for innovation to solve these challenges and reach new heights of prosperity. It is up to public officials and business and community leaders throughout the Bay Area to make it happen.

Our partner economic vitality organizations throughout the region—Contra Costa Council, Contra Costa Economic Partnership, Concord Chamber of Commerce, Economic Development Alliance for Business, Hayward Chamber of Commerce, Joint Venture: Silicon Valley Network, Napa Valley Economic Development Corporation, North Bay Council, Oakland Chamber of Commerce, Samceda, San Francisco Chamber of Commerce, San Francisco Committee on Jobs, San Rafael Chamber of Commerce, Santa Rosa Chamber of Commerce, Silicon Valley Manufacturing Group, Solano Economic Development Corporation, and Tri-Valley Business Council – are all working within their communities to address the challenges set forth in the *Bay Area Economic Profile*. But the scale and scope of the challenges demand a new dimension of collaboration and citizen engagement to ensure sustained economic prosperity.



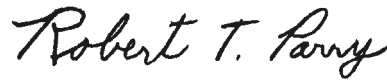
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## Acknowledgements

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## A New “New Economy”

In September 1999, the Bay Area Council and Bay Area Economic Forum published *The Bay Area: Winning in the New Global Economy*, the second in the *Bay Area Economic Profile* series. The story told was one of an exceptionally productive economy that was leading the nation into a ninth year of expansion. Stock markets were soaring, led by high-flying dot-coms and technology companies located in the Bay Area. By the end of 1999, the Dow Jones Industrial Average had surpassed 11,000 and the NASDAQ was on its way to 5,000. Unemployment in the U.S. was 3.4% and, remarkably, only 2.5% in the Bay Area.

Needless to say, the economic situation has changed considerably. By early 2001, the economy had contracted for the first time in 10 years, and more than one million U.S. workers had lost their jobs. Reflecting this reversal, by the end of November 2001, the Dow had fallen more than 15% from its high, while the NASDAQ had lost more than 60% of its value.

As the epicenter of the “new economy,” the Bay Area has been hit hard by the slowdown, and the dot-com frenzy seems a relic of another era. Since December 1999, more than 130,000 Internet workers nationwide have been laid off – many of them in the Bay Area – and hundreds of Internet companies in the region have closed their doors altogether. Effects of the downturn have spilled over into the “old” economy as well, with financial institutions, retailers, and others forced to lay off workers due to slumping demand. By the end of September 2001, unemployment in the Bay Area was 4.5%, nearly double what it was a year earlier.

The dramatic reversal of fortunes over the past year has raised a number of questions about the Bay Area economy. How did the Bay Area achieve such impressive economic growth over the past few years? How much of it was a “bubble?” What impact did it have on Bay Area residents? What are the prospects for the economy now?

This *Economic Profile* aims to answer those questions by exploring the key drivers of the Bay Area economy over the past decade in depth and assessing their sustainability for the future. The Bay Area’s performance through the year 2000 is measured along a variety of indicators and compared to the performance of 23 other regions.

This report echoes many of the positive findings observed in the 1999 *Economic Profile*. The Bay Area remains the most productive economy in the nation. What is different about this *Economic Profile* is a new set of insights about the impact of the “bubble” economy of the late 1990s and the prospects for the Bay Area in the next few years.

Despite the recent slowdown, the fundamentals of the Bay Area economy remain strong and indicate that the region is positioned to return to a robust, but sustainable, growth trend.

The findings captured in this report can be summarized as follows:

### Exhibit I

#### WHY PRODUCTIVITY MATTERS

- The rate at which an economy increases its productivity determines the speed at which it can improve its standard of living.
- Productivity increases allow businesses to produce higher-quality and/or more goods at lower cost. The resulting increase in surplus can then be distributed to customers (lower prices), workers (higher salaries) and owners (higher profits) without causing inflation.
- A higher standard of living further stimulates the economy by increasing demand.

- Due to higher productivity, the Bay Area economic output per capita in the year 2000 was a stunning 84% higher than the U.S. average.
- Some of the Bay Area productivity advantage can be attributed to the extraordinary economic bubble of the late 1990s, and some is a result of the long-term, well-established price premium charged for goods and services in the region. But, approximately 65% is due to such fundamental factors as:
  - A high concentration of more productive business activities and less presence of lower-value-added activities.
  - The aggregation of highly skilled workers, a culture of innovation, and a concentration of industry-leading companies.
- However, the Bay Area economic success is moderated by a high cost of living, preventing it from fully translating productivity gains into a higher standard of living.
  - When adjusted for cost of living, the Bay Area output per capita lead is reduced to 36%.
  - The high cost of living is driven primarily by housing prices, which in recent years have risen almost twice as fast as income.
  - An economic slowdown will help correct recent, extraordinary price inflation, but it will not solve the underlying problem – a chronic shortage of Bay Area housing.
- The prospects for the Area remain strong. Based on the productivity growth potential, after the Bay Area comes out of the current cyclical slump, the region's economy will be well positioned to grow at a rate of 4.2% to 5.1% over the next three to five years.
- To achieve its potential for sustained economic performance, the Bay Area must address several key issues or risk losing high-performing companies and workers that are key to the productivity advantage and resulting economic prosperity.

These include: lack of affordable housing, lack of an adequate transportation infrastructure, and an under-performing public school system.

This report focuses on Bay Area productivity growth because it is the source of the region's economic success and the key factor in determining standard of living increases (Exhibit 1). Performance of industry clusters by region is examined as well. This information, along with other useful data and a description of methodology, is available on the websites of the Bay Area Council ([www.bayareacouncil.org](http://www.bayareacouncil.org)) and the Bay Area Economic Forum ([www.bayeconfor.org](http://www.bayeconfor.org)).

## Bay Area: Still Winning

By the end of 2000, the economic story of the Bay Area was even more impressive than it was at the time of the last *Bay Area Economic Profile* in 1999. At more than \$65,000 per person, the Bay Area led the nation in economic output per capita (Exhibit 2). This represents a stunning 84% advantage over the U.S. average. From 1995 until 2000, output per capita in the Bay Area grew at an annual inflation-adjusted rate of 10%, faster than any other comparative region. The only other regions that approach the Bay Area's growth performance over the same period were two emerging – but far smaller – high tech centers: Austin, Texas (9.2%) and Boise, Idaho (8.3%).

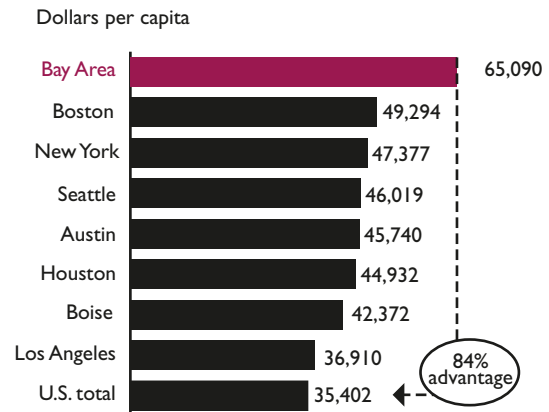
The exceptional economic performance by the Bay Area over the last few years can be seen in a number of other indicators as well.

## Strong Business Performance

Bay Area companies, large and small, across a wide range of industries, have set industry benchmarks for performance. The Bay Area, in fact, is home to 26 Fortune 500 companies, second only to the New York metropolitan region, which

**Exhibit 2**

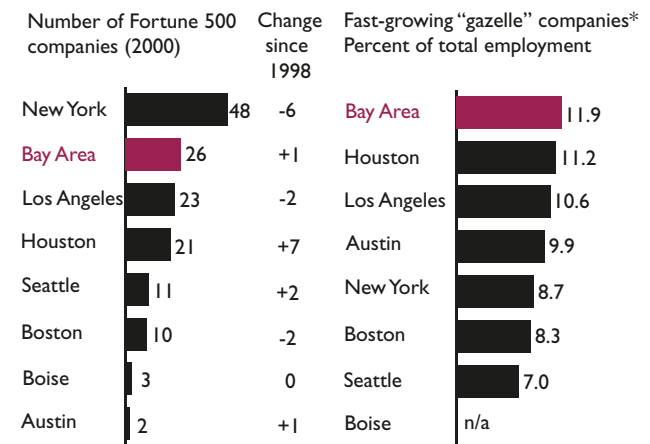
### BAY AREA HOLDS IMPRESSIVE LEAD OVER COMPARATIVE REGIONS AND U.S. AVERAGE IN OUTPUT PER CAPITA - 2000



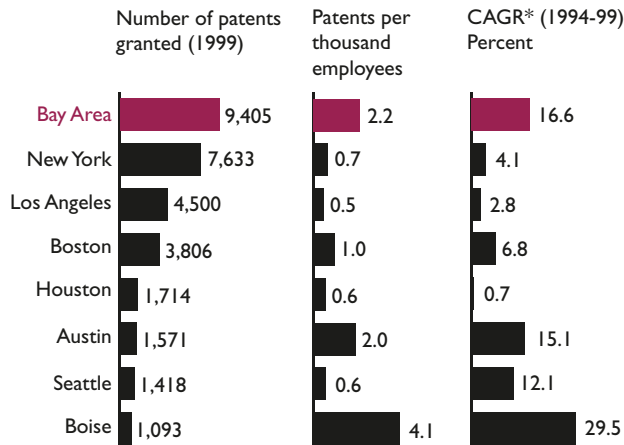
Note: All figures are nominal. Regions are consolidated metropolitan areas. See appendix for definitions and a detailed description of data and methodology at [www.bayareacouncil.org](http://www.bayareacouncil.org) and [www.bayeconfor.org](http://www.bayeconfor.org). Source: Bureau of Economic Analysis (BEA); Economy.com; project team analysis

**Exhibit 3**

### BAY AREA IS HOME TO HIGH-PERFORMING COMPANIES



\*Companies with annual revenue growth of 20% or more for 4+ years  
Source: *Fortune*, Metropolitan New Economy Index

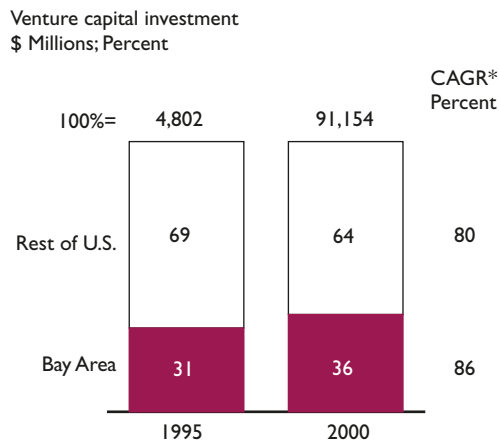
**Exhibit 4****BAY AREA PROVIDES ACCESS TO CUTTING-EDGE RESEARCH**

\*CAGR = compound annual growth rate  
Source: Economy.com; project team analysis

has 48 of these companies – but a workforce two-and-a-half times larger. Moreover, nearly 12% of Bay Area employees work for “gazelle” companies – firms with annual sales growth of 20% or more for the last four years (Exhibit 3).

**Innovation and Venture Capital**

As reported in the 1999 *Economic Profile*, the Bay Area continues to fund much of its growth through venture capital. The ability to attract a disproportionate share of venture capital has played an important role in the region’s economic success, as it has fostered innovation and attracted entrepreneurial talent. As an indication of this level of innovation, the Bay Area generates more patents than any comparative region (Exhibit 4).

**Exhibit 5****BAY AREA ATTRACTS HIGH SHARE OF U.S. VENTURE CAPITAL**

\*CAGR = compound annual growth rate  
Source: Venture Economics/National Venture Capital Association

In 1995, the Bay Area claimed more than 30% of total venture capital invested in the U.S. By 2000, its share had climbed to 36% (Exhibit 5). More important, the absolute amount invested in the Bay Area increased significantly during this period. From 1995 to 2000, venture capital investment increased at an average annual rate of 86%. Growth was particularly strong in 1999 and 2000, as the rate of venture capital investment growth increased to 140%. Total venture capital invested in the Bay Area in 2000 amounted to 7.2% of Gross Regional Product, an extraordinary amount of money to come into an economy so quickly.

**Global Reach**

As outlined in the 1999 report, the Bay Area is well positioned to compete in the global economy, and for much of the past decade has performed exceptionally well in world markets. It led the nation in export growth until 1997 when the Asian financial crisis caused a sharp decline in exports to Asian countries (Exhibit 6). In 1998, Bay Area exports declined nearly 10%.

By 1999, however, export growth resumed and the Bay Area again was ahead of the pack.

The Bay Area’s role in the global economy extends beyond export markets. The region also competes successfully for talented workers from around the world. In a knowledge-based economy, the skills and intellectual capital of workers are vital, and Bay Area companies have reached well beyond U.S. borders to find the best talent available.

## Real Economic Growth vs. the “Bubble”

Heavy venture capital investment and strong business performance helped fuel the regional economy through much of 2000. But, as is now evident from the dramatic rise and sudden collapse of the dot-com phenomenon, part of the Bay Area economic boom of the late 1990s was not sustainable.

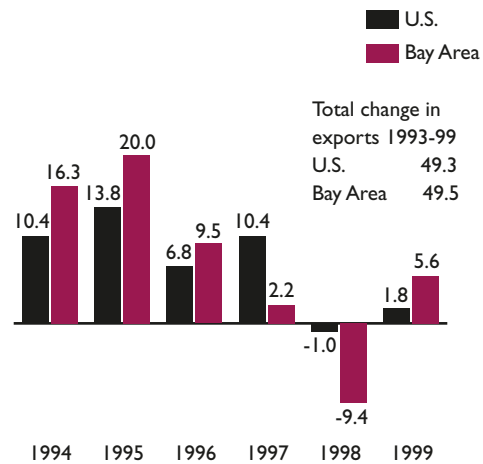
Through the latter half of the 1990s, the Bay Area saw exceptional job creation, a large influx of people, and vast accumulation of wealth through stock market gains (Exhibit 7). This flood of people and wealth drove demand and helped raise prices of real estate, meals in restaurants, and other local goods and services. The extraordinary increase in venture capital played an important role in creating the bubble, as a significant portion of these funds was spent in the Bay Area on salaries, office space, and marketing.

The story of the Bay Area economy in the 1990s, then, is really two stories – substantial and real economic progress led by industry-leading companies on the one hand, and a “bubble” on the other. Understanding the drivers of each is essential to any assessment of the future of the Bay Area economy.

**Exhibit 6**

### BAY AREA EXPORT GROWTH HAS OUTPACED THAT OF U.S.

Percent change from previous year based on dollar value

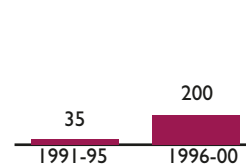


\*Includes Oakland, San Francisco, San Jose, Santa Rosa, Vallejo-Fairfield-Napa metropolitan statistical areas  
 Source: U.S. Department of Commerce Office of Trade and Economic Analysis

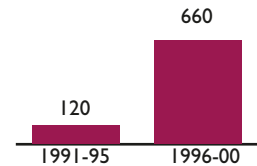
**Exhibit 7**

### RAPID RISE IN DEMAND AND WEALTH CONTRIBUTED TO “BUBBLE”

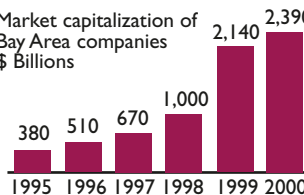
Net migration into Bay Area  
Thousands of people



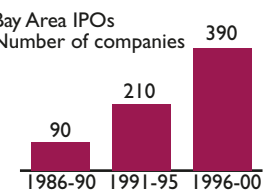
Increase in employment in Bay Area  
Thousands of jobs



Market capitalization of Bay Area companies  
\$ Billions



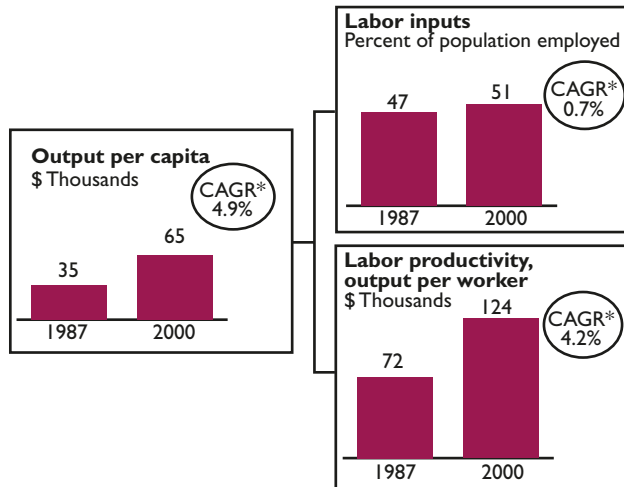
Bay Area IPOs  
Number of companies



Source: Economy.com, Compustat, Securities Data Corp.

# 10 Bay Area Economic Profile

## Exhibit 8 BAY AREA OUTPUT GROWTH HAS BEEN DRIVEN PRIMARILY BY PRODUCTIVITY



\*CAGR = compound annual growth rate  
Note: All figures are inflation adjusted. See appendix for detailed description of data and methodology at [www.bayareacouncil.org](http://www.bayareacouncil.org) and [www.bayeconfor.org](http://www.bayeconfor.org).  
Source: BEA; Economy.com; project team analysis

While the bubble portion of the economy had a substantial impact, most of the Bay Area's success can be attributed to real factors that should be sustainable: a highly skilled workforce, high-value-added jobs, industry-leading companies, and a strong culture of innovation.

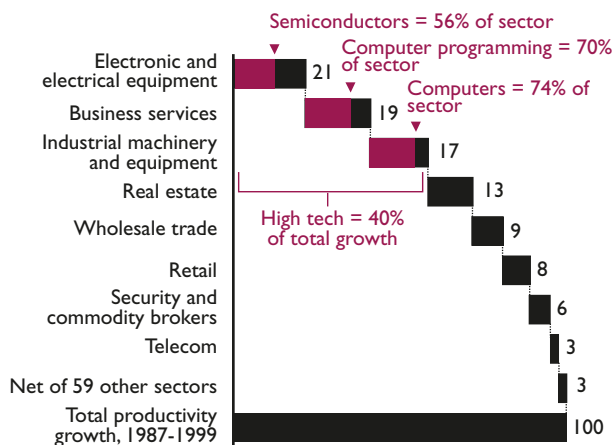
## The Productivity Edge

In economic terms, the Bay Area's remarkable performance can be attributed to an increase in labor productivity.

From 1987 to 2000, output per capita increased at an average rate of 4.9% annually, the vast majority of which was driven by a productivity increase measured as output per worker rather than an increase in labor (Exhibit 8). Productivity has grown at an average rate of 4.2% per year as compared to 0.7% annual growth for labor inputs.

## Exhibit 9 HIGH TECH SECTORS RESPONSIBLE FOR MUCH OF BAY AREA PRODUCTIVITY GROWTH

Percent of total productivity growth between 1987-99



Note: All figures are inflation adjusted. See appendix for detailed description of data and methodology at [www.bayareacouncil.org](http://www.bayareacouncil.org) and [www.bayeconfor.org](http://www.bayeconfor.org).  
Source: BEA, Economy.com, project team analysis

The Bay Area's productivity growth rate accelerated in the second half of the 1990s. From 1987 to 1995, productivity increased at an annual rate of 2.6%, a rate already significantly higher than the U.S. average of 1.4%. But from 1995 to 1999, the average annual increase was 5.3%, dwarfing the 2.5% growth rate nationally. Most of this productivity growth has come from high-technology sectors. In particular, semiconductors, computers, and computer programming were together responsible for nearly 40% of the growth (Exhibit 9).

As a result, the Bay Area, which in 1987 already had a healthy 25% productivity advantage over the aggregate U.S. economy, expanded its lead to 60% by 1999 (Exhibit 10). Furthermore, the region's productivity performance has extended well beyond the high-tech sector. The Bay Area is a productivity leader in most industry clusters, ranking first or second in eight of ten clusters and employment sectors (Exhibit 11).

## Sources of Advantage

What explains the Bay Area's impressive productivity lead over the country as a whole? Some of the advantage can be explained by higher prices in the Bay Area and the effect of the venture capital bubble. Some is driven by business decisions to locate higher-value-added activities in the Bay Area. But roughly half of the advantage is due to a variety of real but hard-to-measure factors, including the quality of the workforce, a spirit of innovation, and a concentration of industry-leading companies. In combination these give the Bay Area a unique advantage over any other region (Exhibit 12).

## Venture Capital Bubble

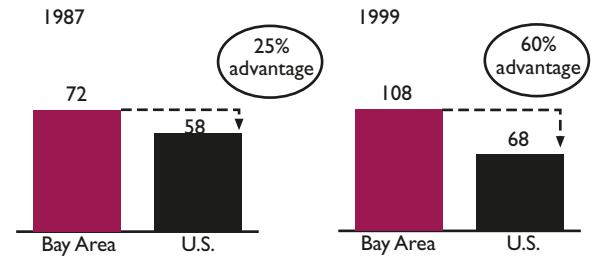
Venture capital has long played an important role in the Bay Area economy. The extraordinary increase in venture funding in the last few years, however, helped create an economic bubble. In 1995, total venture capital invested in the Bay Area was \$1.5 billion, or 0.6% of Gross Regional Product. By 2000 that figure had ballooned to nearly \$33 billion, or 7.2% of Gross Regional Product (Exhibit 13). In 1999 and 2000, venture capital firms invested \$35 billion above what would be expected based on the long-term investment trend.

This flood of venture capital allowed startup companies to spend lavishly on salaries, office space, and marketing in order to compete for talent and attention. Much of this money – in particular, that portion spent on employees and real estate – was poured back into the Bay Area economy. Though responsible for only 5% of the productivity lead, this “excess” venture capital had an important impact on the economy. In fact, it was responsible for roughly 10%-20% of the output growth and approximately 20%-25% of the new jobs created from 1999 through 2000 (Exhibit 14).

**Exhibit 10**

### BAY AREA HAS INCREASED ITS PRODUCTIVITY LEAD OVER U.S.

**Labor productivity**  
\$ Thousands per worker



Note: All figures are inflation adjusted. For in-depth analysis on productivity, 1999 data is used because only estimates available for 2000. See appendix for detailed description of data and methodology at [www.bayareacouncil.org](http://www.bayareacouncil.org) and [www.bayeconfor.org](http://www.bayeconfor.org).  
Source: BEA, Economy.com, project team analysis

**Exhibit 11**

### BAY AREA IS A PRODUCTIVITY LEADER IN MOST INDUSTRY CLUSTERS

Industry cluster	Productivity rank	Output rank	Employment concentration rank
Bioscience	1	2	5
Multimedia	1	1	1
Retail	1	3	6
Wholesale	1	4	8
Computer and electronics	2	1	2
Telecommunications	2	1	1
Environmental Technology	2	3	2
Business services	2	2	1
Banking and finance	3	2	4
Tourism	5	6	4

Bay Area ranks #1 or #2 in productivity in 8 of 10 clusters

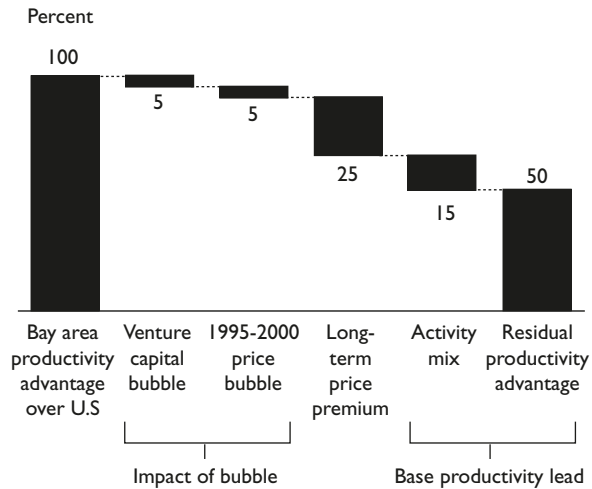
By contrast, New York, the second most productive economy overall, ranks #1 or #2 in only 2 clusters

Note: See appendix for detailed description of cluster and methodology at [www.bayareacouncil.org](http://www.bayareacouncil.org) and [www.bayeconfor.org](http://www.bayeconfor.org).  
Source: Economy.com; project team analysis

## 12 Bay Area Economic Profile

**Exhibit 12**

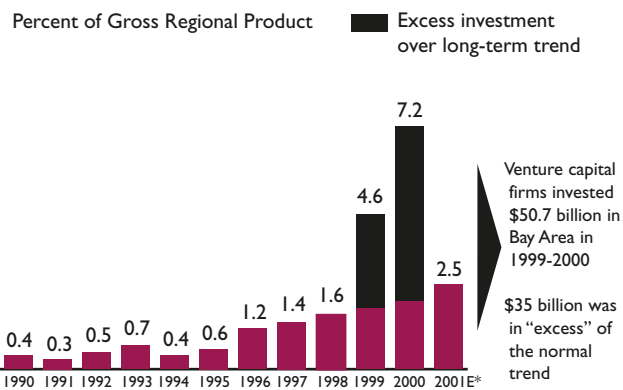
### SOURCES OF BAY AREA PRODUCTIVITY ADVANTAGE OVER U.S. AVERAGE – 1999



Note: Based on nominal data; 1999 data used because only estimates available for 2000; See appendix for detailed description of data and methodology at [www.bayareacouncil.org](http://www.bayareacouncil.org) and [www.bayeconfor.org](http://www.bayeconfor.org).  
 Source: BEA; Bureau of Labor Statistics (BLS); American Chamber of Commerce; Economy.com; project team analysis

**Exhibit 13**

### VENTURE CAPITAL INVESTMENTS IN THE BAY AREA BALLOONED IN 1999 AND 2000



\*Based on funding through September 12, 2001; assumes no growth in Gross Regional Product in 2001  
 Source: Economy.com; Venture Economics; National Venture Capital Association; project team analysis

## Price Effect

A significant portion (about 30%) of the Bay Area productivity advantage is attributable to the higher level of prices in the Bay Area, which get measured as higher output. As any resident or visitor knows, nontradable goods and services in the Bay Area are often more expensive than other places (Exhibit 15). Major cities tend to be expensive, but the Bay Area stands out. The cost of real estate is the primary reason behind this, as limited space and strong demand have kept prices among the highest in the U.S.

Most of the price effect on productivity (about 25% of the total) is the result of the long-term trend of higher prices for local goods and services in the Bay Area. But an additional price effect (about 5%) resulted from the extraordinary, but temporary, price inflation in the Bay Area in the late 1990s bubble years. This separate price bubble was caused by the unusual influx of people and money beginning around 1995, which pushed prices even higher than the normal price inflation of the region. The cost of living in the Bay Area in 1995 was 21% higher than the U.S. average, in line with the long-term trend. By 2000, the Bay Area was 35% more expensive than the U.S. average. This increase represented the price bubble.

What should be made of the price effect on productivity? Higher prices should not be confused with real productivity, as they do not reflect greater unit output. However, higher prices reflect higher value as determined by the market. A more expensive restaurant meal in San Francisco, for example, is priced fairly relative to the same meal consumed elsewhere, since there is some additional value attributed to consuming the meal in San Francisco. In this sense, the price effect is quite real.

**Activity Mix Effect**

According to conventional wisdom, high Bay Area productivity is the result of the region’s particular portfolio of industries, which is relatively heavy in technology. But at least at the broad industry level, this assumption is erroneous. The Bay Area is a large and diversified economy and is, in fact, more productive than the U.S. economy across most sectors. But while the Bay Area does have a disproportionate share of technology, it has a low share of other highly productive industries such as mining (Exhibit 16). High tech is a significant contributor to Bay Area productivity, but on its own does not explain the Bay Area lead.

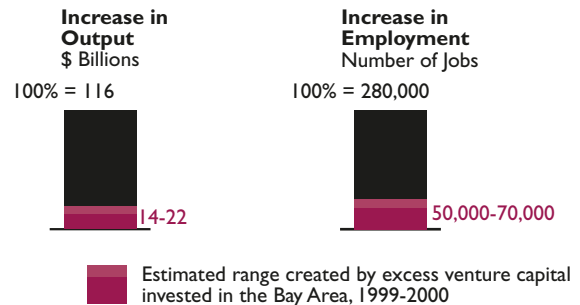
However, the Bay Area does benefit from the type of activities that companies locate in the region. Many businesses conduct only higher-value-added activities – such as research and development, marketing, corporate development, executive management, and other knowledge-based functions – in the region. Due to the high costs, companies increasingly have moved administrative functions, call centers and other lower-value-added work outside of the Bay Area. This activity mix accounts for approximately 15% of the regional productivity advantage.

Interviews with CEOs and other executives in the Bay Area confirm this finding. As one banking executive said, “The Bay Area just doesn’t make sense as a place for lower-paying activities.” Housing costs, this executive noted, made it “prohibitive to hire workers at lower wages for less-productive activities.” The CFO of another financial services firm came to a similar conclusion, moving some administrative activities out of San Francisco while outsourcing others altogether.

As a result, the Bay Area has a far higher share of professionals (Exhibit 17) than the U.S. in general. Although this process causes some dislocation of the workforce, it is important to note that the process also has a beneficial effect on productivity for both the Bay Area and the more distant regions where the functions get relocated.

**Exhibit 14**

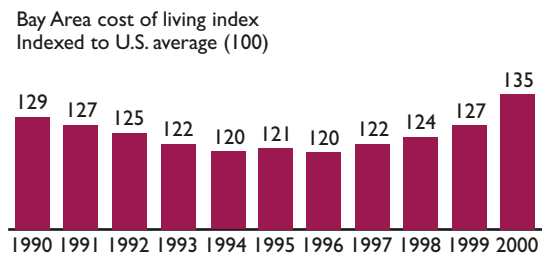
**EXCESS VENTURE CAPITAL IN BAY AREA ACCOUNTED FOR ROUGHLY 15% OF THE INCREASE IN OUTPUT AND 20% OF JOB CREATION IN 1999-2000**



\*Assumes \$150,000-170,000 annual all-in cost per employee  
Source: Venture Economics; National Venture Capital Association; project team analysis

**Exhibit 15**

**PRICE PREMIUM EFFECT ON PRODUCTIVITY DUE TO LONG-TERM TREND OF HIGHER PRICES IN BAY AREA**

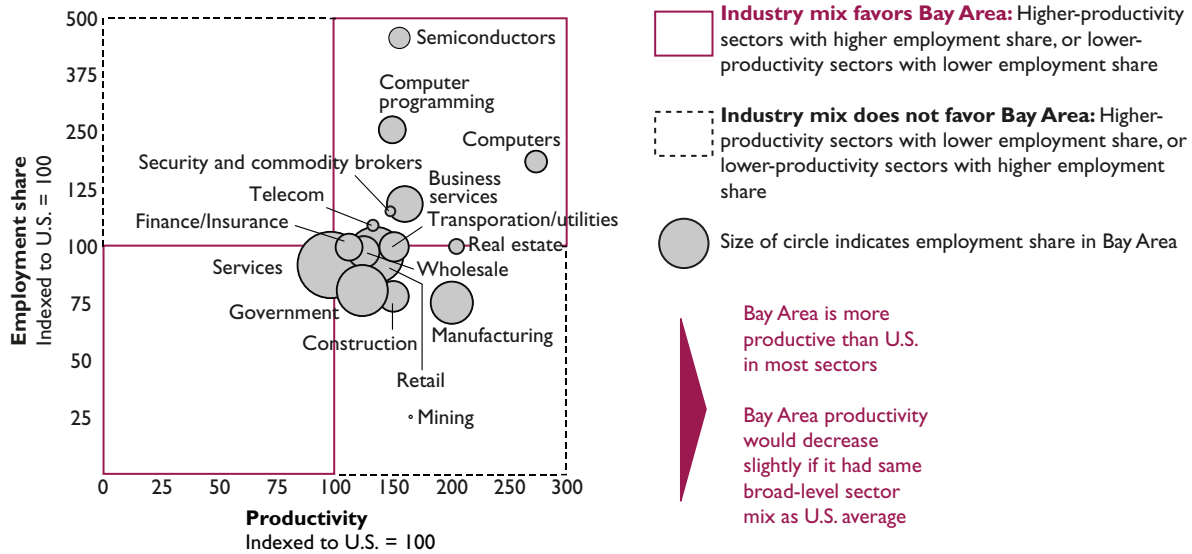


Source: Economy.com

# 14 Bay Area Economic Profile

**Exhibit 16**

## INDUSTRY MIX DOES NOT EXPLAIN BAY AREA PRODUCTIVITY ADVANTAGE

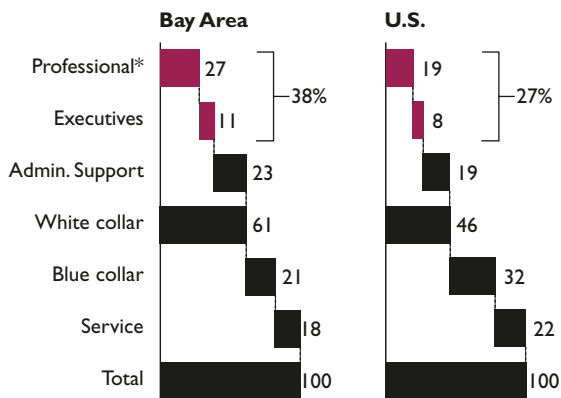


Note: See appendix for detailed description of data and methodology at [www.bayareacouncil.org](http://www.bayareacouncil.org) and [www.bayeconfor.org](http://www.bayeconfor.org). Source: BEA; Economy.com; project team analysis

**Exhibit 17**

## BAY AREA HAS A HIGHER CONCENTRATION OF MORE PRODUCTIVE ACTIVITIES

Employment share by occupational group, 2000  
Percent



\*Technical and specialty (knowledge workers)  
Source: BLS; project team analysis

Even after accounting for the impact of the price effect, venture capital bubble, and activity mix, half of the productivity advantage remains to be explained. "It's something in the water," one business leader quipped. In fact, it is somewhat less mysterious. This residual productivity advantage can be attributed to such factors as a highly skilled workforce, a culture of innovation, and a high number of industry-leading companies.

### Quality of Labor Force and Culture of Innovation

The Bay Area has the most highly educated workforce in the country (Exhibit 18). In 1990, 31% had a college or graduate degree. Although 2000 data for the region are not yet available, trends in San Francisco indicate the regional workforce is even better educated now than ten years ago (Exhibit 19). The trends across the region are likely to be similar.

The importance of the high education levels of workers in the Bay Area cannot be overstated. Researchers have found strong evidence that a high concentration of skilled workers creates positive and enduring effects, including retention of high-skill industries and attraction of other highly skilled individuals. Clearly, the talent of the labor pool in the Bay Area is more than just an explanation of historical performance; it is an indicator of continuing strength for the future.

Interviews with Bay Area executives corroborate this finding. Regardless of the cost, one high-tech executive said, his company would continue to site its computer programmers in the Bay Area because “the quality of the techno-proficient labor force is unrivaled.” A biotech company president noted that workers in the region are “more costly, but that’s the tradeoff we’re willing to make for the raw talent that is here.”

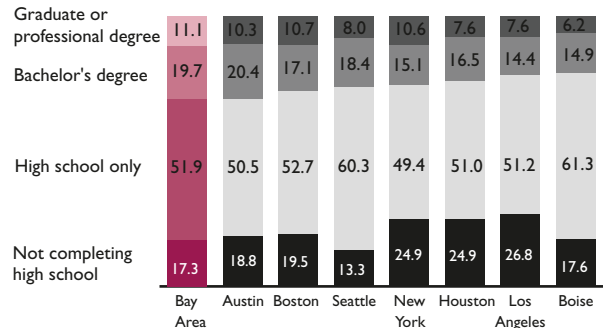
Contributing to the intellectual capital of the area is the proximity of world-class education and research institutions such as Stanford University, and the University of California Berkeley and San Francisco campuses, which provide a steady stream of highly educated workers and insight into cutting-edge research and technology (Exhibit 20).

Added to this is a pervasive culture of innovation. One executive who moved from the East Coast said, “There is a different spirit here that makes people really want innovation. It creates an environment where workers think out of the box more often.”

This combination of talent, ideas, and spirit of innovation has a powerful impact on companies and the economy. A biotech executive noted that “there are so many opportunities and innovative ideas floating around here that you really have to prioritize and hope your judgment is right.” Similarly, a CEO noted that his company had vaulted ahead of the field in health care delivery technology and clinical operating systems simply by

### Exhibit 18 BAY AREA HAS MOST HIGHLY EDUCATED WORK FORCE

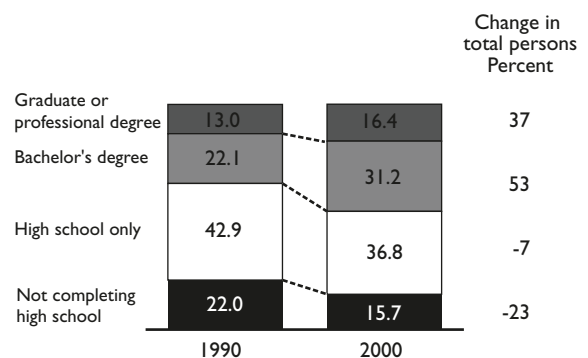
Percent of population over age 25



\*1990 data; 2000 data not yet available  
Source: U.S. Census 1990; Economy.com; project team analysis

### Exhibit 19 TREND IN SAN FRANCISCO SUGGESTS BAY AREA WORKFORCE BECOMING MORE HIGHLY EDUCATED

Percent of population over age 25 - San Francisco County



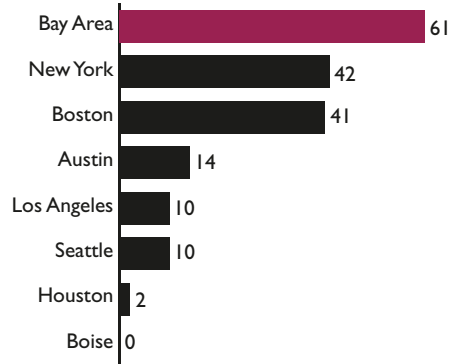
Note: 2000 data available for San Francisco County only  
Source: U.S. Census 1990, American Community Survey 2000

# 16 Bay Area Economic Profile

## Exhibit 20

### BAY AREA PROVIDES ACCESS TO CUTTING-EDGE RESEARCH

Number of business, law, medical, and engineering graduate programs ranked in top 10 nationally\*



\*Includes both overall school rankings and ranking for specialty programs  
 Source: U.S. News and World Report, 2001; Economy.com; project team analysis

being located in the Bay Area and thus having ready access to innovations coming out of the regional universities. "The intellectual capital we are able to accumulate being in the Bay Area is stunning," he said.

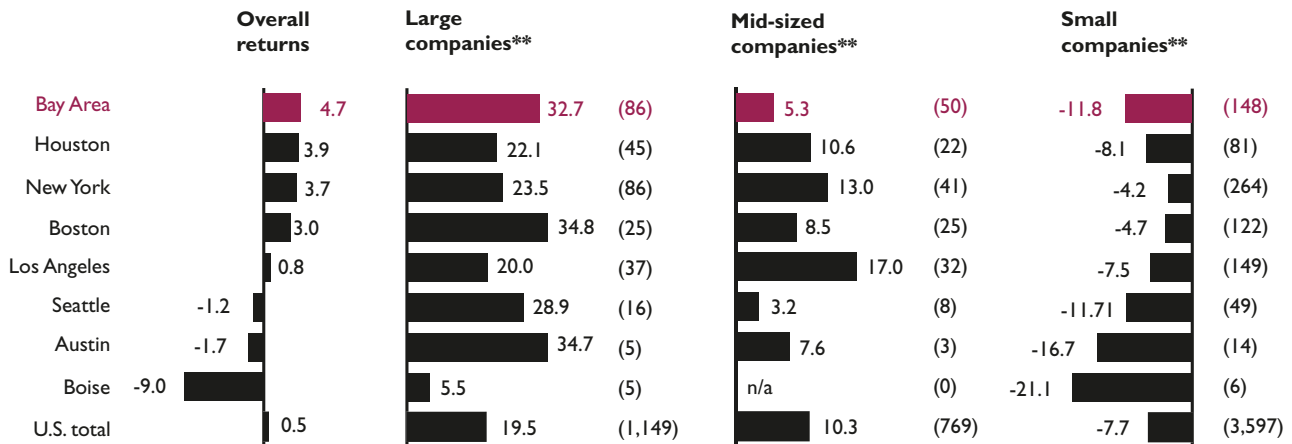
## Industry-Leading Companies

Perhaps as a result of the talented workforce and the culture of innovation, the Bay Area has a large percentage of companies that outperform or otherwise shape their industry. From 1995 to 2000, Bay Area companies on average had a higher total return to shareholders than the market average (Exhibit 21). In two out of three industries, Bay Area companies on average have outperformed the industry as a whole. Moreover, a look at the Fortune 500 list reveals that the Bay Area is home to the leaders and innovators in a variety of industries.

## Exhibit 21

### AVERAGE TOTAL SHAREHOLDER RETURNS IN COMPARATIVE REGIONS 1995-2000\*

Percent  
 (Numbers) = total number of firms in category



\*Total return = annualized rates of return reflecting cash equivalent of price appreciation, plus reinvestment of dividends, and compounding effects of dividends paid on reinvested dividends

\*\*Large companies – market value >\$1 billion; midsize = market value \$300 million - \$999 million; small = market value \$50 million - \$299 million  
 Source: Compustat

## **Clustering Effect**

The high concentration of technology-related companies in the Bay Area provides fertile ground for ideas and innovation to spread to other organizations and across industries. Citing the roles that Bay Area hardware, software, and biotech companies have played in developing new genomics solutions, a biotech executive noted, "Being close encourages people to say 'how can I help solve this problem?'"

There is anecdotal evidence that this clustering effect stimulates competition for talented workers and for customers, which drives further productivity improvements. As a result of the increased competition, business process improvements and managerial innovation necessary to generate profits are likely to take root in Bay Area companies.

## **Role of Physical Capital**

There is no evidence to suggest that the Bay Area productivity advantage is due to higher levels of investment in capital equipment. Direct data is not available, but indirect evidence indicates that the amount of capital deployed in the Bay Area is substantially less than that in the overall U.S. economy. Considering the type of knowledge-based activities that companies tend to locate in the Bay Area, this stands to reason. Improvements in the quality of capital, however, have likely played a role in the Bay Area's economic success. Innovation and technological improvements to computers, manufacturing equipment, and other physical capital all served to boost productivity nationally and likely benefited the Bay Area as well.

## **Implications for Residents**

Underpinning all of the advantages that the Bay Area enjoys has been its aggregation of exceptional talent. The potential for continued success, therefore, is dependent in large part on whether the Bay Area can continue to attract the best and brightest workers. For this reason, it is important to understand what growth and economic success have meant for Bay Area residents.

## **Cost of Living**

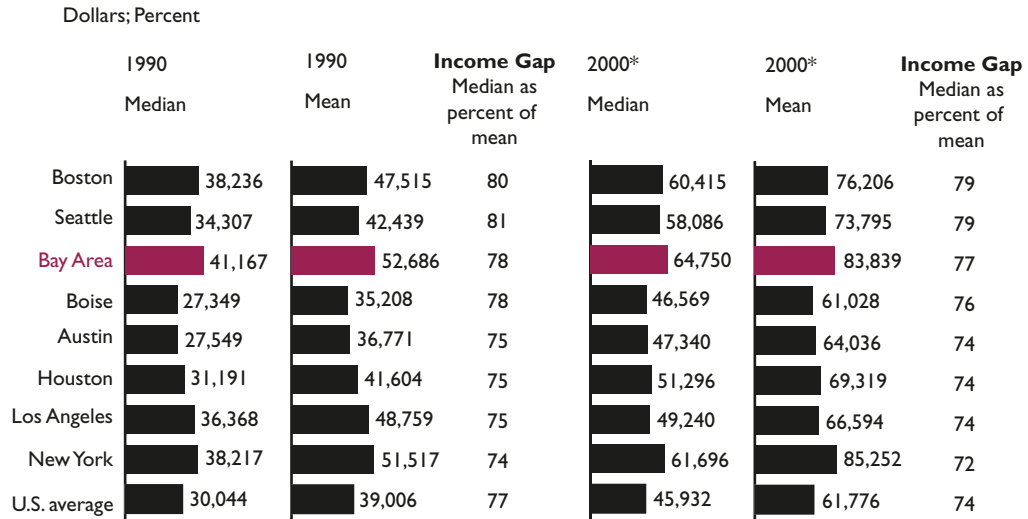
The Bay Area has not always translated productivity gains into standard of living increases. Although household income across the board has increased (Exhibit 22), much of this gain has been offset by the high cost of living. The Bay Area was already the most expensive place to live in 1995, and by 2000 the lead in this dubious category had only increased (Exhibit 23).

Naturally, the high cost of living has had a substantial negative impact on the standard of living. To illustrate, compare the incomes and major cost of living components of software engineers living in San Francisco, Boston, and Boise. Although the

# 18 Bay Area Economic Profile

## Exhibit 22

### HOUSEHOLD INCOME INEQUALITY RELATIVELY UNCHANGED IN BAY AREA

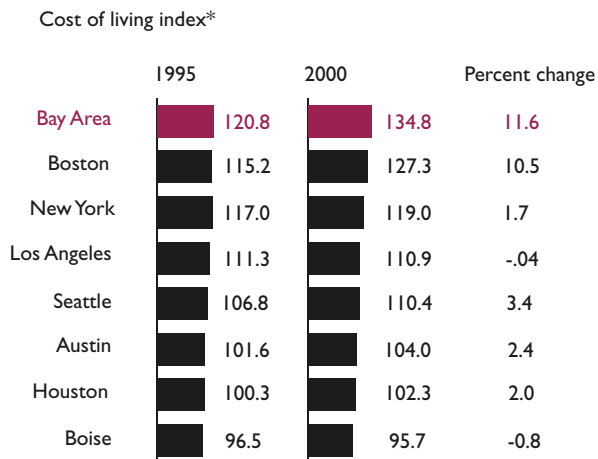


\*Estimate for 2000

Source: Population demographics; project team analysis

## Exhibit 23

### BAY AREA HAS HIGHEST COST OF LIVING OF COMPARATIVE REGIONS

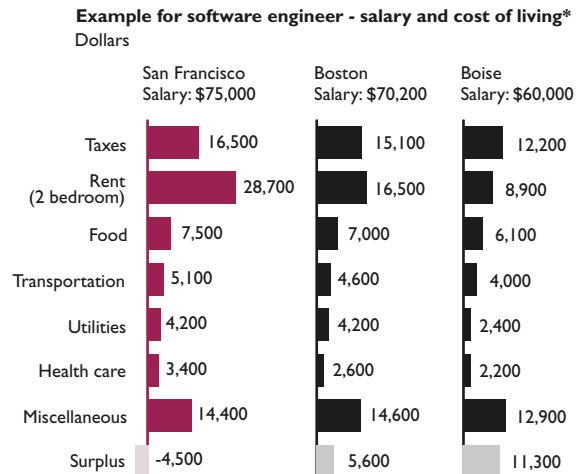


\*Indexed to U.S. average (100)

Source: Economy.com

## Exhibit 24

### HIGH COSTS OF BAY AREA RESULT IN LOWER STANDARD OF LIVING



\*Expenditures based on average for professional household

Source: Salary.com; Bureau of Labor Statistics; project team analysis

San Francisco engineer would fetch a higher income, when expenses are factored in, the other two would be better off financially (Exhibit 24).

The cost of housing is the single most important factor driving the cost of living. While household income increased at a rate of 6.6% from 1995 to 2000, housing costs increased nearly twice as fast at 11.4% (Exhibit 25). The median price of a single-family house in the Bay Area in 2000 was \$421,000, making the Bay Area the least affordable housing market among comparative regions (Exhibit 26).

Clearly, the benefit the Bay Area derives from impressive economic performance is muted by the high cost of living. In fact, when output per capita is adjusted for cost of living, the Bay Area's 84% advantage over the U.S. average is cut to 36% (Exhibit 27).

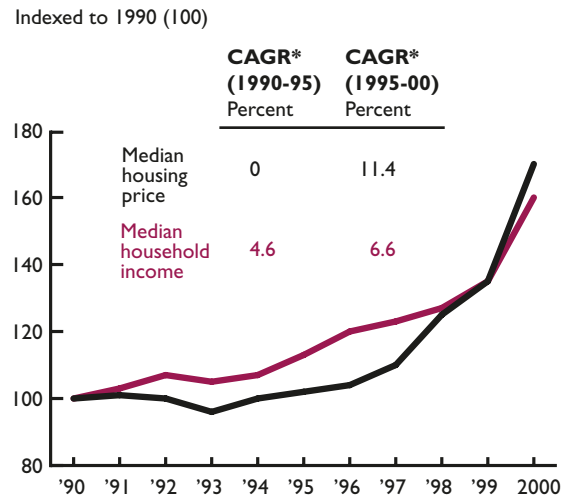
## Quality of Life

The Bay Area has always offered residents a high quality of life, with world-class cultural institutions, an excellent climate, and natural beauty (Exhibit 28). This quality has contributed significantly to its ability to attract a talented labor force.

The quality of life in the Bay Area, however, is being threatened by the challenges of growth and infrastructure inadequacies. The *Bay Area Poll 2000 and 2001*, conducted by the Bay Area Council, indicated that fewer people than in 1998 rated quality of life in the region as very or somewhat good (Exhibit 29). The cost of housing has contributed to this perception, but strains on the transportation infrastructure play an increasingly important role. In 2001, more residents – 32% – cited transportation over all other issues as the principal problem facing the region. While this suggests an improvement over the results in 2000, perhaps as concerns about the economy

**Exhibit 25**

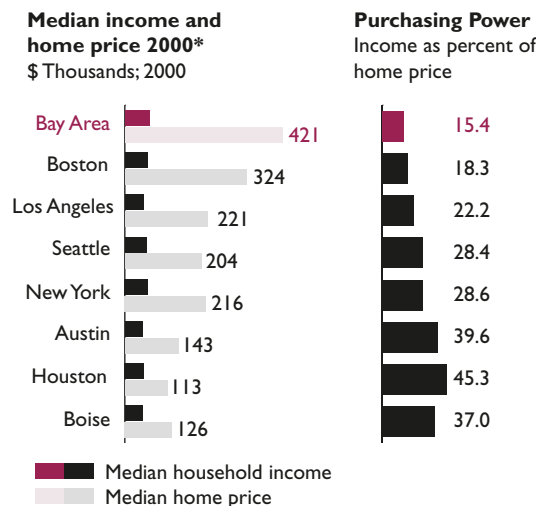
### BAY AREA HOUSING PRICES HAVE INCREASED FASTER THAN INCOMES IN PAST FEW YEARS



\*CAGR = compound annual growth rate  
Source: Economy.com; population demographics

**Exhibit 26**

### DESPITE HIGHER INCOMES, BAY AREA HOMES ARE LEAST AFFORDABLE OF ALL COMPARATIVE REGIONS



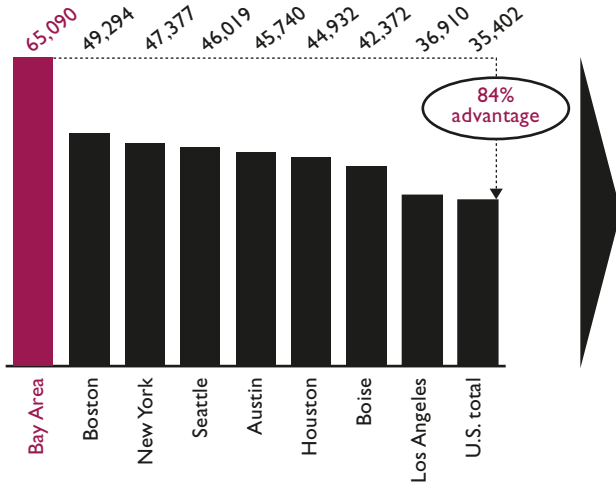
\*Median existing single-family housing price  
Source: Economy.com; Population Demographics; project team analysis

**Exhibit 27**

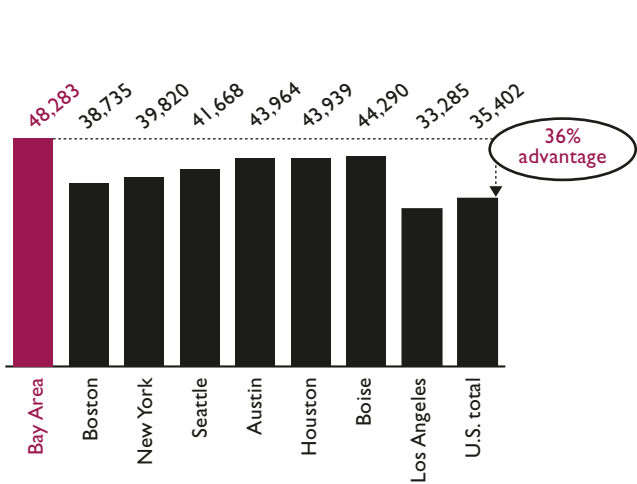
**WHEN ADJUSTED FOR COST OF LIVING, BAY AREA LEAD IN OUTPUT IS SIGNIFICANTLY DIMINISHED**

Dollars

**Output per capita (2000)**



**Output per capita adjusted for cost of living (2000)**

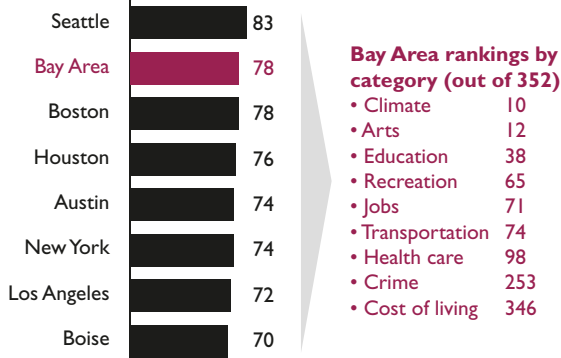


Note: All figures are nominal  
Source: Economy.com; project team analysis

**Exhibit 28**

**EXCLUDING COST OF LIVING, BAY AREA ENJOYS A RELATIVELY HIGH QUALITY OF LIFE RATING**

Quality of life rating - 2000\*



\*Excludes cost of living score; Bay Area score is weighted average of San Francisco, Oakland, and San Jose; see appendix for rankings by key categories ([www.bayareacouncil.org](http://www.bayareacouncil.org) and [www.bayeconfor.org](http://www.bayeconfor.org))  
Source: *Places Rated Almanac*, 2000

claim an increasing share of attention, the numbers still reveal an important challenge. The Bay Area ranked 74 out of 352 metropolitan areas in quality of transportation system (Exhibit 30). Considering that nearly 30% of Bay Area workers, or nearly 900,000 people, commute across county lines each workday – including 5%, or more than 160,000 people, who come from outside the nine-county Bay Area – these findings are distressing (Exhibit 31).

**Prospects for the Future**

Without question, 2001 was a difficult year for the Bay Area, as the exceptional boom of the past few years came to an end. Given the size and duration of the expansion, the Bay Area will have to readjust to a more sustainable growth trajectory. In the short term, continued labor, capital, and price adjustments are inevitable.

Yet despite the slowdown, the underlying potential for growth in the Bay Area over the next three to five years remains strong.

### Intermediate Term

Looking at the potential for continued productivity gains is a useful way to project future economic growth. Based on the prospects for increased productivity in key industries, the Bay Area appears positioned to return to a robust growth trajectory in the range of 4.2% to 5.1% over the next three to five years (Exhibit 32). While this growth is lower than that in the “bubble” years of the late 1990s, it is in line with the Bay Area’s long-term growth trends and thus represents good news.

Given that this is above historic U.S. rates and there is a current economic downturn of unknown duration, this is an optimistic projection, but the fundamentals are in place to achieve it. Nonetheless, the Bay Area will have to continue to innovate, allow new sectors to grow, and develop new, industry-shaping companies. As it always has done, the Bay Area must continue to reinvent itself to grow.

### Short Term

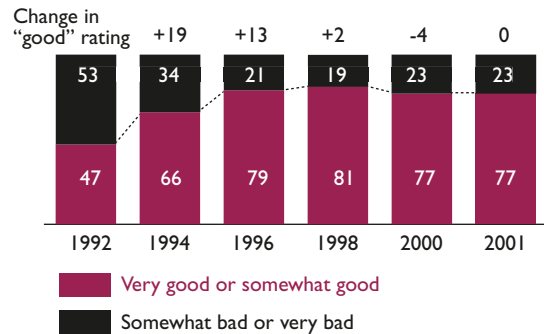
While the outlook is positive for continued growth through 2005, the question of when and how quickly the economy can adjust remains open. The greatest source of uncertainty stems from outside the Bay Area. The Bay Area economy does not function in isolation and is largely dependent on the U.S. and global economies.

Certainly a prolonged national and global recession would delay recovery in the Bay Area. Even in the worst-case scenario, however, the U.S. is unlikely to face a decade of stagnation as in Japan. Unlike Japan, the U.S. is not stifled by regulatory restrictions and competition is healthy in most industries.

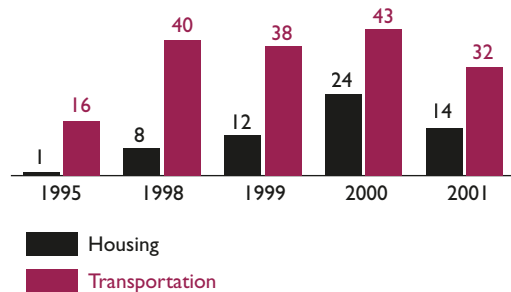
Exhibit 29

### THERE ARE SIGNS THAT QUALITY OF LIFE IS BEGINNING TO SUFFER

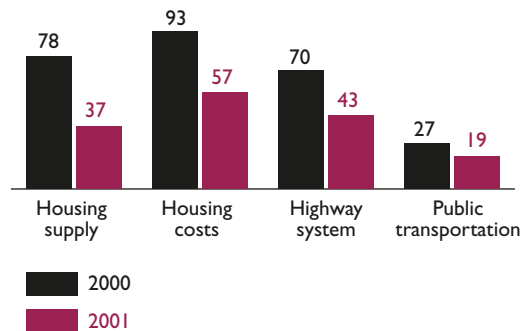
Perception of quality of life (percent)



Percentage of residents citing issue as the top problem in Bay Area



Percentage of residents that believe issue has gotten worse over the past year



Source: Bay Area Poll 1998, 1999, 2000, and 2001; Bay Area Council

**Exhibit 30**  
**BAY AREA TRANSPORTATION**  
**INFRASTRUCTURE GETS LOW SCORES**

	Overall transportation quality score	National rank in 2000	Change in rank since 1997
New York	99.4	3	0
Boston	94.6	20	↑ 1
Houston	94.3	21	↑ 17
Los Angeles	93.5	24	↓ 6
Seattle	87.0	47	↑ 12
Bay Area	78.8	74	↓ 17
Austin	78.8	75	↑ 38
Boise	67.4	114	↑ 31

Note: See appendix for additional transportation data (www.bayareacouncil.org and www.bayeconfor.org)  
 Source: *Places Rated Almanac*, 2000, 1997

Regardless of what happens beyond the region, the Bay Area must recover from the excesses of the “bubble” era, a process that could take many more months. But there is reason to expect that a regional recovery could come relatively quickly.

Much of the excess venture capital that drove the bubble was consumed immediately through salaries, marketing, and other expenses. This is quite different from other well-known bubbles, such as the savings and loan crisis. In that case, excess capital went toward developing a huge surplus of real estate, which was a drag on the economy for years. Moreover, the physical capital investments made in the Bay Area in recent years tended to be in information technology and computers, which rapidly become obsolete and are replaced, or network infrastructure such as fiber-optic lines and broadband access that will serve as a foundation for future growth.

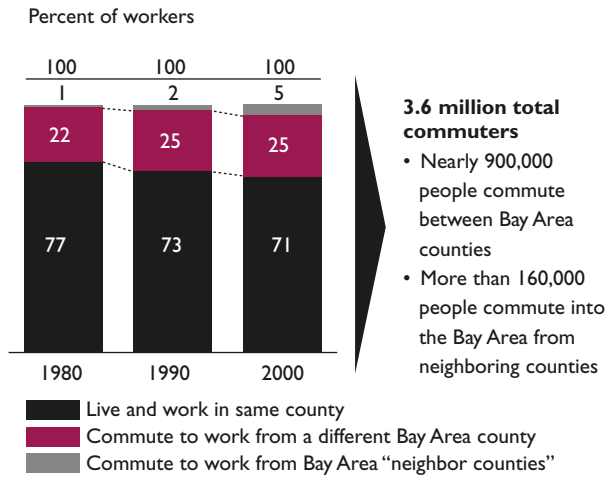
It is valuable to remember that a rapid rise and dramatic fall following a major technological advance is hardly unique. The railroad and automobile industries, for instance, initially generated great excitement and the promise of exceptional profits, only to be followed by a crash. Both recovered to a prolonged period of build-out and growth that fueled the national economy for many years.

All of this suggests that, barring severe economic disturbances, the Bay Area should recover relatively quickly.

**Bay Area:**  
**Reaching Its Potential**

Regardless of what the near term brings, the Bay Area has the potential to remain the nation’s most productive regional economy. As long as it

**Exhibit 31**  
**BAY AREA WORKERS INCREASINGLY**  
**COMMUTE BETWEEN COUNTIES**



\*Mendocino, Colusa, Yolo, Sacramento, Placer, San Joaquin, Stanislaus, Merced, San Benito, Monterey, Santa Cruz counties  
 Source: Metropolitan Transportation Commission

continues to attract innovative companies and talented workers, the Bay Area can continue to increase productivity.

But achieving this is not a foregone conclusion. Regional leaders need to work to ensure that productivity gains result in an increased standard of living for Bay Area residents. If the Bay Area cannot continue to increase living standards, it risks losing high-performing companies and workers, both of which are critical to productivity growth. In short, the link between productivity and standard of living can result in either a virtuous or a vicious cycle.

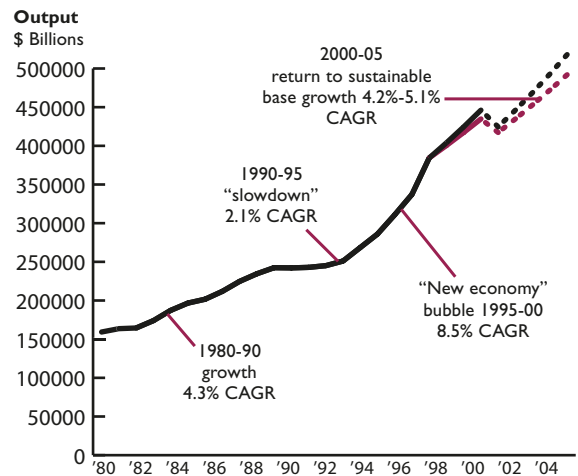
The Bay Area enjoys some important advantages, but it is not without competition. There are other regional economies in the United States that have enjoyed high productivity growth and offer a lower cost of living than the Bay Area, making them attractive to both companies and workers. If the Bay Area loses talent to other regions, its source of advantage will erode, which will reduce or even reverse the advantages it now enjoys.

Already, Bay Area businesses are finding it very difficult to attract talent from outside the region. A senior human resources executive commented that his company needed to pay a “substantial” premium to get talented workers to move into the Bay Area. As a result, he has been forced to reduce the number of people he could hire from outside the region, which in turn “has limited our ability to bring in new ideas and different perspectives.”

Bay Area leaders have an instrumental role to play in influencing the direction of this reinforcing cycle. The lack of affordable housing, an inadequate transportation system, and an underperforming K-12 educational system threaten the

**Exhibit 32**

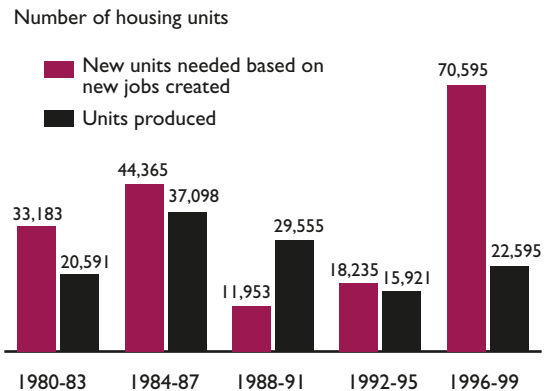
**BAY AREA POTENTIAL ECONOMIC GROWTH 4.2% TO 5.1% ANNUALLY AFTER RECOVERY**



\*All figures are inflation adjusted. Estimates based on productivity projections by team and employment projections by ABAG. See appendix for description of methodology and details on productivity sustainability by sector at ([www.bayareacouncil.org](http://www.bayareacouncil.org) and [www.bayeconfor.org](http://www.bayeconfor.org))  
Source: Association of Bay Area Governments; project team analysis

**Exhibit 33**

**CHRONIC SHORTAGE OF HOUSING DRIVES COST OF LIVING AND TRANSPORTATION PROBLEMS**



Source: Association of Bay Area Governments

long-term economic prosperity of the region. These problems are not new, but the lack of adequate response to challenges has exacerbated them.

The shortage of housing in particular threatens the Bay Area's standard of living and potential for continued economic growth (Exhibit 33). But the high cost of housing also has implications for the health, safety, and education of Bay Area residents and their children. As one public official noted, "My county can't attract doctors because the cost of housing is prohibitive." Similarly, a health care company CEO noted that it is "nearly impossible" to recruit nurses. Teachers, police officers, and firefighters also are forced to live far from the communities they serve. "In the event of an emergency, Half Moon Bay will be unable to react because the firemen and policemen all live so far away," one official commented. "I suspect not a single police officer lives in Palo Alto," another executive said.

Escalating housing costs, of course, increase the burden placed on the transportation infrastructure as people are forced into longer commutes to find affordable living space. One biotech executive lamented, "Increasingly people are having to commute from farther away to find a place they can afford. Eventually, they just quit." As such, housing and transportation problems cannot be handled in isolation. Developing housing density near jobs and transit centers is essential to relieve both the housing shortage and traffic congestion.

Dealing with these challenges is not likely to get easier anytime soon. The economic slowdown and resulting decrease in tax receipts will have substantial implications for the Bay Area's ability to address these problems in the near term. As California copes with a sizeable budget gap, there will be less public money available to fund infrastructure improvements or other types of initiatives that could help address the Bay Area's critical issues.

It is, therefore, more important than ever that leaders look for solutions beyond those that require direct public funding. State and local governments need to create incentives for better use of land and an increase in the housing supply. Additionally, better intra-regional planning is necessary to coordinate efforts and ensure that solutions in one jurisdiction do not cause spillover problems in another.

Businesses, too, must consider what they can do to address these problems. Efforts such as flexible hours and incentives for employee use of public transportation help, but they are not enough. Businesses need to recognize their influence and be greater advocates for change. As one public official commented, "Politicians don't listen to other politicians, but they do listen to business leaders."

In short, the Bay Area needs to channel its innovation, creativity, and intellectual capability into solving these issues. There are already examples of innovative initiatives that are addressing the housing problem. Business, environmental, social equity, and government organizations have launched a major public engagement process to promote a preferred land-use pattern that will accommodate a sufficient amount of housing. Corporate-sponsored housing funds have been developed to assist teachers with their mortgage payments. Other programs offer deferred-interest loans to employees who are first-time homebuyers.

Bay Area leaders need to find a way to accelerate and replicate such initiatives. Both the public and private sector have a role to play and the leaders of each need to work together to make it happen. If the region's business and civic leaders can bring all the energy and entrepreneurial spirit to these problems that they bring to their professional pursuits, there is every reason to be optimistic about a bright future for the Bay Area.

## For More Information

The exhibits printed in this report represent the project team’s summary findings. The complete set of analysis and other useful information, including endnotes and a description of methodology, are available on the websites of the Bay Area Council ([www.bayareacouncil.org](http://www.bayareacouncil.org)) and the Bay Area Economic Forum ([www.bayeconfor.org](http://www.bayeconfor.org)). The following is a summary of the information available on those sites.

### Appendix A: Economic Performance and Quality of Life

BAY AREA GROSS REGIONAL PRODUCT COMPARES FAVORABLY WITH SEVERAL NATIONS	POTENTIAL SCENARIOS FOR PRODUCTIVITY GROWTH 2001-2005
BAY AREA FORTUNE 500 COMPANIES	COMPONENTS OF FUTURE PRODUCTIVITY GROWTH
BAY AREA COMPANIES TOTAL RETURN PERFORMANCE	CLIMATE RANKINGS BY REGION
FASTEST GROWING PRIVATE COMPANIES: INC. 500 LIST BY COMPARATIVE REGION	ARTS AND CULTURE RANKINGS BY REGION
WEALTH CONCENTRATION: FORBES 400 LIST BY COMPARATIVE REGION	CRIME RATE INDEX BY REGION
INCOME DISTRIBUTION IN BAY AREA – 1990 vs. 2000	AIR QUALITY RATINGS BY REGION
INCOME DISTRIBUTION IN COMPARATIVE REGIONS – 2000	TRAFFIC CONGESTION BY REGION
INCOME INEQUALITY BY COUNTY – 1990 vs. 2000	GROWTH IN BAY AREA CONSUMER PRICES BY ITEM
BAY AREA PRODUCTIVITY RELATIVE TO U.S. AVERAGE BY SECTOR	BAY AREA PURCHASING POWER PARITY
BAY AREA PRODUCTIVITY GROWTH ACCELERATION	EDUCATIONAL PERFORMANCE BY STATE: SAT AND SCIENCE PROFICIENCY
PRODUCTIVITY GROWTH ACCELERATION DRIVEN BY HIGH TECH	EDUCATIONAL PERFORMANCE BY STATE: READING AND MATH PROFICIENCY
SOURCES OF SUSTAINABLE PRODUCTIVITY ACCELERATION	EDUCATIONAL PERFORMANCE BY COUNTY: STAR ACHIEVEMENT 2000
SUMMARY OF SUSTAINABLE PRODUCTIVITY GROWTH IN KEY SECTORS	EDUCATIONAL SPENDING AND CLASSROOM SIZE BY REGION
PRODUCTIVITY GROWTH IN REST OF THE BAY AREA ECONOMY	BAY AREA HOUSING AFFORDABILITY TREND
	HOUSING SHORTAGE BY COUNTY
	STOCK OF BAY AREA HOUSING SUPPLY vs. JOB CREATION

## Appendix B: Performance by Industry Cluster

SUMMARY OF CLUSTER PERFORMANCE	MULTIMEDIA PERFORMANCE BY REGION
BANKING AND FINANCE PERFORMANCE BY REGION	MULTIMEDIA RELATIVE PERFORMANCE TREND
BANKING AND FINANCE RELATIVE PERFORMANCE TREND	MULTIMEDIA PERFORMANCE BY COUNTY
BANKING AND FINANCE PERFORMANCE BY COUNTY	TELECOMMUNICATIONS PERFORMANCE BY REGION
BIOSCIENCE PERFORMANCE BY REGION	TELECOMMUNICATIONS RELATIVE PERFORMANCE TREND
BIOSCIENCE RELATIVE PERFORMANCE TREND	TELECOMMUNICATIONS PERFORMANCE BY COUNTY
BIOSCIENCE PERFORMANCE BY COUNTY	WHOLESALE TRADE PERFORMANCE BY REGION
BUSINESS SERVICES PERFORMANCE BY REGION	WHOLESALE TRADE RELATIVE PERFORMANCE TREND
BUSINESS SERVICES RELATIVE PERFORMANCE TREND	WHOLESALE TRADE PERFORMANCE BY COUNTY
BUSINESS SERVICES PERFORMANCE BY COUNTY	RETAIL TRADE PERFORMANCE BY REGION
ENVIRONMENTAL TECHNOLOGY PERFORMANCE BY REGION	RETAIL TRADE RELATIVE PERFORMANCE TREND
ENVIRONMENTAL TECHNOLOGY RELATIVE PERFORMANCE TREND	RETAIL TRADE PERFORMANCE BY COUNTY
ENVIRONMENTAL TECHNOLOGY PERFORMANCE BY COUNTY	TOURISM PERFORMANCE BY REGION
COMPUTERS AND ELECTRONICS PERFORMANCE BY REGION	TOURISM RELATIVE PERFORMANCE TREND
COMPUTERS AND ELECTRONICS RELATIVE PERFORMANCE TREND	TOURISM PERFORMANCE BY COUNTY
COMPUTERS AND ELECTRONICS PERFORMANCE BY COUNTY	NUMBER OF CLUSTERS WITH PRODUCTIVITY LEADERSHIP POSITION BY REGION
	SIC CODE MAPPINGS

## Appendix C: Definitions, Methodology, and Endnotes

DEFINITION OF TERMS	METHODOLOGY FOR ESTIMATING IMPACT OF PRICES
REGIONS ANALYZED	METHODOLOGY FOR ESTIMATING IMPACT OF VENTURE CAPITAL
METHODOLOGY FOR SELECTING PRIMARY COMPARATIVE REGIONS	METHODOLOGY FOR ASSESSING IMPACT OF CAPITAL INTENSITY
DEFINITION OF PRIMARY REGIONS (CMSAs)	ENDNOTES
METHODOLOGY FOR ESTIMATING GROSS REGIONAL PRODUCT	



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