After the Bubble: Sustaining Economic Prosperity

Appendix B: Performance by Industry Cluster

January 2002

SUMMARY OF CLUSTER PERFORMANCE

Banking and Finance as an industry cluster in the Bay Area has grown from being 4th in output among comparison regions to being 2nd in the past couple of years. The Bay Area is among the fastest growing regions in the banking and finance industry nationally. It has a productivity level of over $200,000 per worker, 3rd highest among all comparison regions.

Despite major restructuring in the industry over the past few years, the Bay Area financial institutions have created over 26,000 jobs in this period. Many of these jobs were created due to significant redefinition of the financial services business system, as links tightened between the traditional banking community and the region's new information and computing services companies. Bay Area businesses are at the forefront of this transformation, as regional online brokerages and online mortgage vendors went through a period of phenomenal growth. San Francisco County remains the undisputed leader in banking and finance, accounting for nearly half of the total output in the industry in the region, and a 50% lead in productivity.

Bioscience productivity in the Bay Area is ahead of all other comparison regions by a wide margin. It leads the comparison regions along most metrics, and is second only to the NewYork-New Jersey region in total output within the cluster. The region is home to one many of the best graduate bioscience institutions such as Stanford, and the University of California campuses at Berkeley and San Francisco. These graduate programs attract some of the finest bio-scientists in the world, and provide a nexus between research ideas and commercialization, with the Bay Area venture capital community providing a significant source of funding.

Santa Clara, San Mateo and Alameda counties together account for more than 95% of the biosciences output of the Bay Area, and have witnessed some of the highest rates of output and employment growth nationally in the past five years. San Mateo County, the leader in bioscience output in the region, has remarkably high productivity levels – approximately 160% of the Bay Area industry average, and over 300% of the national industry average.

Business Services continue to remain one of the most significant sources of competitive advantage for the Bay Area. The region ranks second in productivity and output levels, and has among the highest rates of growth both in output and employment among all comparison regions. Jobs in this sector range from low-wage personal service workers to some of the highest paid knowledge-based workers. Over the past five years, computer programming has emerged as the single biggest source of employment and productivity growth in the sector, and has attracted one of the largest skilled labor pools to the region. Driven by growth in computer programming, the Bay Area has maintained the second highest productivity level among comparison regions in the industry, second only to Seattle. Santa Clara and San Mateo counties are the leaders in output and employment in the industry within the region, with an average productivity level lead in excess of $100,000 per worker above the national average.

SUMMARY OF CLUSTER PERFORMANCE

Environmental Technology industries in the Bay Area have the second highest level of productivity, produce the third highest level of output, and have the fourth largest employment pool among all comparison regions. Although the sector size is small, its performance relative to other comparison regions makes it a valuable part of Bay Area competitiveness. Overall employment growth in the cluster remains strong, averaging 2.4% annually. Over the past couple of years, Santa Clara has taken over San Francisco as the leader in the industry, accounting for nearly a third of the total output During this period, Napa has emerged as one of the fastest growing counties in the industry, with the highest levels of productivity in the region, and with annual growth rates in employment and output averaging around 20%. This industry experienced a sizable slowdown in the early 1990s due to a recession and overcapacity, but has made a transition from waste cleaning to pollution prevention. In the process, it has drawn on strong environmental engineering research at the regional graduate institutions, attracting skilled workers. Leveraging a rich regional technical base, this cluster is well positioned to become a global center of excellence in such specialized areas as environmental instrumentation, pollution prevention, toxics management, waste reduction, water management, and reclamation.

Computers and electronics remains a very strong Bay Area industry cluster, accounting for nearly a quarter of the nation's cluster output. Almost half of the region's Fortune 500 companies are computer- or electronics- related, and the Bay Area enjoys an unrivalled reputation as the home of some of the most successful companies in the computers and electronics industry. Over the past five years, primarily computer manufacturing and semiconductor manufacturing have driven growth in this cluster.
Santa Clara County accounts for approximately 80% of the Bay Area's output in this cluster, and has a productivity level of over $300,000 per worker - the highest in the nation. As a region, the Bay Area leads all other comparative regions in productivity by a wide margin, and is second only to Portland. Driven by Bay Area's reputation for innovation and talent, the other 8 counties of the region have witnessed impressive growth rates in its employment base in this cluster, ranging from 12% to 24% annually.

SUMMARY OF CLUSTER PERFORMANCE

Multimedia is one of the fastest growing industry clusters in the Bay Area, and is home to more than a third of the nation's multimedia firms. Over the past couple of years, the Bay Area has witnessed among the highest growth rates in output and employment in this sector when compared to other comparison regions. It has overtaken Los Angeles, has the highest output among comparison regions, and accounts for nearly a fifth of the nation's output in the cluster. Through this period of impressive growth, the Bay Area has maintained its productivity lead relative to other comparison regions.

The Bay Area is the center of the multimedia revolution in many ways. The area brings together a unique combination of the key elements for multimedia – technology, content, new services, and a trade press to write about the industry. These factors have created a strong talent pool in the region, attracting fast growing companies to the region, particularly to Santa Clara County. Santa Clara accounts for nearly two-thirds of the total multimedia output of the region, and has witnessed annual growth rates over 30% in the past five years.

Telecommunications is a very strong cluster in the Bay Area, with the highest output and employment among comparison regions. Bay Area's preeminence in the cluster continues to be driven by the many changes in the telecommunications industry both at the national and regional level. The deregulation of local service, dramatic technological innovations, and increasing competition are leading to lower telecommunications costs and new products and services. Innovation in the telecommunications industry also supports the growth of other key industry clusters such as multimedia and computers and electronics.
The Bay Area continues to maintain its impressive lead in productivity in the telecommunications industry relative to most other regions. However, in the past couple of years, Portland – a region with less than a fifth of the cluster output relative to the Bay Area – has overtaken the Bay Area in its productivity lead. Santa Clara, San Mateo and Alameda counties account for over 90% of the output in the sector, and have experienced impressive rates of annual growth in output ranging from 20%-30% over the past 5 years.

Wholesale Trade is another large sector that provides a strong source of competitive advantage to the Bay Area economy. Bay Area leads all other comparison regions in productivity within the wholesale sector by a wide margin, and is second only to New York and Los Angeles in gross output and total employment. Santa Clara County accounts for 40% of the total output of the region, and leads all other counties in productivity by a wide margin. Productivity contributions within this sector have primarily been driven due to warehouse automation, increase in commodity prices (e.g., drugs), consolidation of retailers, and OFT improvements.

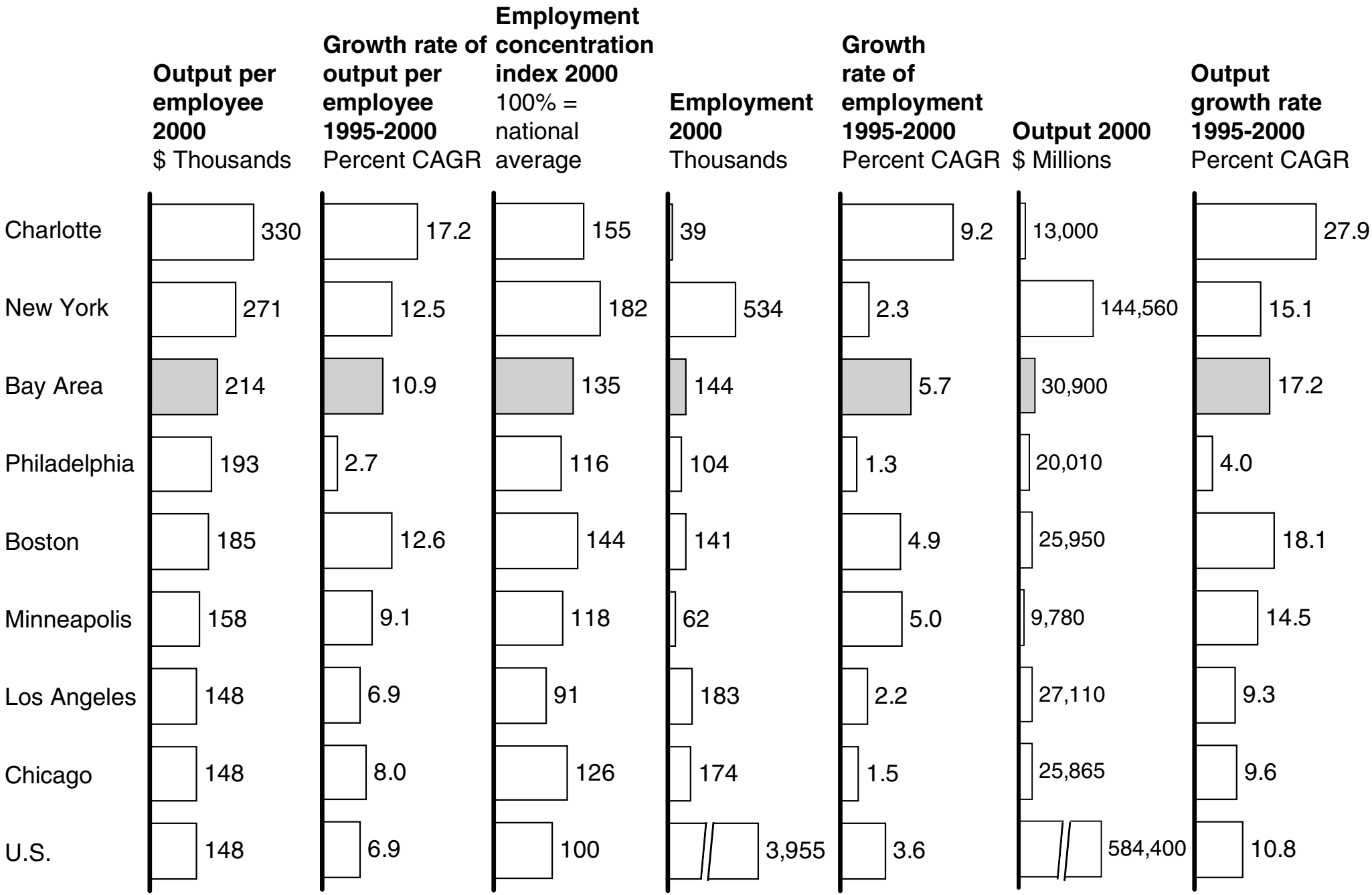
SUMMARY OF CLUSTER PERFORMANCE

Retail trade provides a strong source of competitive advantage to the Bay Area economy. It is a relatively large portion of the economy, comprising 16% of the total employment base of the region, and has a productivity lead of more than 50% above the national average. Output in this sector has grown at an average annual rate of 9%, thus making Bay Area the third largest region among all comparison regions, behind New York and Los Angeles. Santa Clara County leads all other counties in employment in the sector, and comprises 25% of the total retail trade output of the Bay Area. Over the past five years, the retail sector has grown its output especially in the automotive and home furnishings sectors. Growth in the home furnishings sector in turn has been driven primarily on account sale of home computers and accessories.

Tourism is important to the regional economy and informative for the purposes of this comparative analysis for several reasons. First, more than $6 billion is spent annually in the Bay Area as a result of tourism. Second, more than 55% of all trips to the region are business-related and involve information transfers that build on the knowledge-based economy. Third, more than 80% of the international visitor trips to the United States are concentrated in four states, including California, with the Bay Area a world-renowned destination.

The Bay Area ranks 6th among comparison regions in total output, behind New York, Los Angeles, Washington, Philadelphia and Las Vegas. However, its output growth rate has been among the highest, increasing 5.4% annually over the past five years. Within the region, San Francisco County continues to maintain its lead in total output and employment, with Santa Clara County following closely.

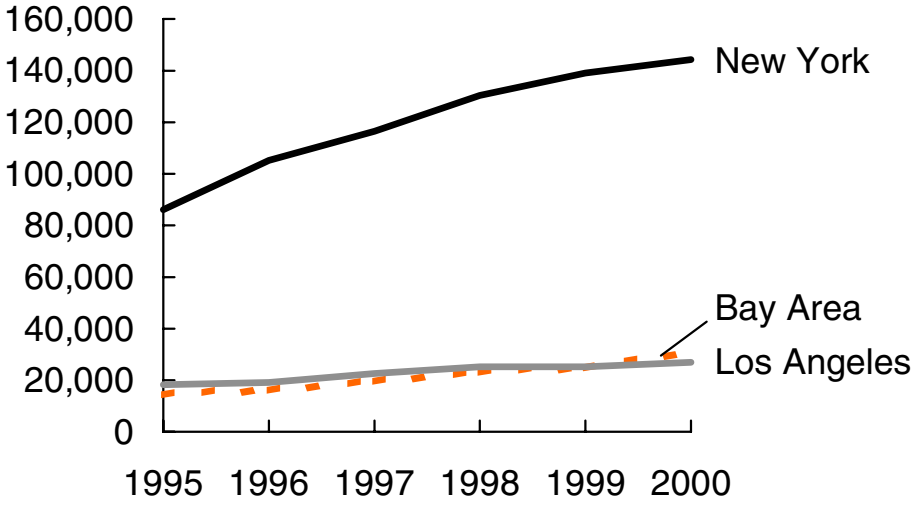
COMPARATIVE REGIONS' BANKING AND FINANCE PERFORMANCE – 2000



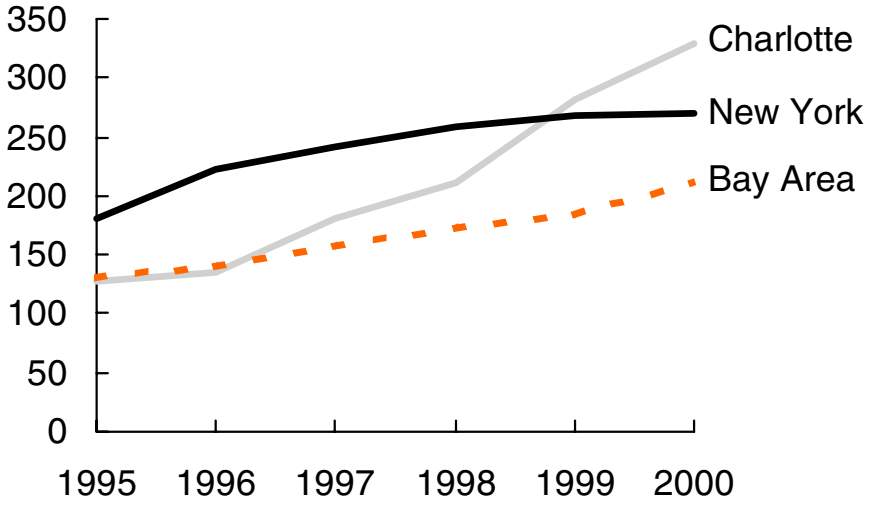
Source: Economy.com; Project team analysis

BANKING AND FINANCE RELATIVE PERFORMANCE TREND: TOP 3 REGIONS – 1995-2000

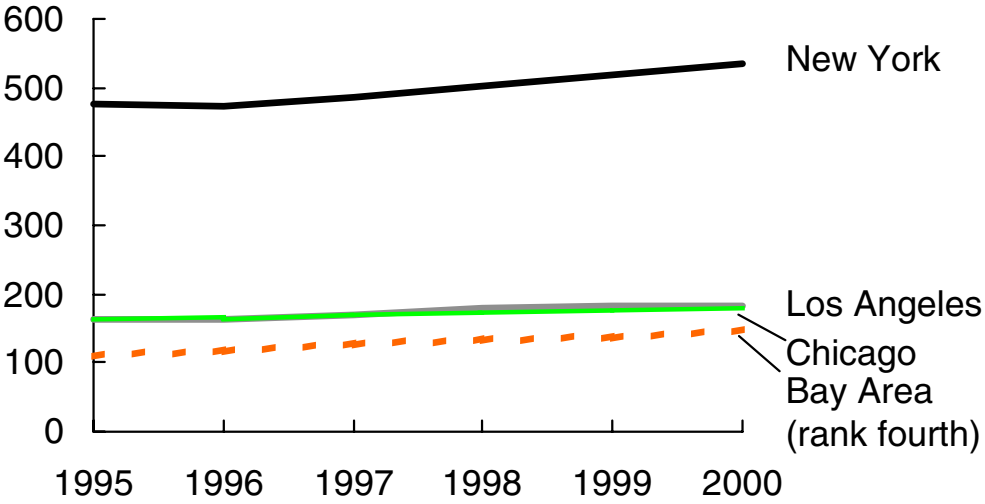
Output
$ Millions



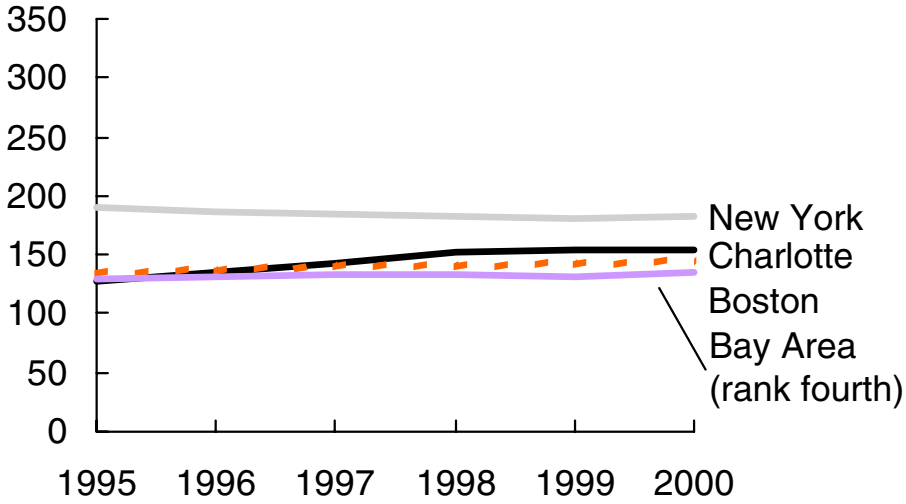
Productivity (output per employee)
$ Thousands



Employment
Thousands

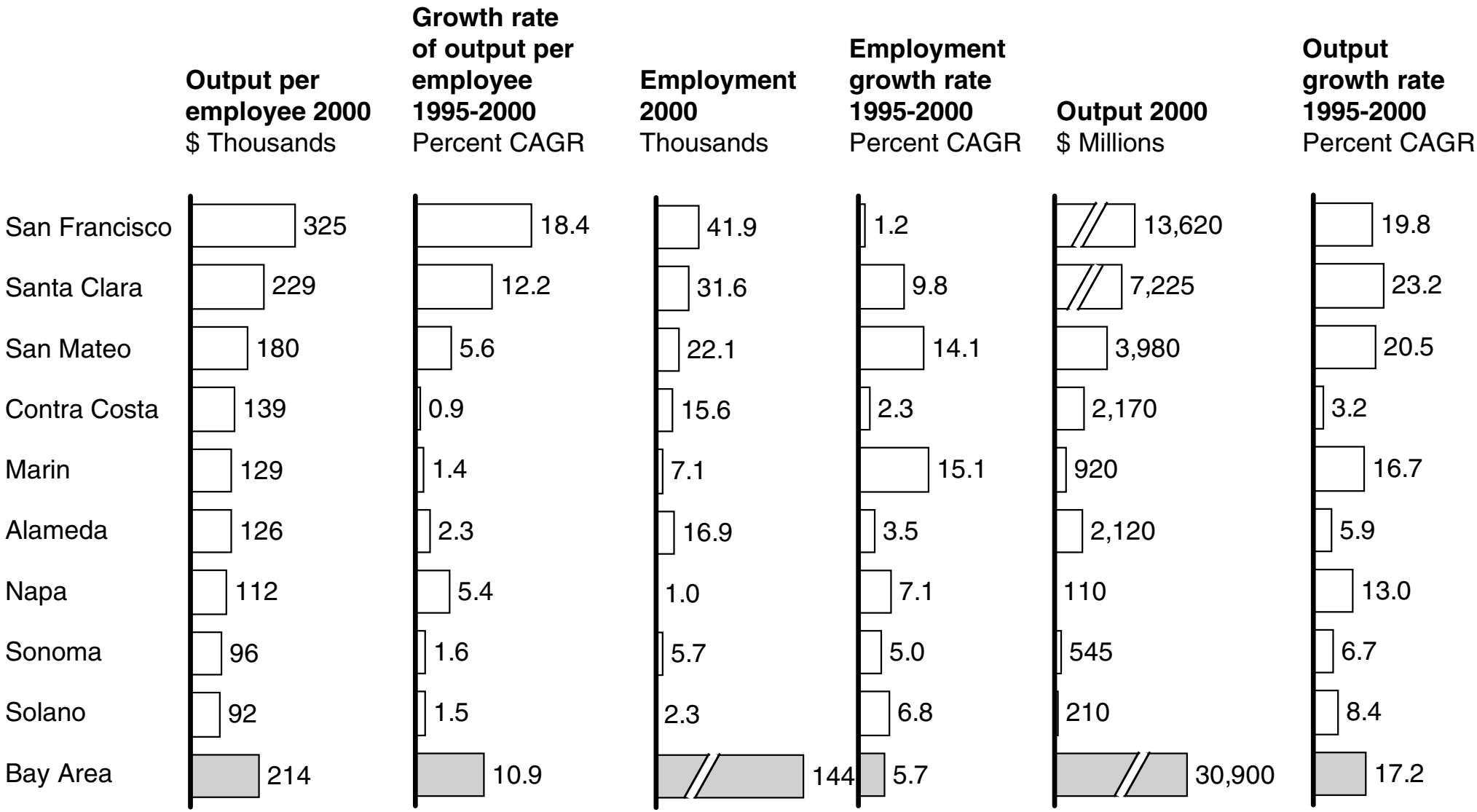


Employment concentration index
U.S. Average = 100



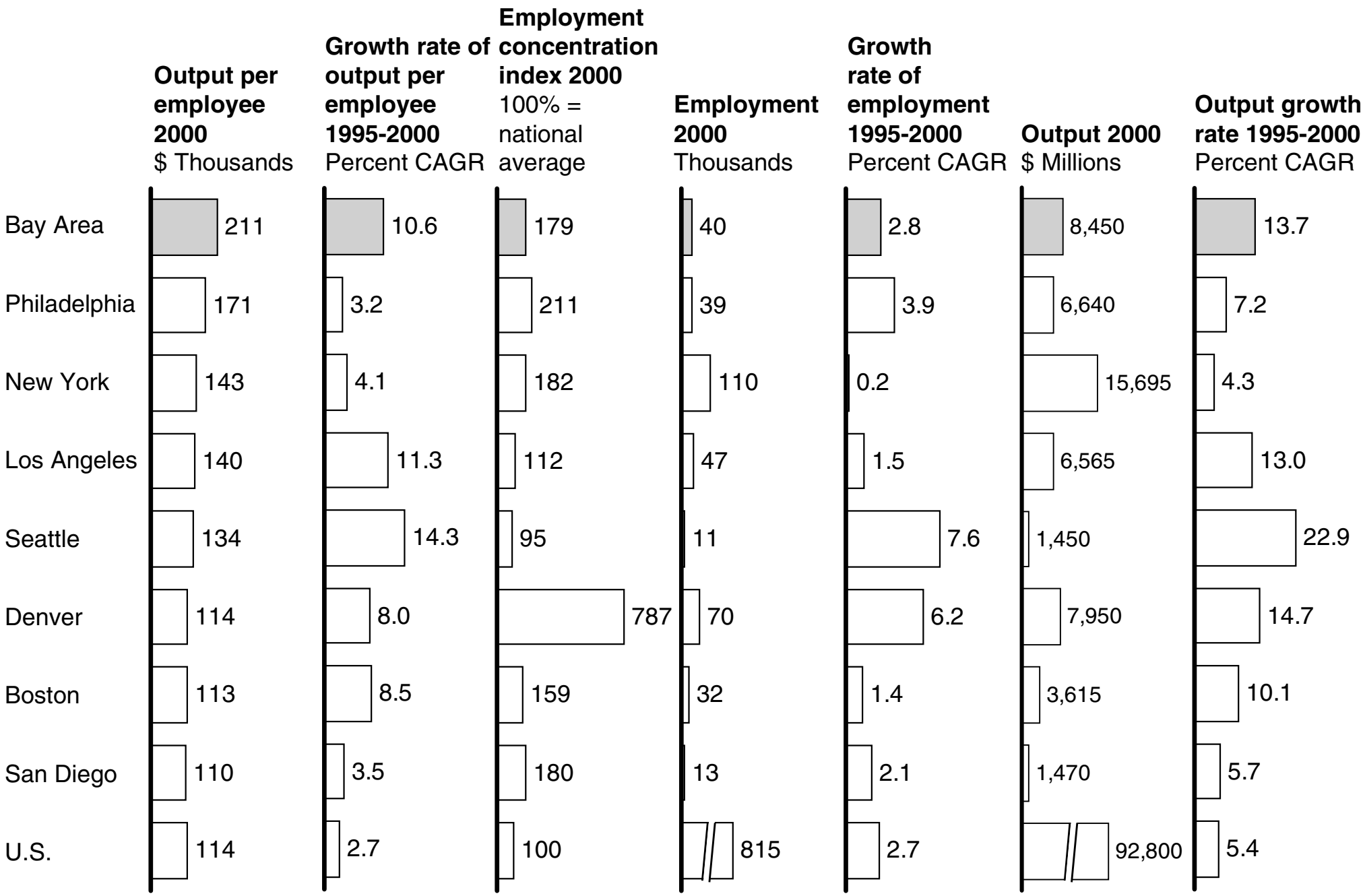
Source: Economy.com; Project team analysis

BAY AREA COUNTIES' BANKING AND FINANCE PERFORMANCE – 2000



Source: Economy.com; Project team analysis

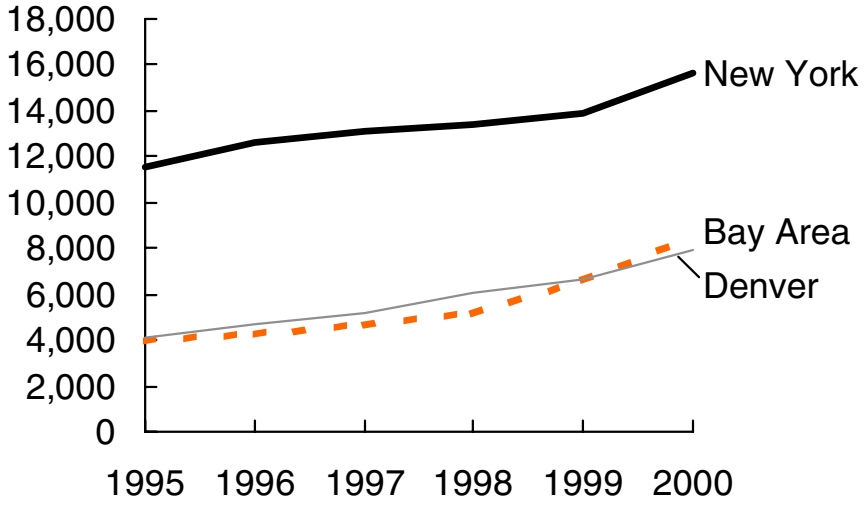
COMPARATIVE REGIONS' BIOSCIENCE PERFORMANCE – 2000



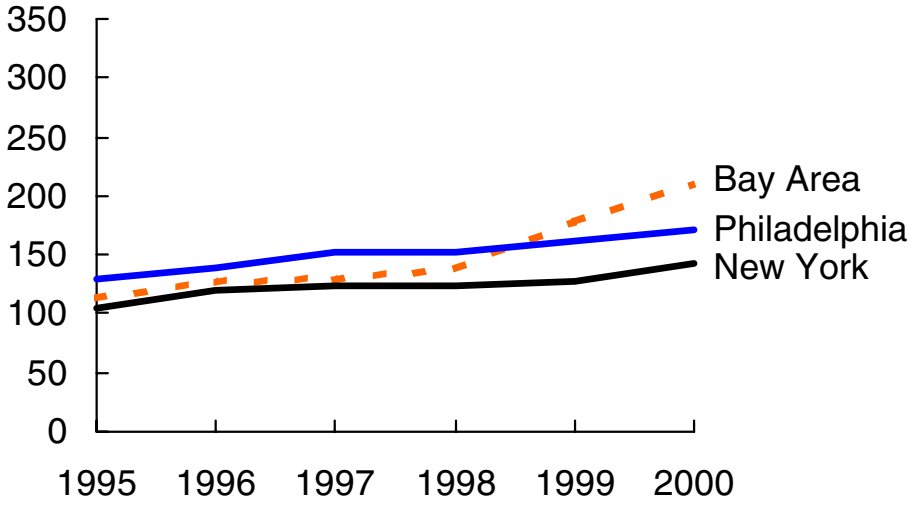
Source: Economy.com; McKinsey analysis

BIOSCIENCES RELATIVE PERFORMANCE TREND: TOP 3 REGIONS – 1995-2000

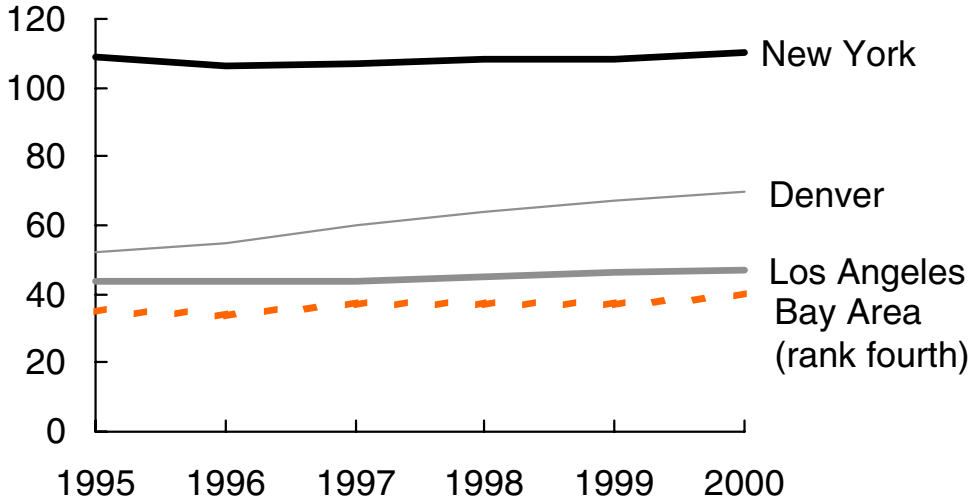
Output
$ Millions



Productivity (output per employee)
$ Thousands



Employment
Thousands



Employment concentration index
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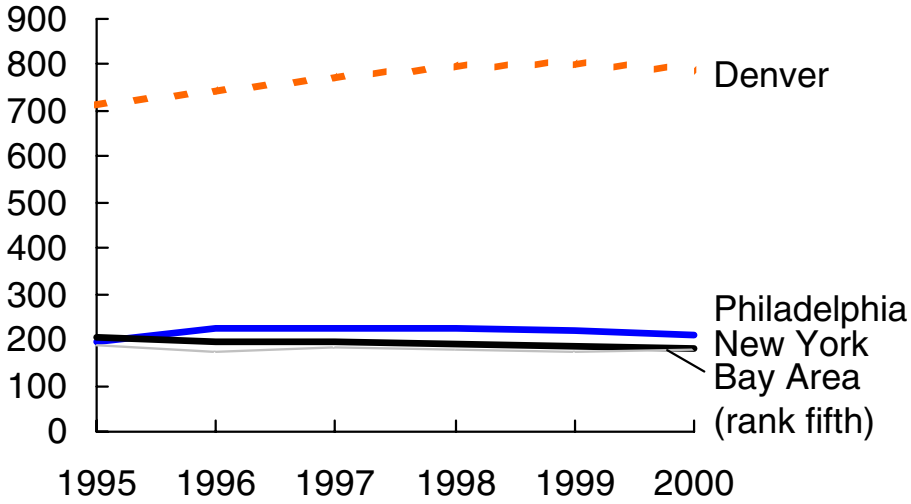
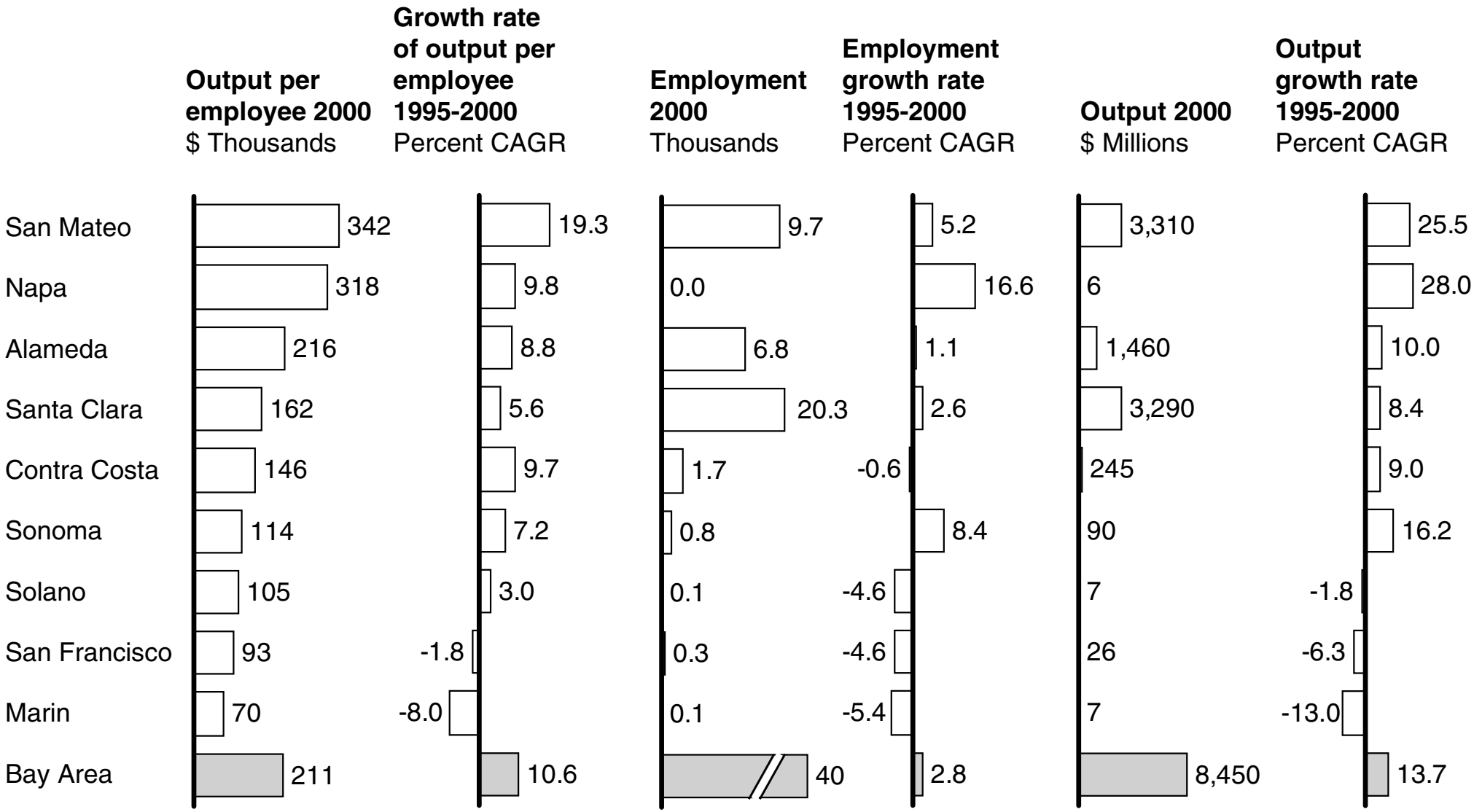


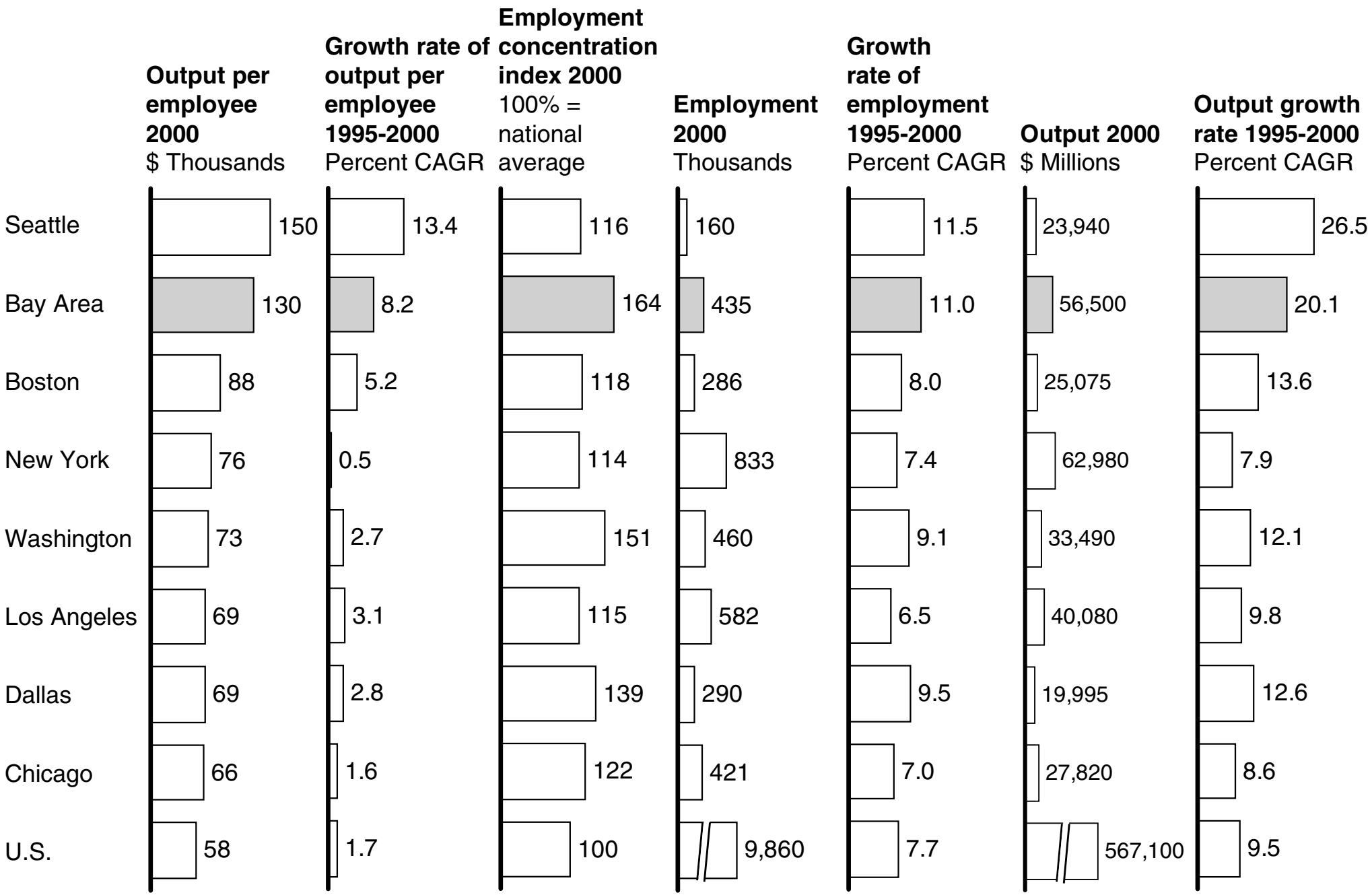
Source: Economy.com; McKinsey analysis

BAY AREA COUNTIES' BIOSCIENCES PERFORMANCE – 2000



Source: Economy.com; McKinsey analysis

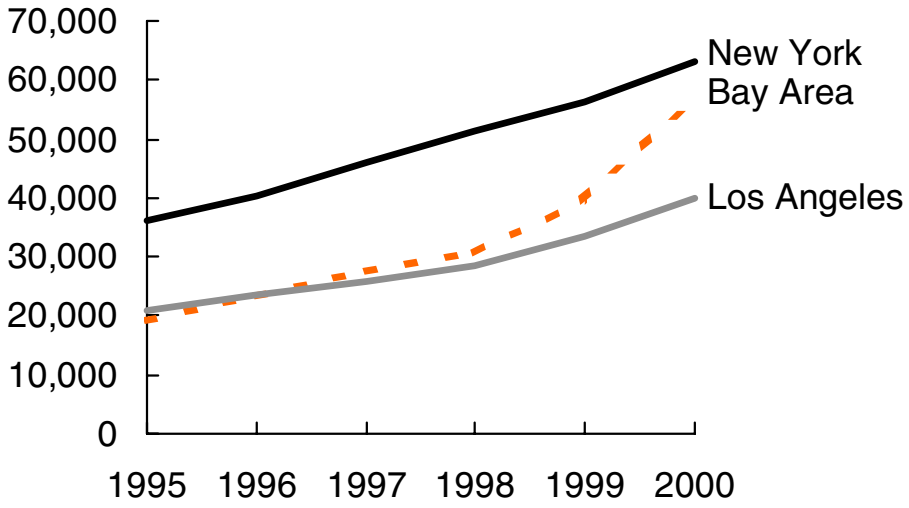
COMPARATIVE REGIONS' BUSINESS SERVICES PERFORMANCE – 2000



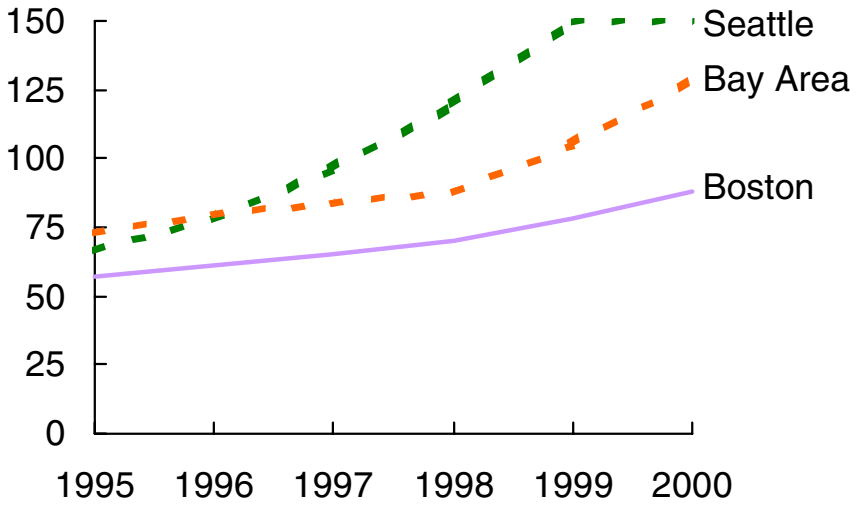
Source: Economy.com; McKinsey analysis

BUSINESS SERVICES RELATIVE PERFORMANCE TREND: TOP 3 REGIONS – 1995-2000

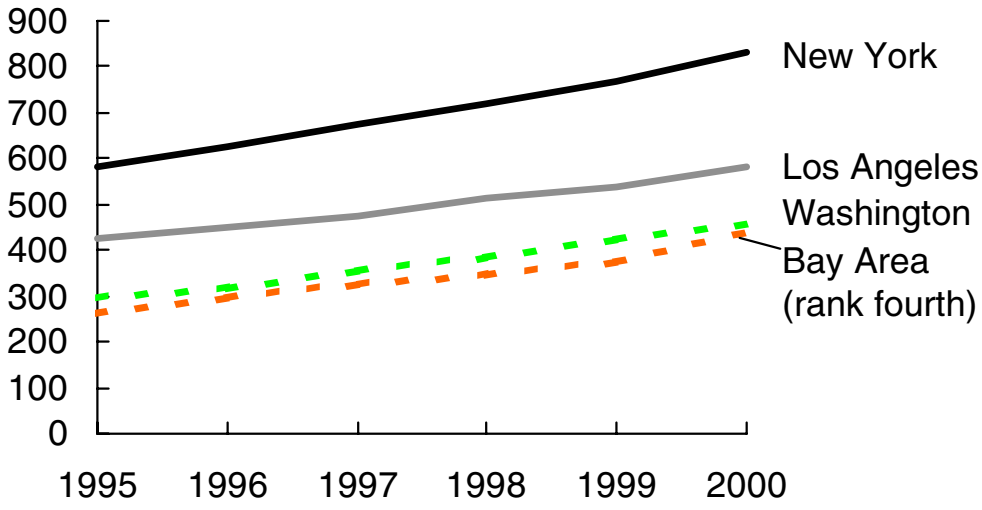
Output
$ Millions



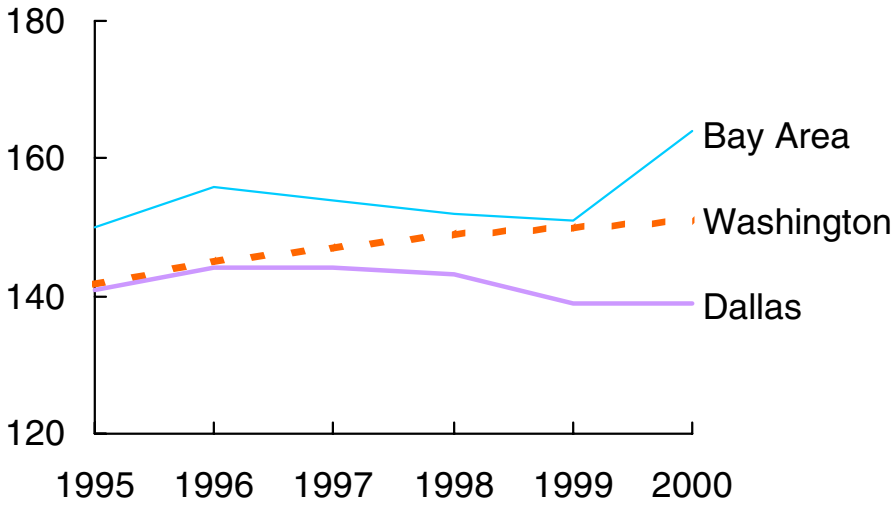
Productivity (output per employee)
$ Thousands



Employment
Thousands

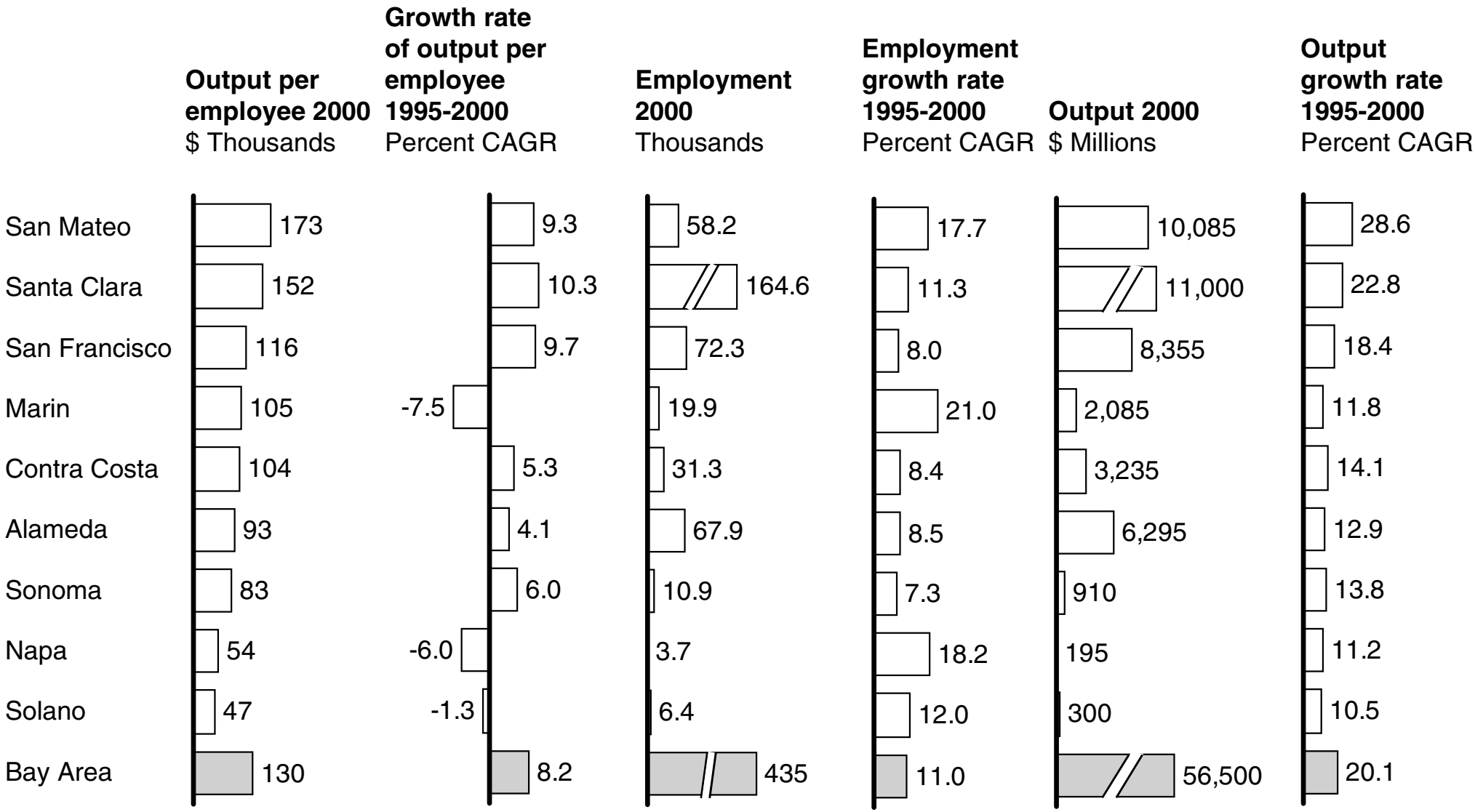


Employment concentration index
U.S. Average = 100



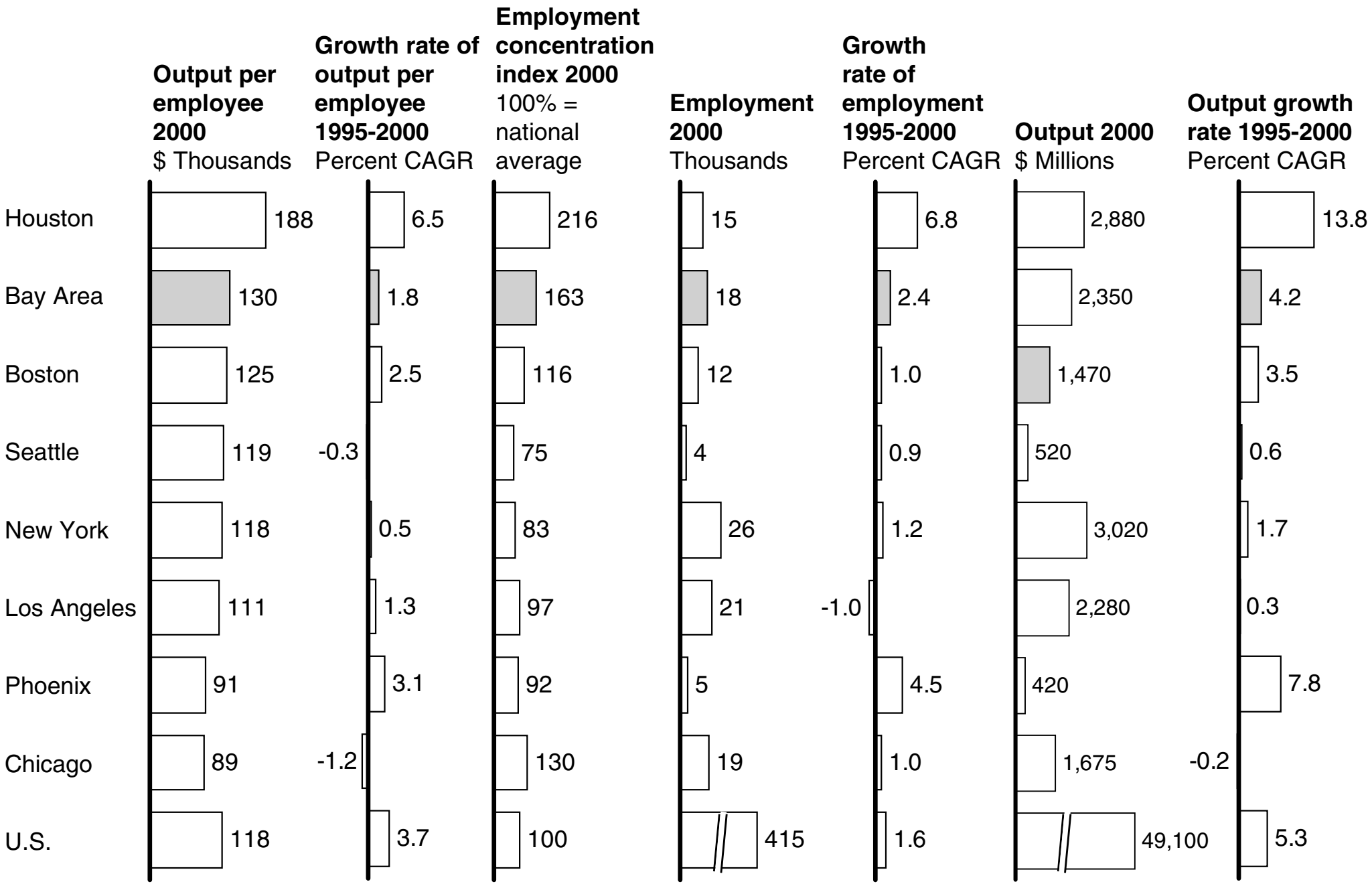
Source: Economy.com; McKinsey analysis

BAY AREA COUNTIES' BUSINESS SERVICES PERFORMANCE – 2000



Source: Economy.com; McKinsey analysis

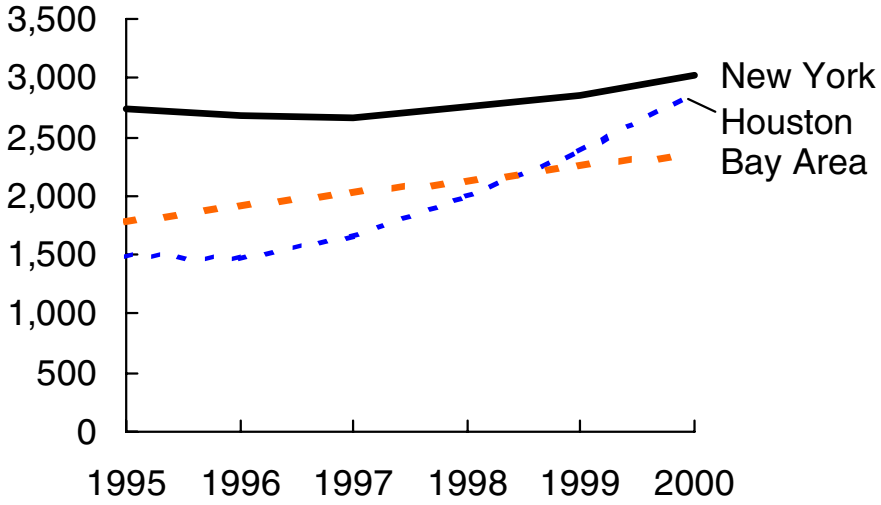
COMPARATIVE REGIONS' ENVIRONMENTAL TECHNOLOGY PERFORMANCE – 2000



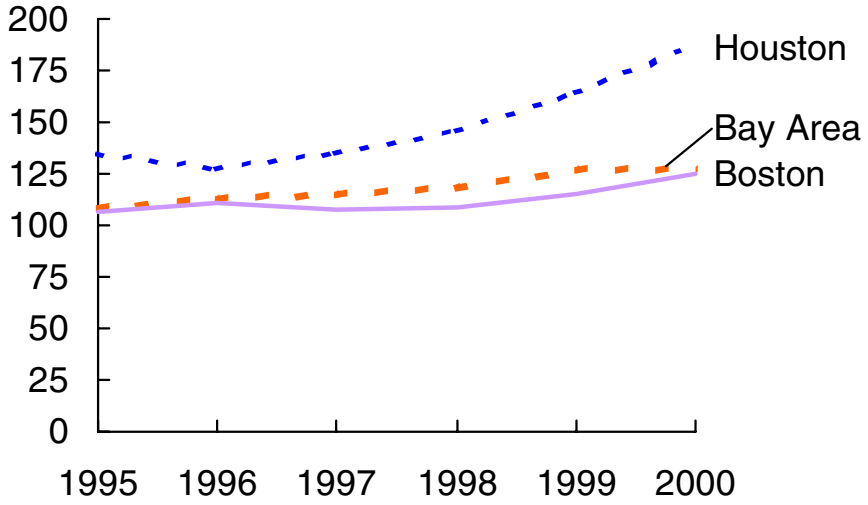
Source: Economy.com; McKinsey analysis

ENVIRONMENTAL TECHNOLOGY RELATIVE PERFORMANCE TREND: TOP 3 REGIONS – 1995-2000

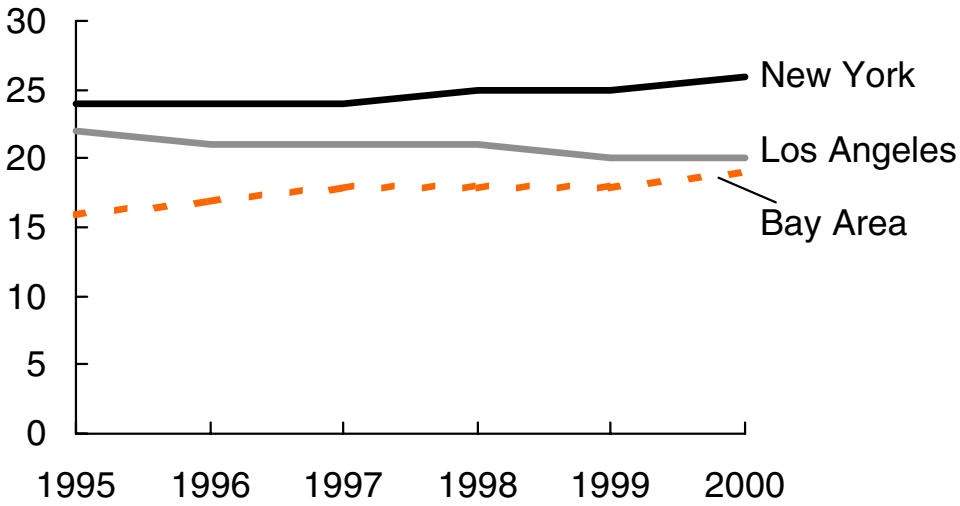
Output
$ Millions



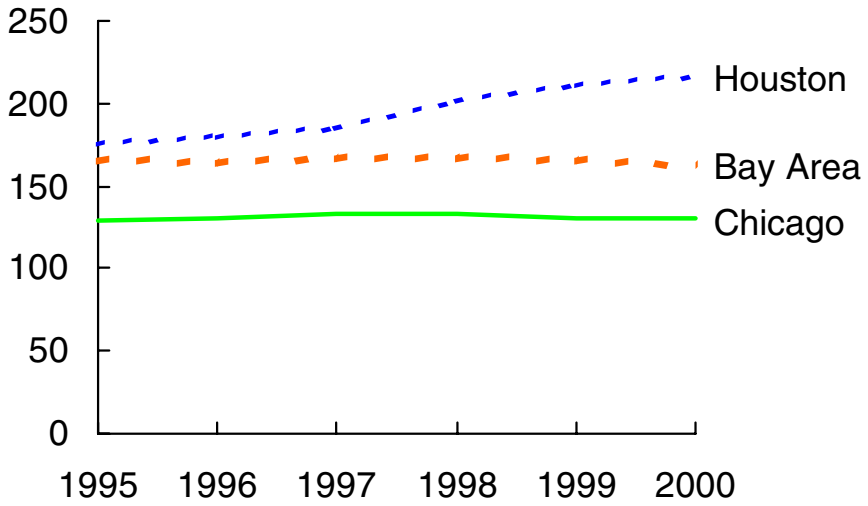
Productivity (output per employee)
$ Thousands



Employment
Thousands



Employment concentration index
U.S. Average = 100

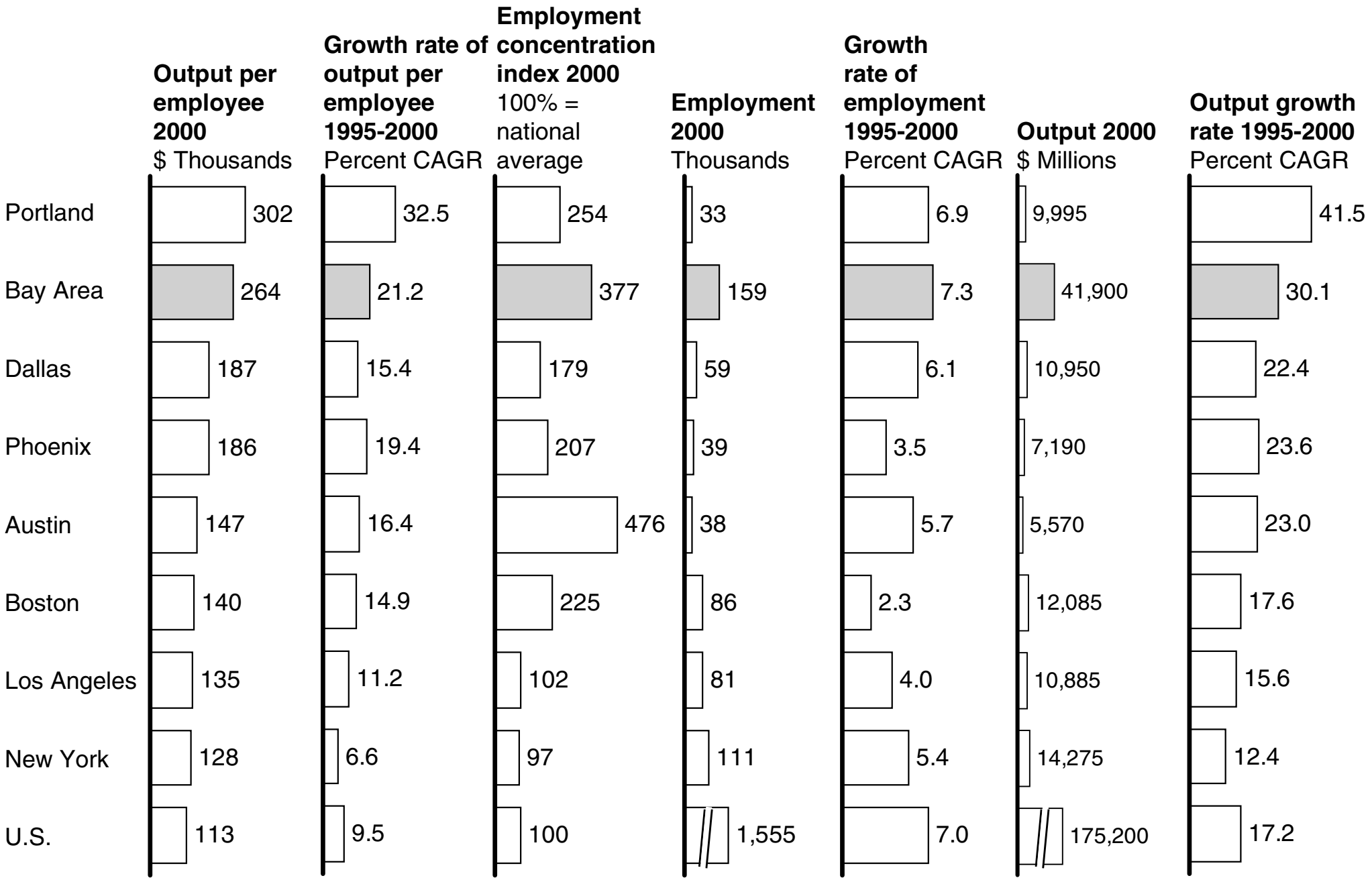


Source: Economy.com; McKinsey analysis

BAY AREA COUNTIES' ENVIRONMENTAL TECHNOLOGY PERFORMANCE – 2000

Source: Economy.com; McKinsey analysis

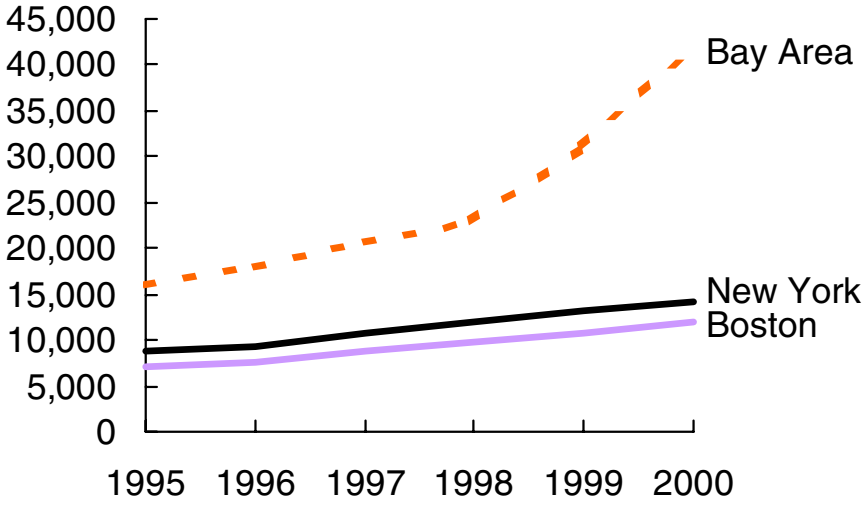
COMPARATIVE REGIONS' COMPUTERS AND ELECTRONICS PERFORMANCE – 2000



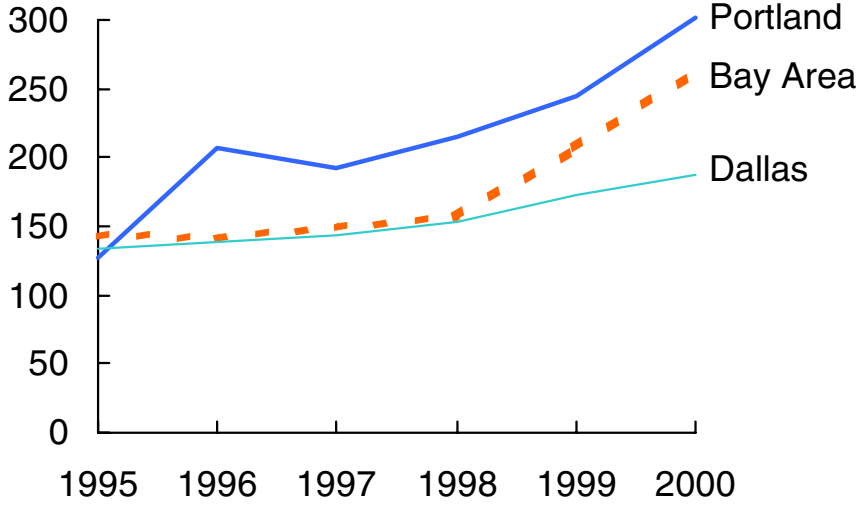
Source: Economy.com; McKinsey analysis

COMPUTERS AND ELECTRONICS RELATIVE PERFORMANCE TREND: TOP 3 REGIONS – 1995-2000

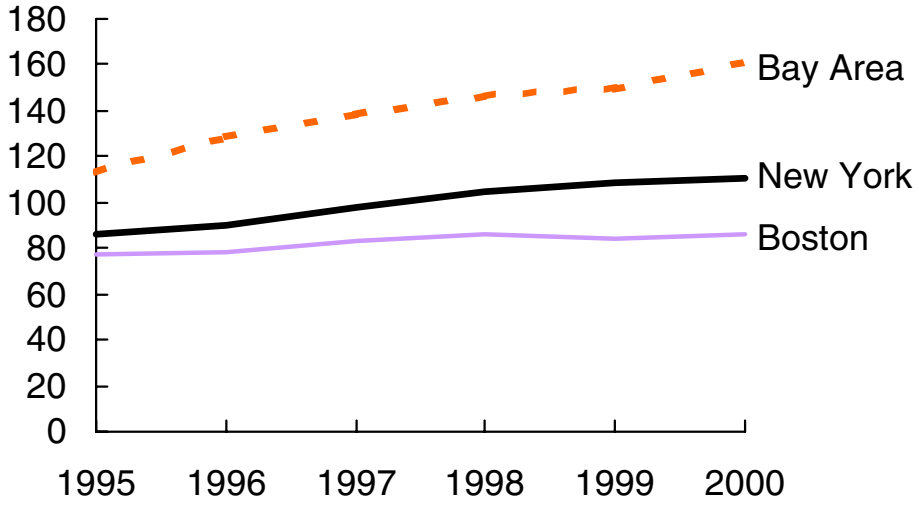
Output
$ Millions



Productivity (output per employee)
$ Thousands



Employment
Thousands



Employment concentration index
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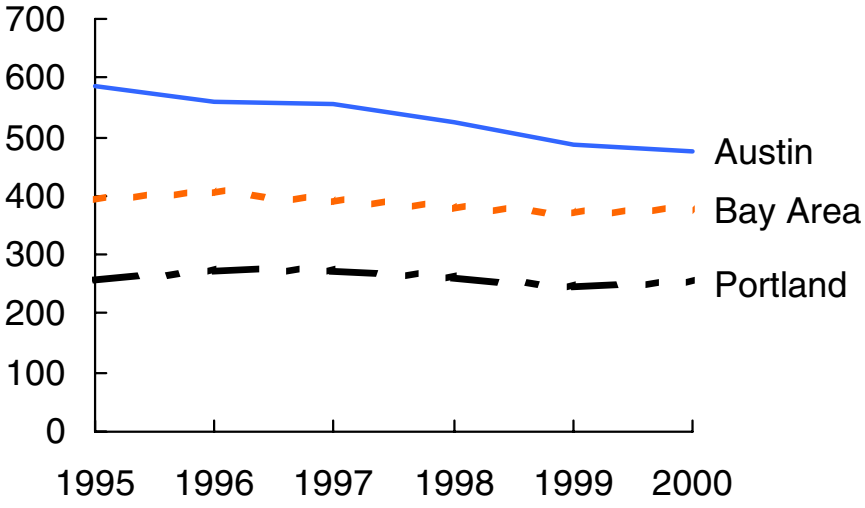
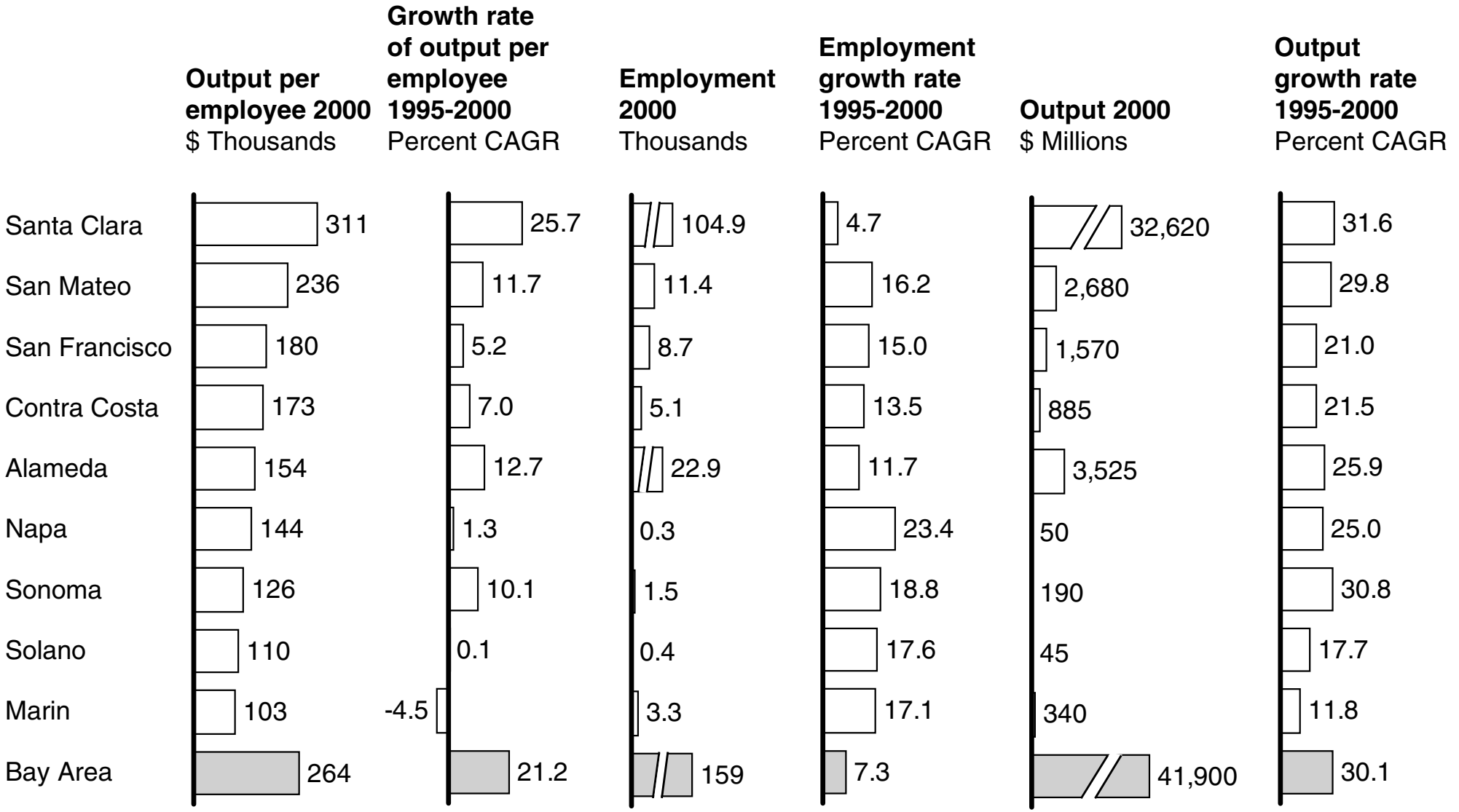


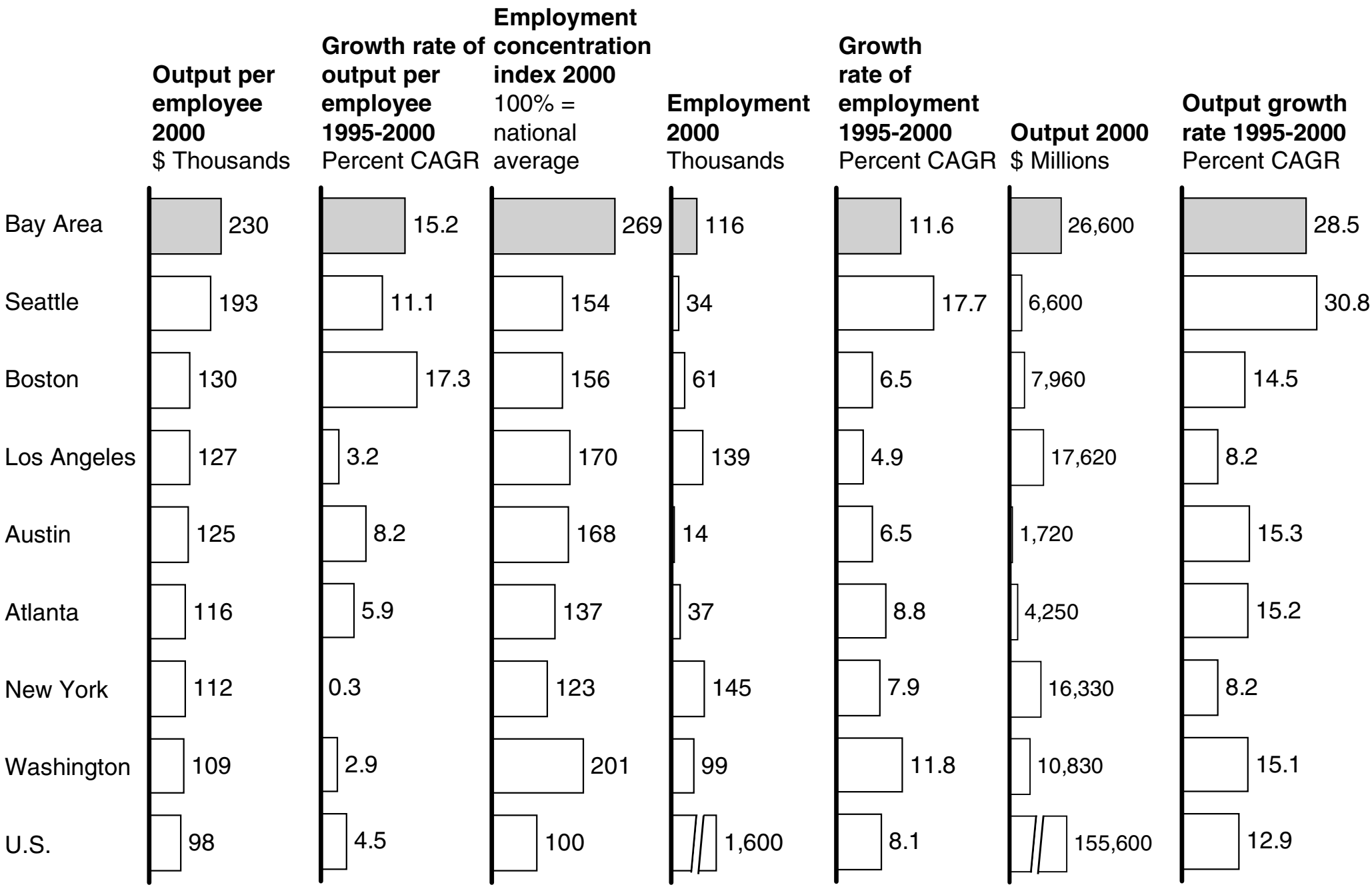
Source: Economy.com; McKinsey analysis

BAY AREA COUNTIES' COMPUTERS AND ELECTRONICS PERFORMANCE – 2000



Source: Economy.com; McKinsey analysis

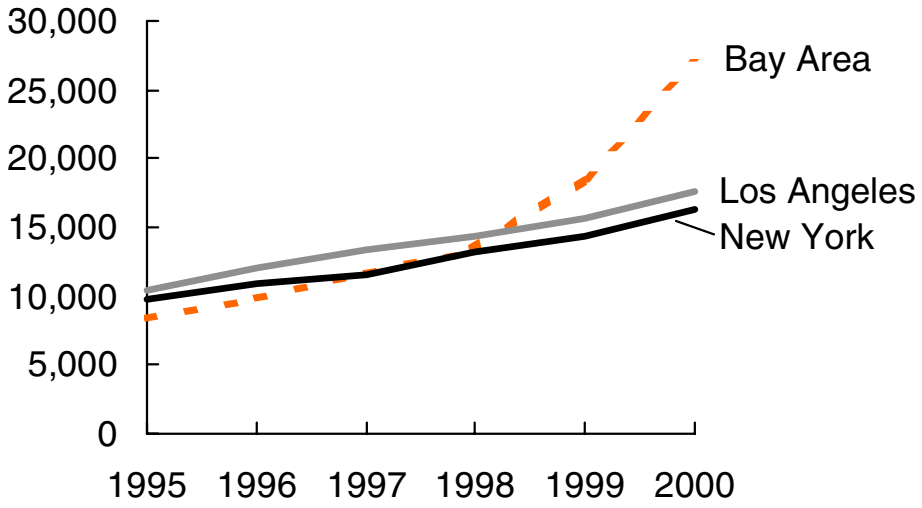
COMPARATIVE REGIONS' MULTIMEDIA PERFORMANCE – 2000



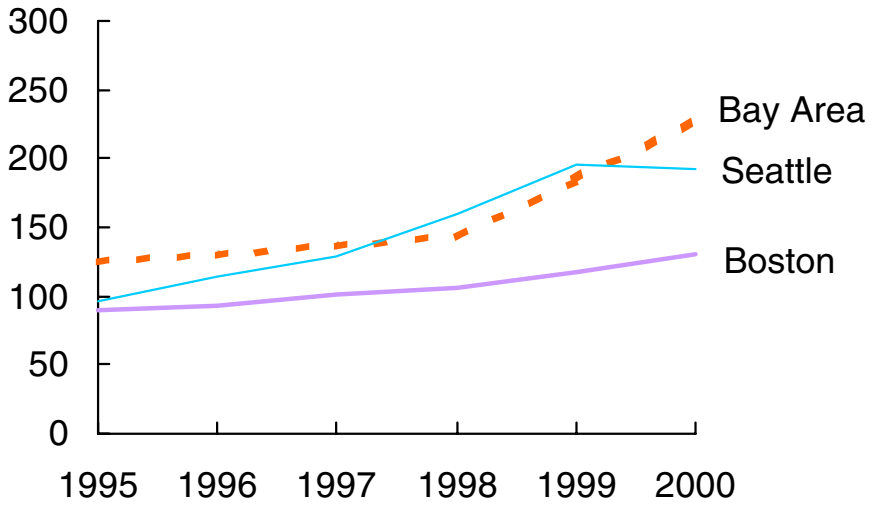
Source: Economy.com; McKinsey analysis

MULTIMEDIA RELATIVE PERFORMANCE TREND: TOP 3 REGIONS – 1995-2000

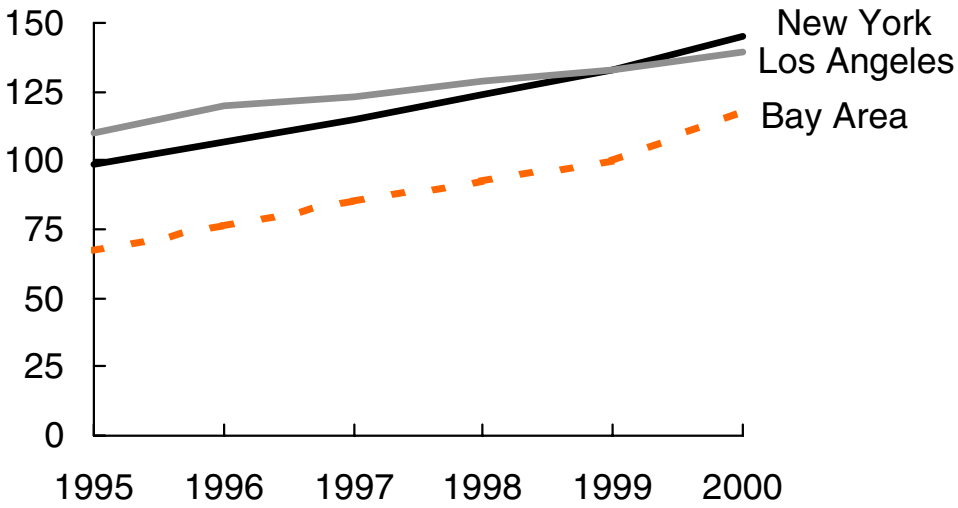
Output
$ Millions



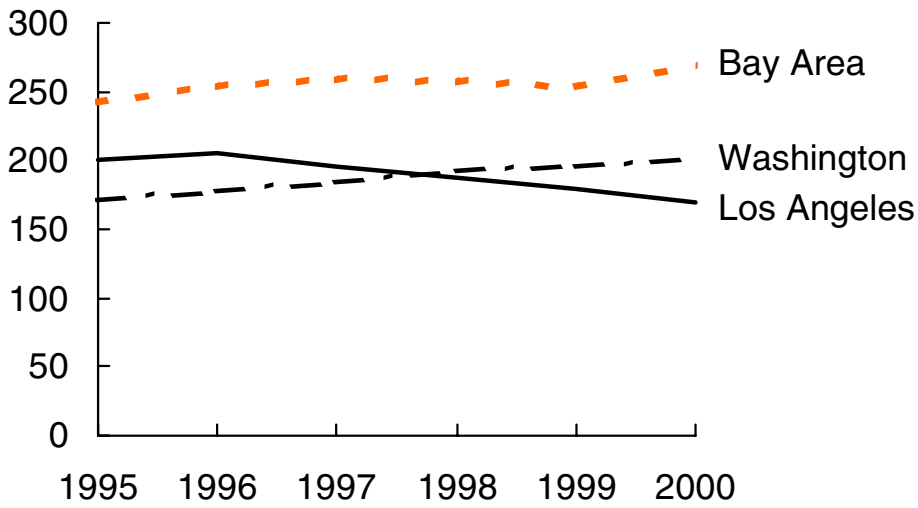
Productivity (output per employee)
$ Thousands



Employment
Thousands

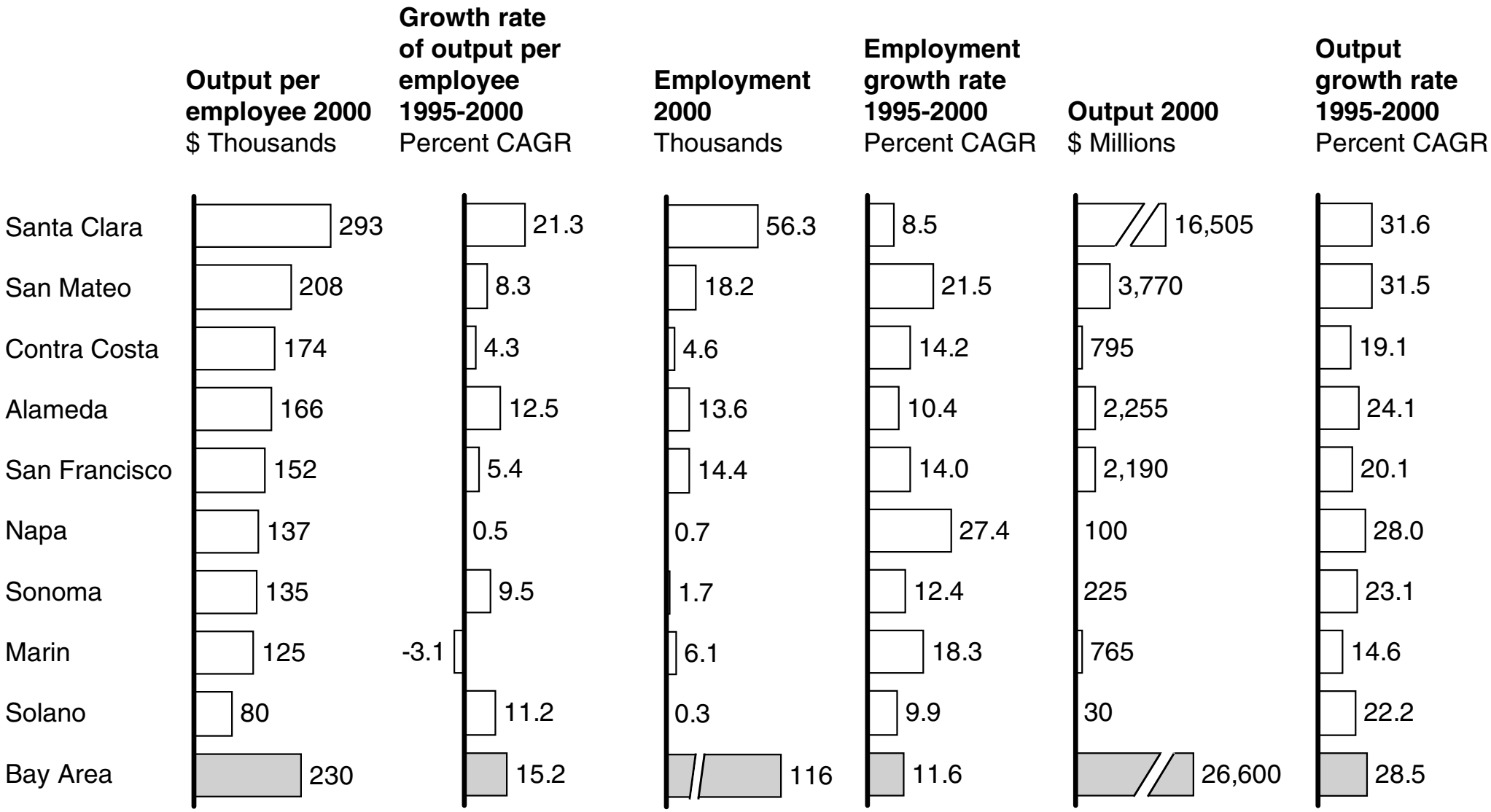


Employment concentration index
U.S. Average = 100



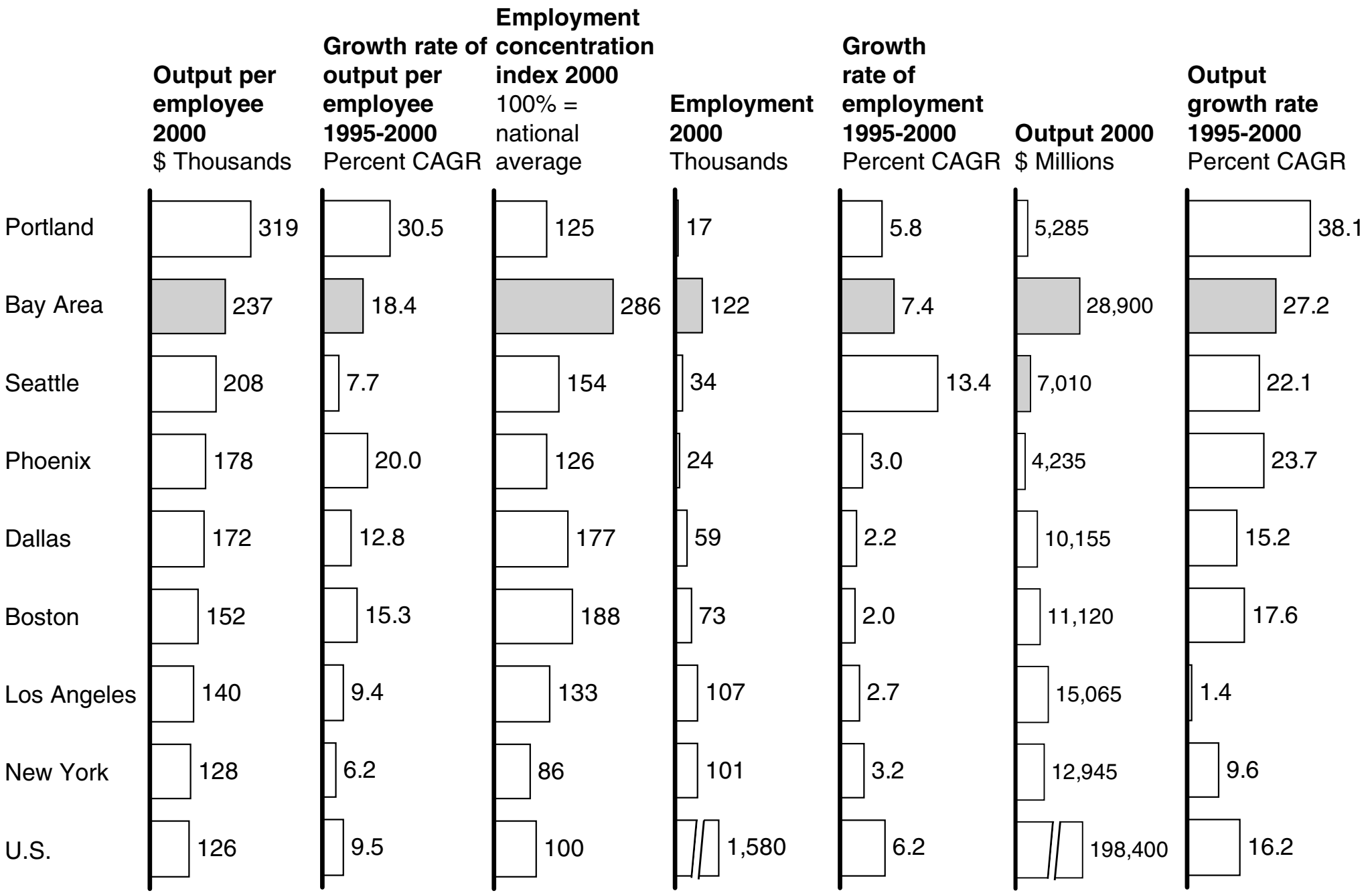
Source: Economy.com; McKinsey analysis

BAY AREA COUNTIES' MULTIMEDIA PERFORMANCE – 2000



Source: Economy.com; McKinsey analysis

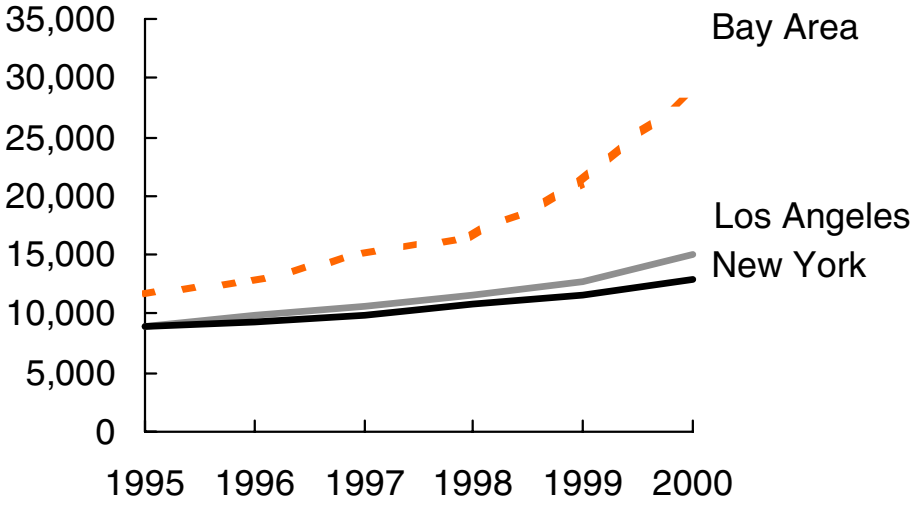
COMPARATIVE REGIONS' TELECOMMUNICATIONS PERFORMANCE – 2000



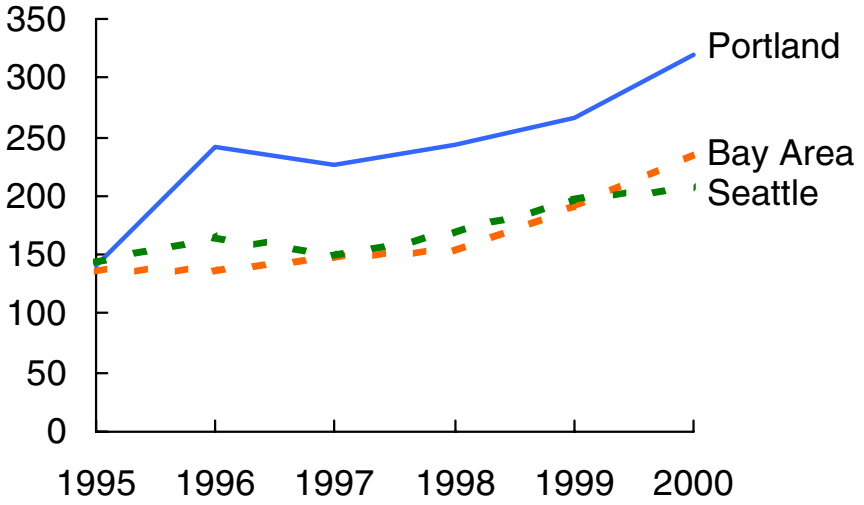
Source: Economy.com; McKinsey analysis

TELECOMMUNICATIONS RELATIVE PERFORMANCE TREND: TOP 3 REGIONS – 1995-2000

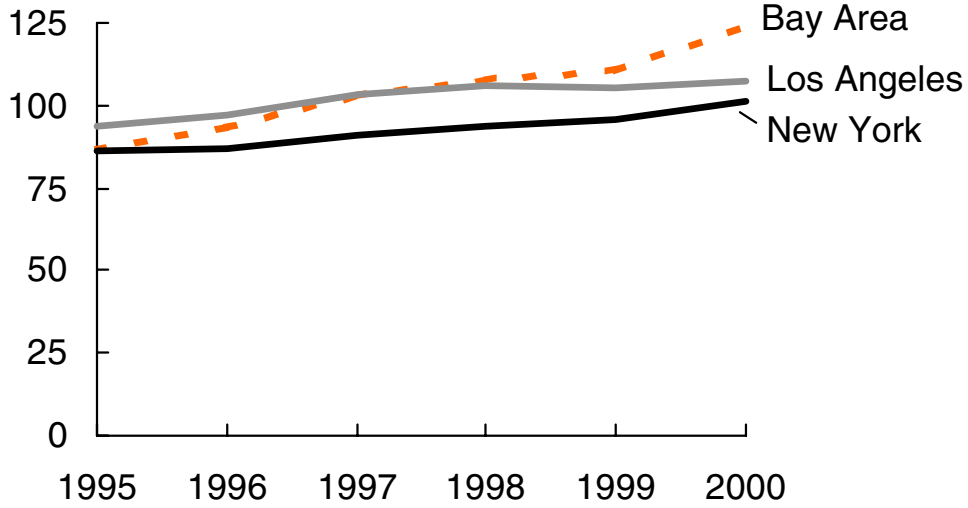
Output
$ Millions



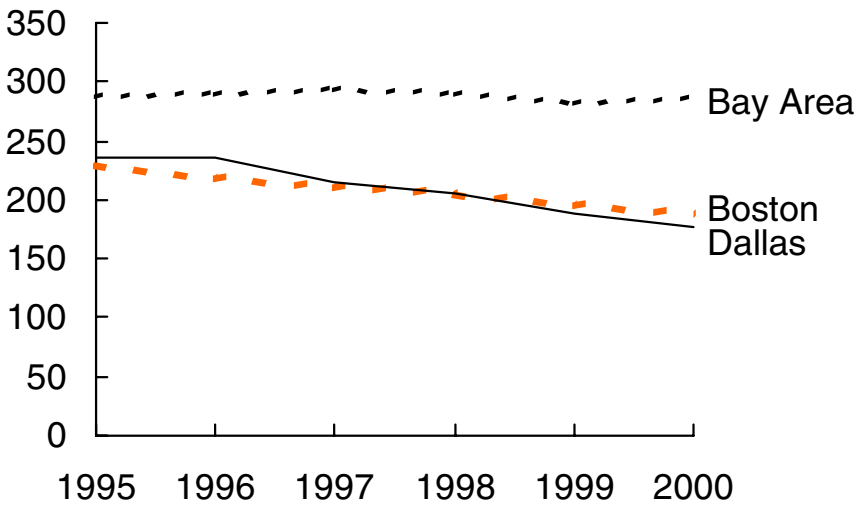
Productivity (output per employee)
$ Thousands



Employment
Thousands

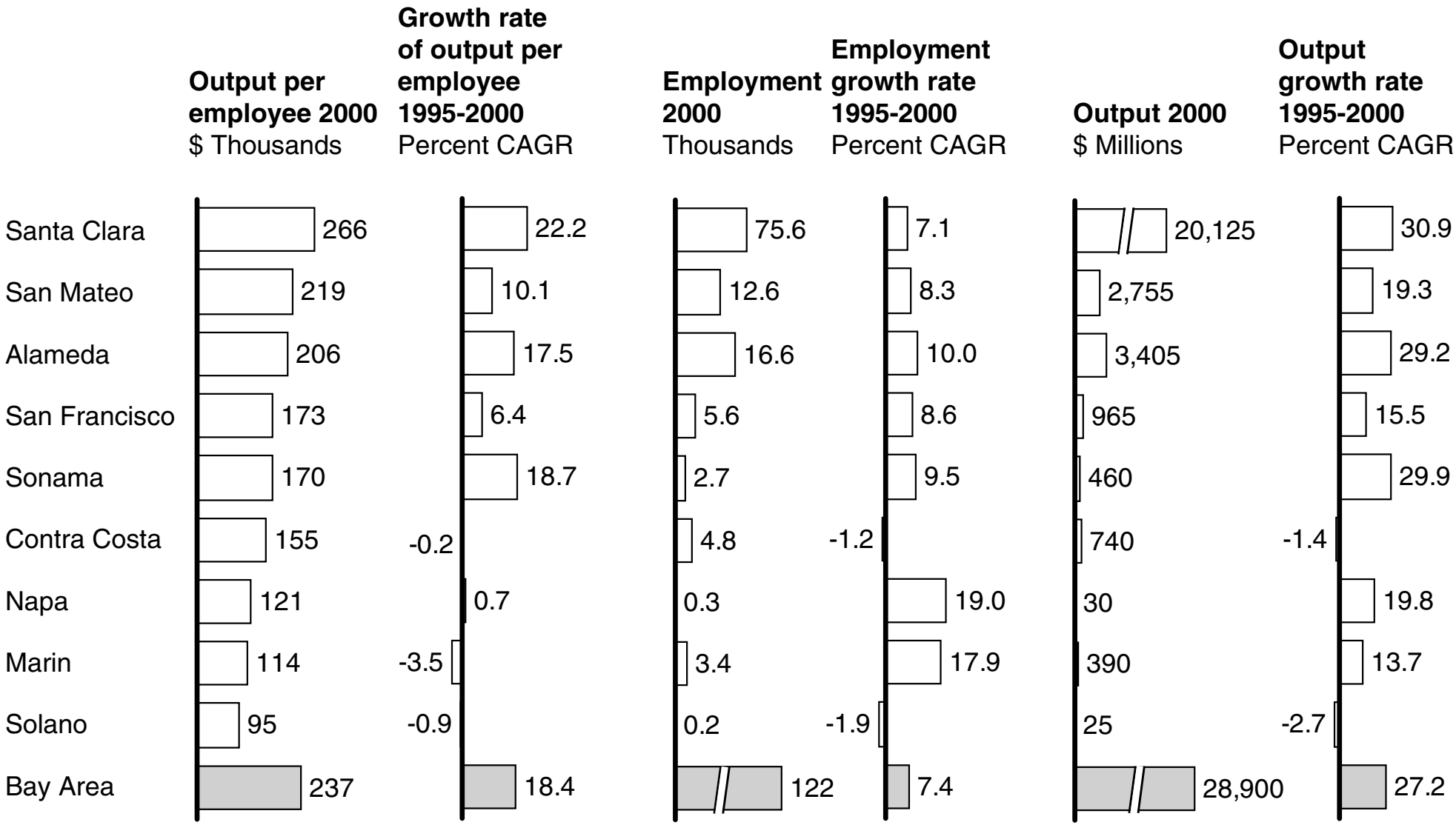


Employment concentration index
U.S. Average = 100



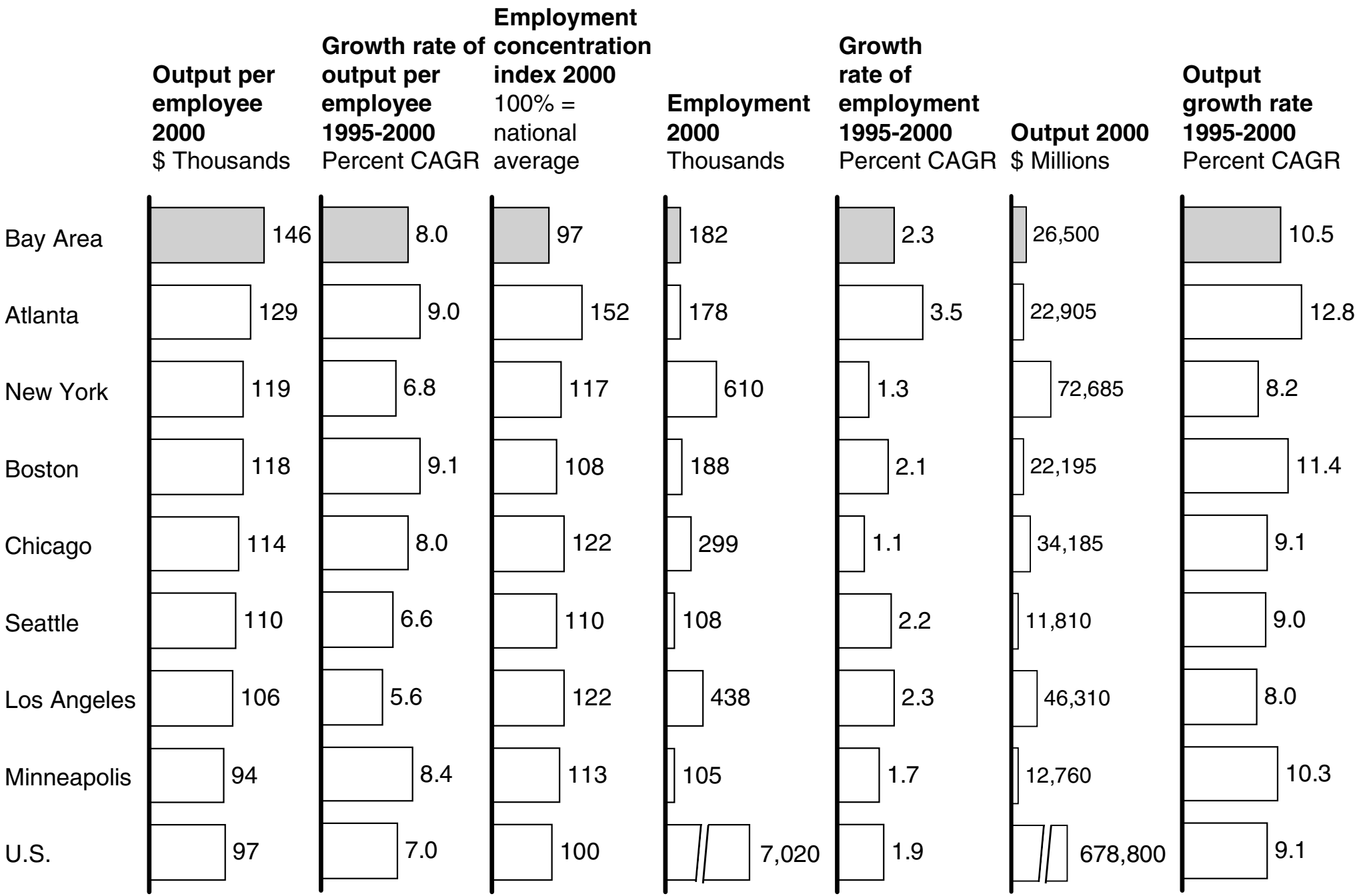
Source: Economy.com; McKinsey analysis

BAY AREA COUNTIES' TELECOMMUNICATIONS PERFORMANCE – 2000



Source: Economy.com; McKinsey analysis

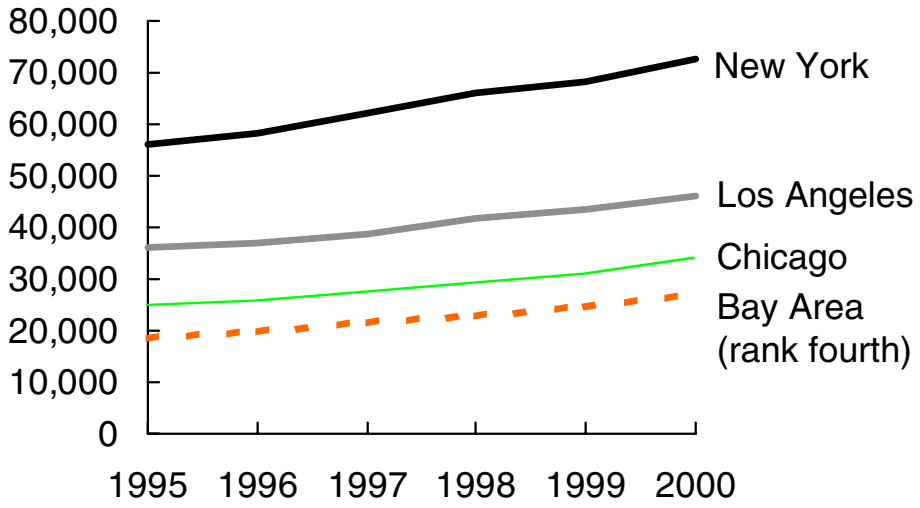
COMPARATIVE REGIONS' WHOLESALE PERFORMANCE – 2000



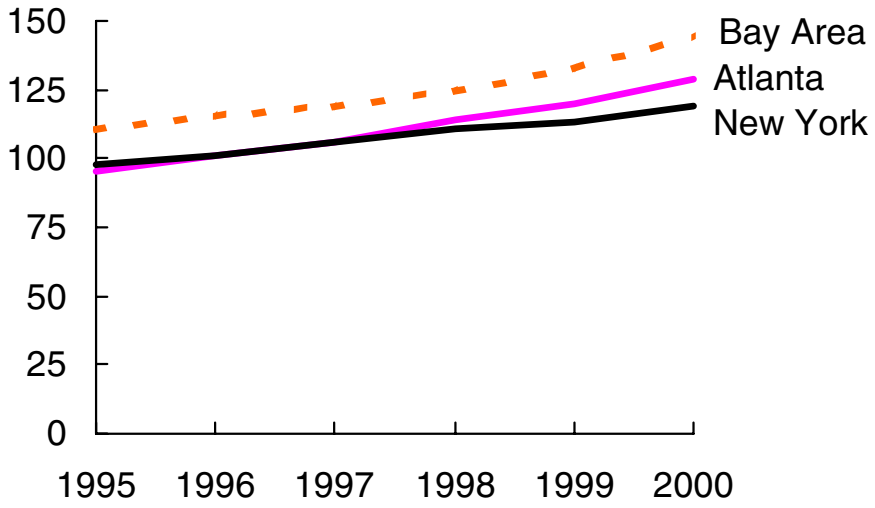
Source: Economy.com; McKinsey analysis

WHOLESALE TRADE RELATIVE PERFORMANCE TREND: TOP 3 REGIONS – 1995-2000

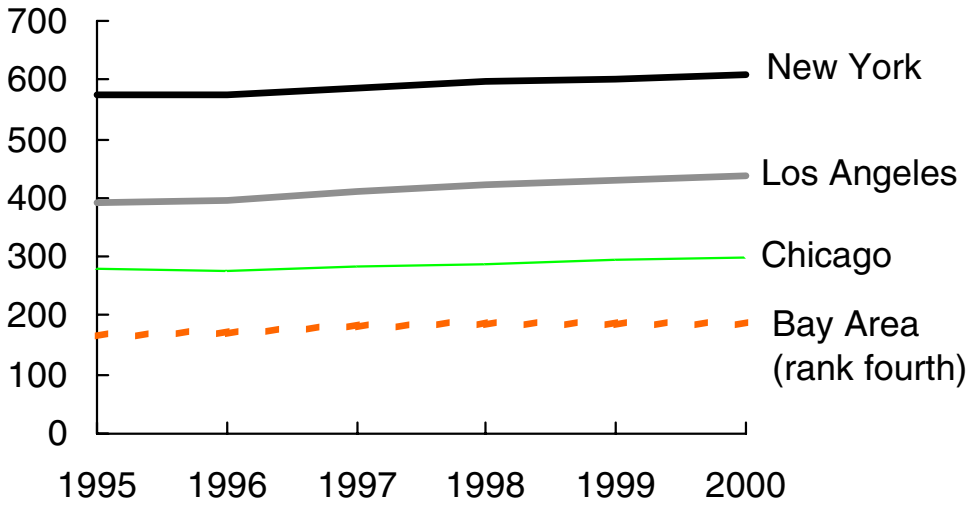
Output
$ Millions



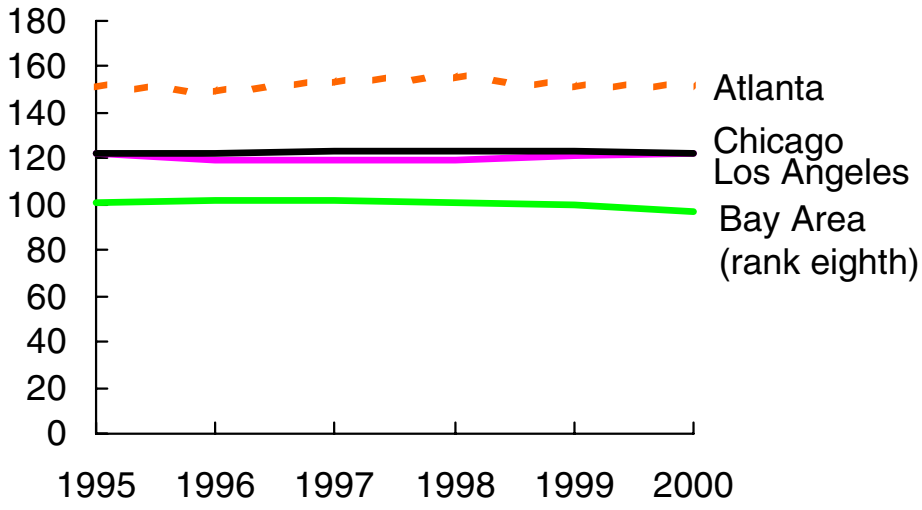
Productivity (output per employee)
$ Thousands



Employment
Thousands

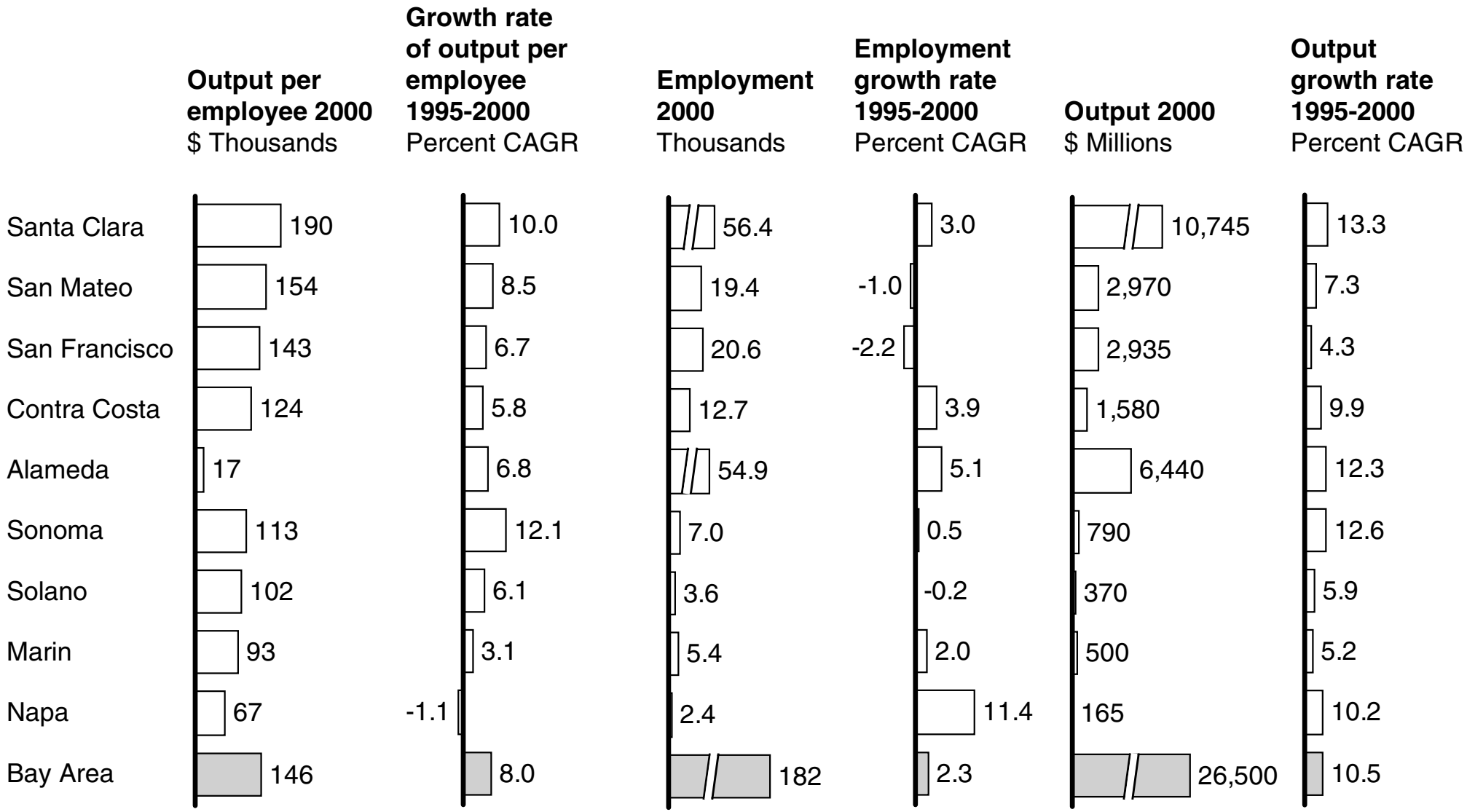


Employment concentration index
U.S. Average = 100



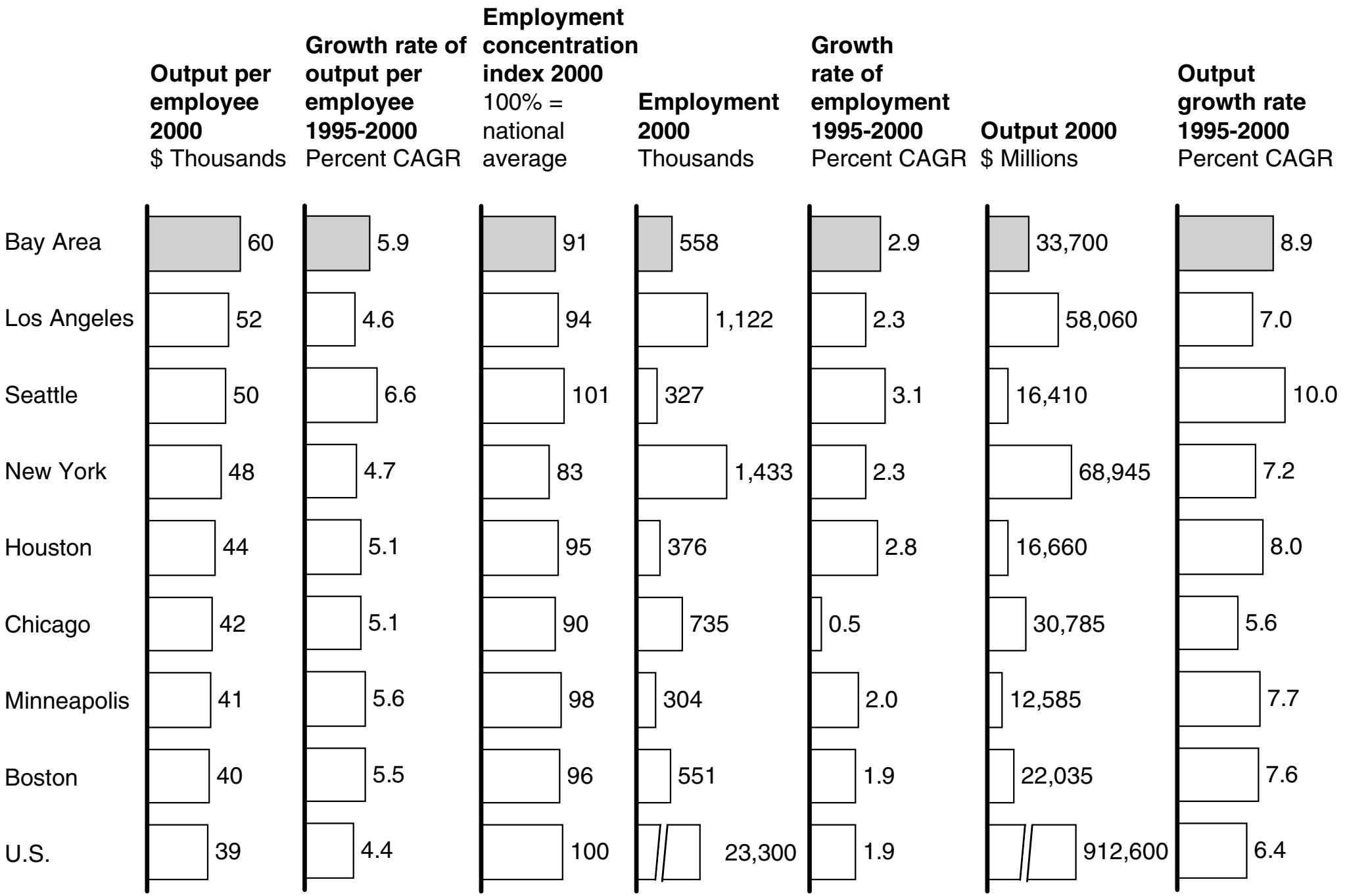
Source: Economy.com; McKinsey analysis

BAY AREA COUNTIES' WHOLESALE TRADE PERFORMANCE – 2000



Source: Economy.com; McKinsey analysis

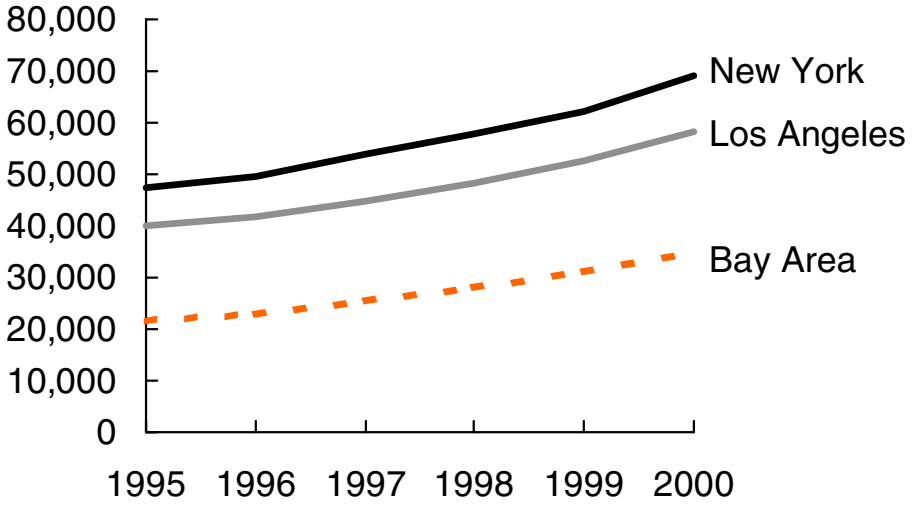
COMPARATIVE REGIONS' RETAIL TRADE PERFORMANCE – 2000



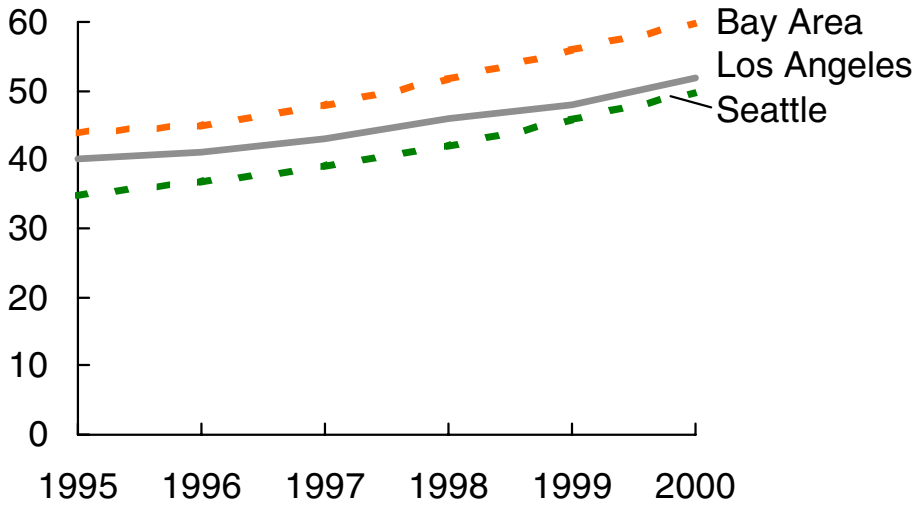
Source: Economy.com; McKinsey analysis

RETAIL TRADE RELATIVE PERFORMANCE TREND: TOP 3 REGIONS – 1995-2000

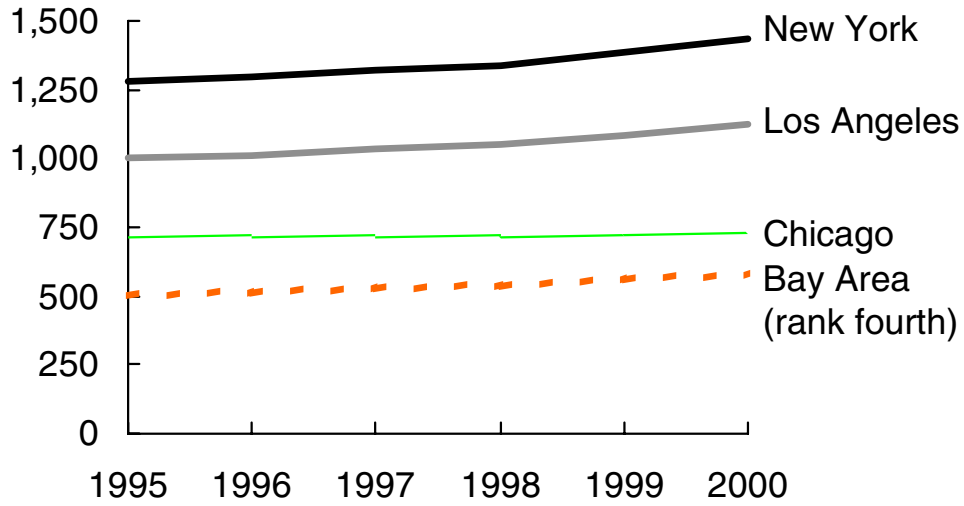
Output
$ Millions



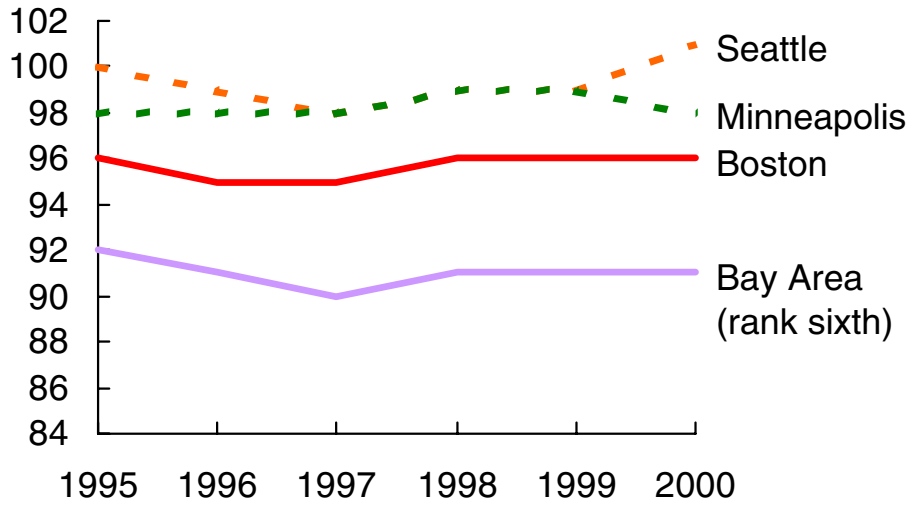
Productivity (output per employee)
$ Thousands



Employment
Thousands

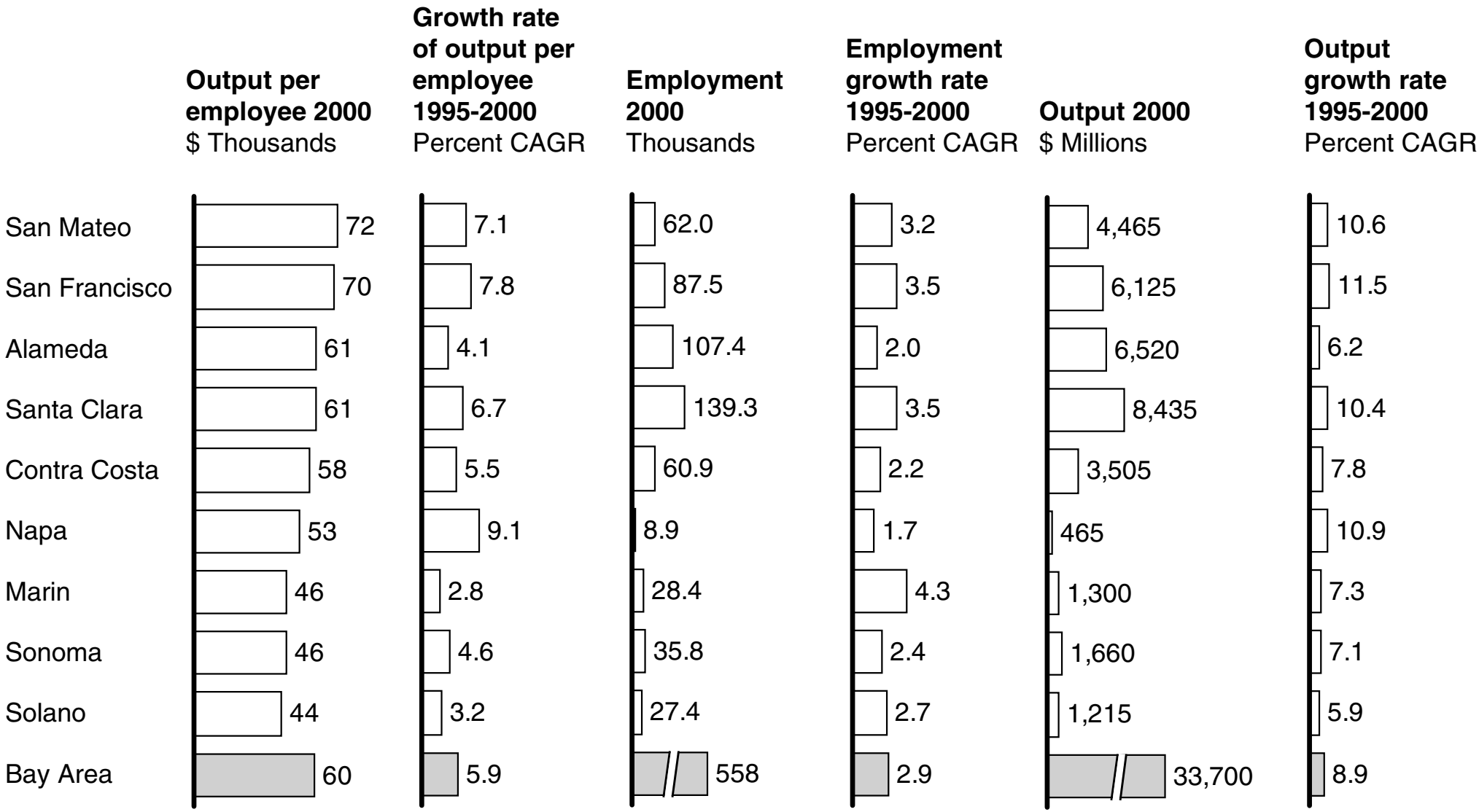


Employment concentration index
U.S. Average = 100



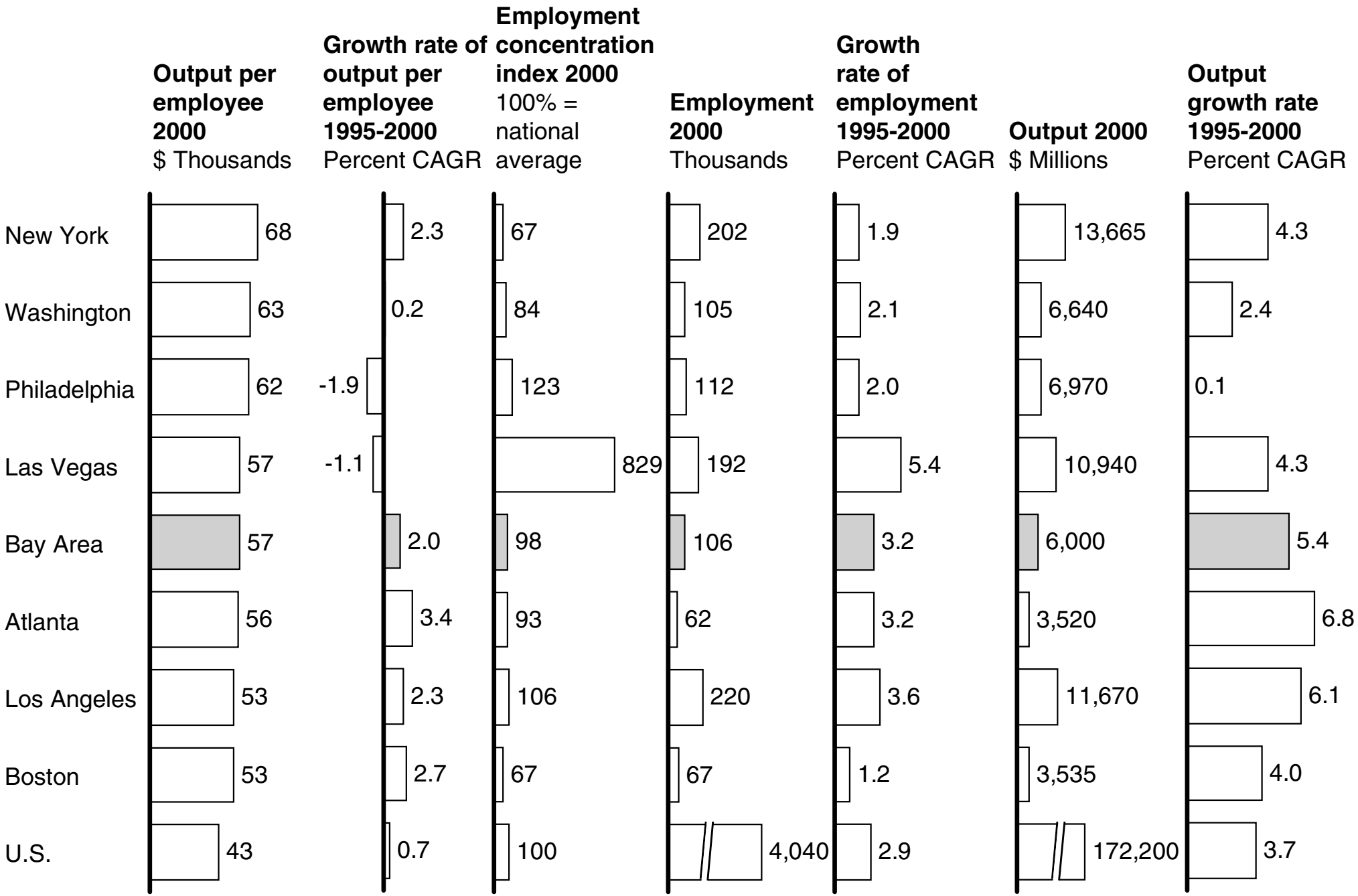
Source: Economy.com; McKinsey analysis

BAY AREA COUNTIES' RETAIL TRADE PERFORMANCE – 2000



Source: Economy.com; McKinsey analysis

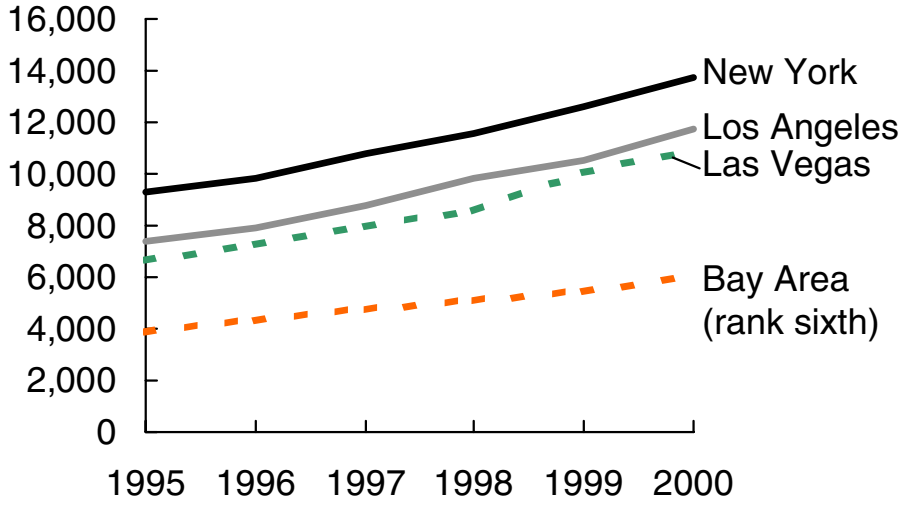
COMPARATIVE REGIONS' TOURISM PERFORMANCE – 2000



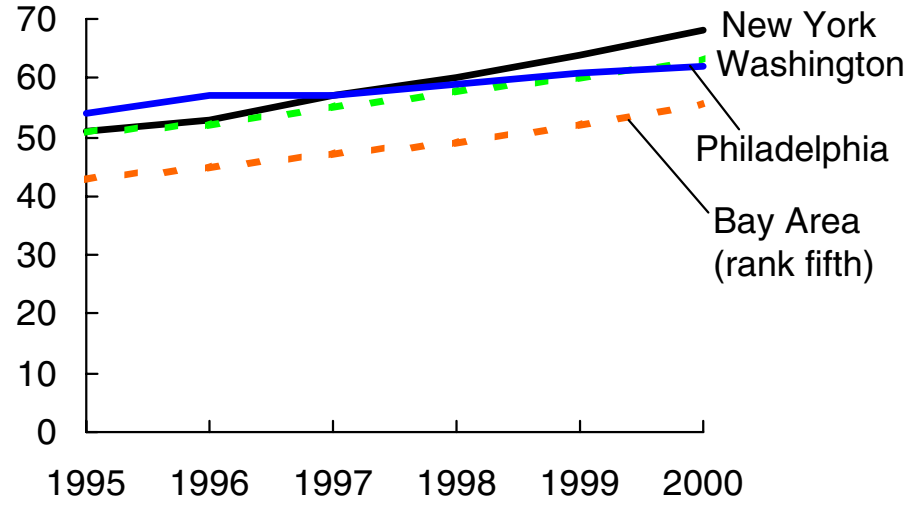
Source: Economy.com; McKinsey analysis

TOURISM RELATIVE PERFORMANCE TREND: TOP 3 REGIONS – 1995-2000

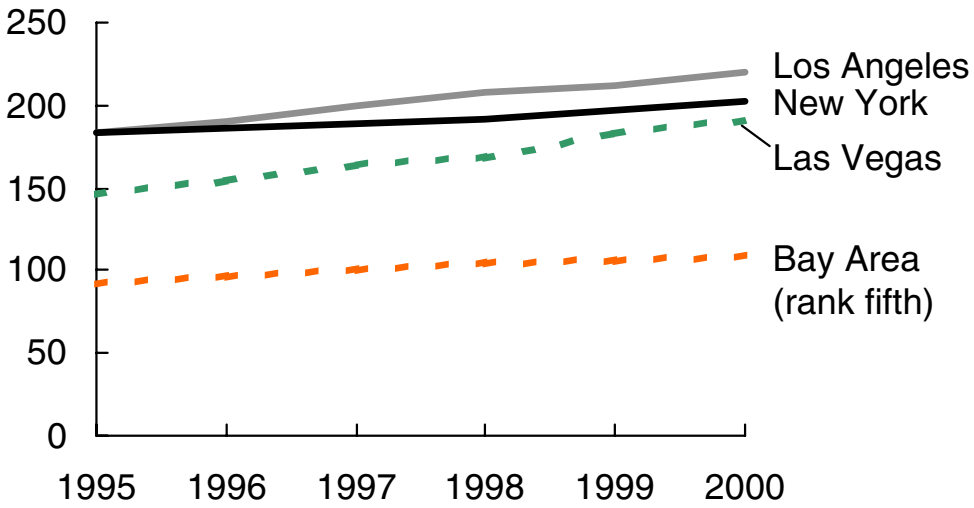
Output
$ Millions



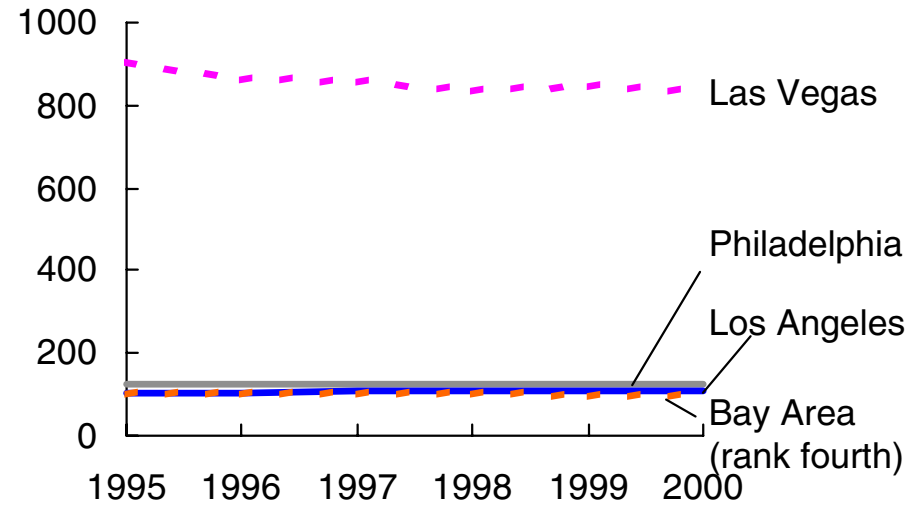
Productivity (output per employee)
$ Thousands



Employment
Thousands

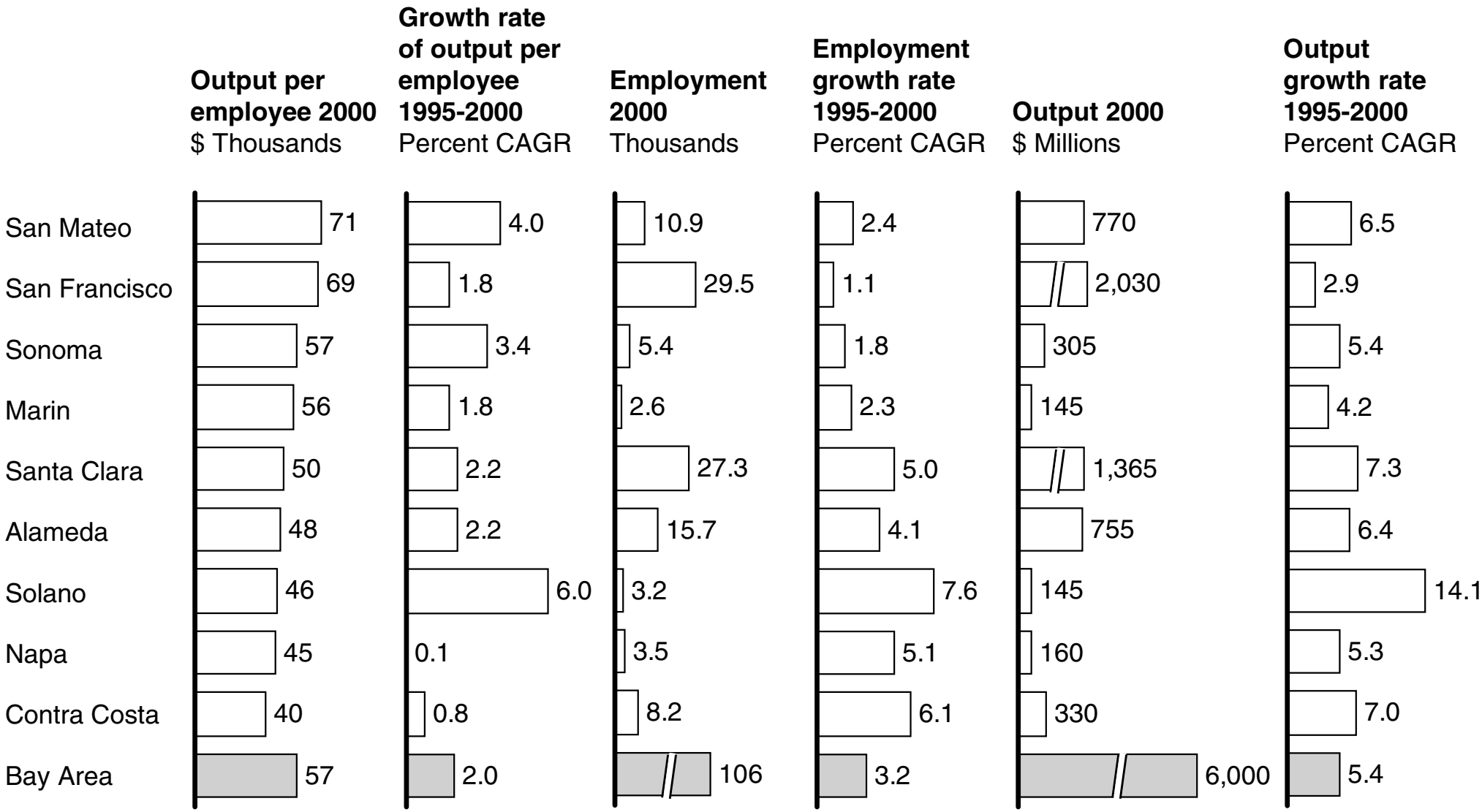


Employment concentration index
U.S. Average = 100



Source: Economy.com; McKinsey analysis

BAY AREA COUNTIES' TOURISM PERFORMANCE – 2000



Source: Economy.com; McKinsey analysis

BAY AREA IS PRODUCTIVITY LEADER IN MORE CLUSTERS THAN ANY OTHER REGION

	Number of clusters ranked number 1	Number of clusters ranked number 2	Number of clusters ranked number 3	Total clusters ranked in top 3
Bay Area	4	4	1	9
New York	1	1	2	4
Seattle	1	1	2	4
Boston	0	0	3	3
Portland	2	0	0	2
Philadelphia	0	1	1	2
Charlotte	1	0	0	1
Houston	1	0	0	1
Atlanta	0	1	0	1
Los Angeles	0	1	0	1
Washington	0	1	0	1
Dallas	0	0	1	1

Source: Economy.com; project team analysis

SIC CODE MAPPINGS FOR DEFINING CLUSTERS

SIC Code	Description	Percent of SIC Code
BANKING AND FINANCE		
6021	National commercial banks	100
6022	State commercial banks	100
6081	Branches and agencies of foreign banks	100
6082	Foreign trade and international banking institutions	100
6099	Functions related to depository banking, n.e.c.	100
6712	Offices of bank holding companies	100
6719	Office of hold companies, n.e.c.	100
6035	Savings institutions federally chartered	100
6036	Savings institutions not federally chartered	100
6061	Credit unions federally chartered	100
6062	Credit unions not federally chartered	100
6111	Federal and federal-sponsored credit	100
6141	Personal credit institutions	100
6153	Short-term business credit institutions, except . . .	100
6159	Miscellaneous business credit institutions	100
6162	Mortgage bankers and loan correspondents	100
6211	Security brokers, dealers, and flotation com . . .	100
6221	Commodity contracts brokers and dealers	100
6231	Security and commodity exchanges	100
6262	Investment advice	100
6289	Services allied with the exchange of securities	100
6733	Trust; n.e.c.	100
•	Non-deposit trust facilities	100
6798	Real estate investment trusts	100
6794	Patent owners and lessors	100
6799	Investors, n.e.c.	100
6011	Federal Reserve Banks	100

SIC CODE MAPPINGS FOR DEFINING CLUSTERS

SIC Code	Description	Percent of SIC Code
BANKING AND FINANCE (CONT.)		
6019	Central reserve depository institutions, n.e.c.	100
3571	Electronic computers	5
7371	Computer programming services	10
7372	Prepackaged software	30
7373	Computer integrated systems design	25
7379	Computer related services, n.e.c.	15
7374	Data processing and preparation	20
7375	Information retrieval services	20
7389	Business services, n.e.c.	10
BIOSCIENCES		
2833	Medicinal chemicals and botanical products	100
2834	Pharmaceutical preparations	100
2835	In vitro and in vivo diagnostic substances	100
3559	Special industry machinery, n.e.c.	3
3663	Radio and television broadcasting and communications equipment	4
3679	Electronic components, n.e.c.	3
3841	Surgical and medical instruments and apparatus	100
3842	Orthopedic, prosthetic and surgical appliances	80
3845	Electromedical and electrotherapeutic apparatus	100
2836	Biological products, except diagnostic substances	100
3826	Laboratory instruments and apparatus	25
8071	Medical laboratories	100
8731	Commercial physical and biological research	30

SIC CODE MAPPINGS FOR DEFINING CLUSTERS

SIC Code	Description	Percent of SIC Code
	BUSINESS SERVICES	
73	Business services	1003
	ENVIRONMENTAL TECHNOLOGY	
3826	Laboratory analytical instruments	10
3823	Industrial instruments for measurement of process variables	20
3589	Service industry machinery, miscellaneous	10
3821	Laboratory apparatus	15
3564	Industrial fans and blower/air purification equipment	50
495	Sanitary services	75
8711	Engineering services	7
8734	Testing laboratories	40
8731	Commercial physical and biological research	5
8999	Miscellaneous services	20
5093	Waste materials/recycling	100
	COMPUTERS AND ELECTRONICS	
3559	Special industry machinery, n.e.c.	10
3571	Electronic computers	100
9575	Computer terminals	100
3577	Computer peripheral equipment, n.e.c.	100
3695	Magnetic and optical recording media	30
3672	Printed circuit boards	70
3674	Semiconductors and related devices	70

SIC CODE MAPPINGS FOR DEFINING CLUSTERS

SIC Code	Description	Percent of SIC Code
COMPUTERS AND ELECTRONICS (CONT.)		
3676	Electronic resistors	25
3677	Electronic coils and transformers	20
3679	Electronic components, n.e.c.	15
3699	Electrical equipment and supplies, n.e.c.	10
7371	Computer programming services	25
7372	Prepackaged software	5
5045	Computers, peripherals, and software	100
7373	Computer integrated systems design	50
7378	Computer maintenance and repair	100
7379	Computer-related services, n.e.c.	70
MULTIMEDIA		
274	Miscellaneous publishing	60
2752	Commercial printing, lithograph	50
2759	Commercial printing, n.e.c.	50
3571	Electronic computers	40
3572	Computer storage devices	40
•	Computer terminals	30
3677	Computer peripheral equipment, n.e.c.	50
3651	Household audio and video equipment	20
3652	Prerecorded records and tapes	30
3661	Telephone and telegraph apparatus	15
3663	Radio and TV communications equipment	50
•	Communications equipment, n.e.c.	5
3695	Magnetic and optical recording equipment	50
7311	Advertising agencies	20

SIC CODE MAPPINGS FOR DEFINING CLUSTERS

SIC Code	Description	Percent of SIC Code
MULTIMEDIA (CONT.)		
7334	Photocopying and duplicating services	10
7336	Commercial art and graphic design	60
7371	Computer programming services	50
7372	Prepackaged software	30
7373	Computer integrated systems design	75
7375	Information retrieval services	80
7379	Computer related services, n.e.c.	20
7812	Motion picture and video tape production	90
7819	Services allied to motion picture production	40
TELECOMMUNICATIONS		
3661	Telephone and telegraph apparatus	100
3663	Radio and TV communications equipment	90
3669	Communications equipment, n.e.c.	100
3671	Electron tubes	50
3672	Printed circuit boards	30
•	Semiconductors and related devices	25
3678	Electronic connectors	75
3679	Electronic components, n.e.c.	40
3699	Electrical equipment and supplies, n.e.c.	25
3812	Search and navigation equipment	100
4812	Radiotelephone communications	100
•	Communications services, n.e.c.	100
5065	Electronic parts and equipment	10
7371	Computer programming services	30

SIC CODE MAPPINGS FOR DEFINING CLUSTERS

SIC Code	Description	Percent of SIC Code
TELECOMMUNICATIONS (CONT.)		
7372	Prepackaged software	20
7373	Computer integrated systems design	15
7375	Information retrieval services	40
7379	Computer related services, n.e.c.	10
8711	Engineering services	30
8731	Commercial physical research	30
8999	Services, n.e.c.	5
WHOLESALE TRADE		
50	Wholesale trade – durable goods	100
51	Wholesale trade – non-durable goods	100
RETAIL TRADE		
52	Building materials, hardware, garden supply, and mobile home dealers	100
53	General merchandise stores	100
54	Food stores	100
55	Automotive dealers and gasoline service stations	100
56	Apparel and accessory stores	100
57	Home furniture, furnishings, and equipment stores	100
58	Eating and drinking places	100
59	Miscellaneous retail	100

SIC CODE MAPPINGS FOR DEFINING CLUSTERS

SIC Code	Description	Percent of SIC Code
TOURISM		
4581	Airports, flying fields, and airport terminal services	70
4724	Travel agencies	100
4725	Tour operators	100
4729	Passenger transport arrangements, n.e.c.	100
5810	Eating and drinking places unallocated	10
5499	Miscellaneous food stores	20
7011	Hotels and motels	100
7922	Theatrical producers and services	25
7929	Entertainers and entertainment groups	20
7996	Amusement parks	100
7999	Amusement and recreation, n.e.c.	100
8412	Museums and art galleries	60
7389	Business services, n.e.c.	20
8999	Services, n.e.c.	5
5699	Miscellaneous apparel and accessory stores	30
5092	Toys and hobby goods and supplies	30
5182	Wine and distilled beverages	50
5331	Variety stores	30
5632	Women’s accessory and specialty stores	20