Title

The San Francisco Bay Area Economy: A Profile of the Region As it Approaches the 1990s

Authors

Kroll, Cynthia A.
Evrengil, Efza

Publication Date

1989-05-01

Peer reviewed

Institute of Business and Economic Research
University of California, Berkeley

CENTER FOR REAL ESTATE AND URBAN ECONOMICS
WORKING PAPER SERIES

WORKING PAPER NO. 89-160

THE SAN FRANCISCO BAY AREA ECONOMY:
A PROFILE OF THE REGION AS
IT APPROACHES THE 1990S

BY

CYNTHIA A. KROLL

EFZA EVRENGIL

GRADUATE SCHOOL OF BUSINESS ADMINISTRATION

CENTER FOR REAL ESTATE AND URBAN ECONOMICS
UNIVERSITY OF CALIFORNIA AT BERKELEY

The Center was established in 1950 to examine in depth a series of major changes and issues involving urban land and real estate markets. The Center is supported by both private contributions from industry sources and by appropriations allocated from the Real Estate Education and Research Fund of the State of California.

INSTITUTE OF BUSINESS AND ECONOMIC RESEARCH

The Institute of Business and Economic Research is a department of the University of California with offices on the Berkeley campus. It exists for the purpose of stimulating and facilitating research into problems of economics and of business with emphasis on problems of particular importance to California and the Pacific Coast, but not to the exclusion of problems of wider import.

THE SAN FRANCISCO BAY AREA ECONOMY: A PROFILE OF THE REGION AS IT APPROACHES THE 1990S

by

Cynthia A. Kroll

Efza Evrengil

Center for Real Estate and Urban Economics
University of California, Berkeley

WORKING PAPER NO. 89-160

May 1989

ACKNOWLEDGEMENTS

The original draft of this paper was prepared as a background paper for the report recently released by the Bay Area Council and the Association of Bay Area Governments, entitled The Bay Area Economy: A Region at Risk. This working paper benefited from comments by our coauthors on that report, Raymond Brady, Director of Analytical and Information Services, Association of Bay Area Governments, and Tappan Munroe, Chief Economist, Pacific Gas and Electric Company.

We would also like to thank Karen Lopilato, Research Assistant at the Center for Real Estate and Urban Economics, for her assistance in the final preparation of tables for this report.

THE SAN FRANCISCO BAY AREA ECONOMY: A PROFILE OF THE REGION AS IT APPROACHES THE 1990S

by Cynthia A. Kroll and Efza Evrengil
Center for Real Estate and Urban Economics
University of California at Berkeley

ABSTRACT

This paper is an examination of the major economic and demographic structural changes that have occurred in the San Francisco Bay Area in the 1980s. While population has grown more slowly than statewide rates, the adult population has expanded rapidly, as the baby boom age cohorts enter their prime working years. In addition, the labor force profile has been changed by the growing number of women participating in the labor force and by increasing immigration from Asia and Latin America over the past decade.

Several major employment changes have occurred in the 1980s. Employment growth in the region matched statewide rates through the mid-1980s but has slowed relative to California since 1985. The mix of jobs has been changing over the past decade. One key sector, finance, insurance and real estate, grew slowly statewide and declined in some periods regionwide. At the same time, high tech sectors became even more firmly entrenched as the dominant manufacturing activity in the region.

Nevertheless, many signs of economic strength remain. Income in the region has grown strongly relative to the state while unemployment rates have remained low, despite some years of weak employment growth. The issues facing the region in the 1990s may be not so much those of the underlying strength of basic economic sectors, but of how well these sectors will perform if the region continues to be characterized by a very tight housing market, rapid escalation of home prices, and worsening traffic conditions.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

THE SAN FRANCISCO BAY AREA ECONOMY: A PROFILE OF THE REGION AS IT APPROACHES THE 1990S

I. Introduction

The 1980s has been a decade of change in the San Francisco Bay Area. From the perspective of long-time residents, the change may appear to be one of rampant population growth, characterized by high-rise development in both central cities and suburbs and by ever-worsening traffic congestion. To businesses, however, it may have seemed a period of great uncertainty, with major structural changes occurring in key economic sectors, loss of the headquarters of several major firms, and ever-rising costs of doing business.

Yet a statistical examination of regional change suggests a less negative picture. Population growth has been moderate compared to the rest of the state, while some measures of economic strength, unemployment for example, remain quite strong. Nevertheless, it is undisputed that the past decade has been a challenging one for the region and has brought about important structural changes. Transformations have occurred in the levels of employment in key sectors, the mix of activities within key industries, the location of jobs within the region, and the size and composition of the region's labor force.

Manufacturing employment has concentrated more and more heavily in high tech sectors located in the South Bay, while the role of traditional manufacturing sectors continues to shrink. Los Angeles has surpassed San Francisco as the leading West Coast financial center, and the region faces increasing competion to its position as West Coast legal and business service center.

Within the region, employment is becoming more and more multi-centered, with San Jose and East Bay cities rivaling San Francisco even in its traditional areas of employment dominance. Population growth is changing the age profile and ethnic mix of the region, with implications for the type of labor force available, housing demands and traffic conditions.

As a result of these changes, the development conditions facing the region in its transition into the 1990s are quite different from those of ten years ago. There continues to be heavy pressure for increases to the housing supply, but industrial and commercial markets are just beginning to recover from a half-decade or more of overbuilding. Individuals and private organizations are placing increasing pressures on the public sector and major builders to address the demands of growth in a regional perspective that allows for consideration of the transportation, fiscal and environmental effects of development plans.

This paper documents the changes that have occurred in the past decade in the San Francisco Bay Area's economy, to provide a basis of understanding for future research and policy discussions as we approach the 1990s. The analysis identifies and reviews demographic changes, discusses the major shifts that have occurred in the region's economic base, describes current conditions and activities in real estate markets, and identifies key elements that may affect the future of the region in the 1990s.

II. A Changing Population and Labor Force

The population changes that occurred in the San Francisco Bay Area in the 1980s were heavily influenced by basic demographic and political conditions. The two primary elements of these changes have been the baby boom of the late 40s through early 60s and the increasing rate of immigration, especially from Asia, in part related to ties forged in the Vietnam War and earlier.

Overall, population growth has been more moderate in the San Francisco Bay Area than in many other parts of the state. Bay Area population grew at about the nationwide rate of 1.1 percent annually in the 1970s and accelerated to 1.4 percent annually in the 1980s. This contrasts with statewide growth rates of 1.7 percent annually in the 1970s and 2.1 percent annually in the 1980s. With a population of 5.8 million in January 1988, the region accounts for over one fifth of the state's population.

While population growth has been moderate in the region, the impacts of growth have been felt more strongly in terms of demand on housing and transportation services because much of the increase has come in the adult-aged population. The number of children under 15 years of age decreased between 1970 and 1980, but the number of people between 25 and 35 years old grew by over 4 percent annually in the 1970s (see Table 1). In the 1980s, according to estimates by ABAG, some population loss has occurred in the teenage and young adult population (under 25), but the population between 35 and 45 has grown by over 4 percent annually, and the population between 45 and 55 has grown by almost 3 percent annually.

TABLE 1: POPULATION BY AGE IN THE BAY AREA, 1970-85

Age Groups	Pop. 1970	Pop. 1980	Pop. 1985	percent share in total			annual growth rate	
				1970	1980	1985	1970-80	1980-85
0- 4	366,571	329,335	378,100	7.9%	6.4%	6.8%	-1.07%	2.80%
5- 9	432,839	326,726	356,700	9.4%	6.3%	6.4%	-2.77%	1.77%
10-14	437,390	377,921	361,600	9.5%	7.3%	6.5%	-1.45%	-0.88%
15-19	400,800	443,920	394,700	8.7%	8.6%	7.1%	1.03%	-2.32%
20-24	418,145	484,670	470,100	9.0%	9.4%	8.5%	1.49%	-0.61%
25-34	661,640	988,799	1,039,800	14.3%	19.1%	18.8%	4.10%	1.01%
35-44	551,507	668,008	824,400	11.9%	12.9%	14.9%	1.93%	4.30%
45-54	552,605	536,182	617,500	11.9%	10.4%	11.2%	-0.30%	2.86%
55-59	218,431	272,801	276,300	4.7%	5.3%	5.0%	2.25%	0.26%
60-64	180,438	218,405	241,300	3.9%	4.2%	4.4%	1.93%	2.01%
65+	407,824	533,017	571,000	8.8%	10.3%	10.3%	2.71%	1.39%
Total	4,628,190	5,179,784	5,531,500	100.0%	100.0%	100.0%	1.13%	1.32%

Source: Census Tracts, 1970, 1980, and Projections-87, ABAG, July, 1987.

These trends are not unique to the Bay Area but reflect the demographic effects of the post-World War II baby-boom generation as it moves into its peak earning and household formation years. The implication for the Bay Area is that households and labor force have grown far more rapidly than population. Households in the Bay Area increased by 1.5 percent annually in the 1970s and by 2.6 percent annually in the 1980s, while the region's labor force grew by 3.2 percent annually in the 1970s and by 2.2 percent annually in the 1980s (see Table 2).

Changes in the ethnic mix of the region reflect other key sources of population growth. Estimates by the Center for the Continuing Study of the California Economy indicate that the region's increased rate of population growth compared to the 1970s period is due to foreign immigration more than to in-migration from other parts of the state or nation. Non-Hispanic whites accounted for less than 10 percent of the region's population increase since 1980, growing by only 0.2 percent annually (see Table 3). Blacks accounted for only 4 percent of the region's population increase and grew by 0.65 percent annually. In contrast, the Hispanic population grew by 3 percent annually, accounting for over 9 percent of the region's population increase, and the population of Asians and other ethnic groups grew by almost 7 percent annually and accounted for almost three fifths of the region's population increase since 1980.

The location of growth also affects travel patterns and labor force availability in the region. Much of the region's growth continues to occur in suburban areas. The most rapidly

TABLE 2: ANNUAL RATES OF CHANGE IN POPULATION, HOUSEHOLDS, AND LABOR FORCE

	Total			Annual Rate of Change		
Indicators	1970	1980	1988	1970-80	1980-88	1986-88
Population	4,628,199	5,179,784	5,793,551	1.13	1.41	1.47
Households	1,552,373	1,804,281	2,207,504	1.52	2.55	1.93
Labor Force [1]	1,937,098	2,664,839	3,177,944	3.24	2.23	2.14

[1] The annual rates of growth for labor force between 1980 and 1988 are calculated using the EDD estimates for both years, since there is a gap between the Census and EDD estimations for the year 1980. The figures of 1988 for labor force are compared to the estimated values of 1980 rather than census results.

Sources: Population and Housing Characteristics, Bureau of Census, 1970 and 1980; Population Research Unit Estimates for Population and Households, Department of Finance, 1986-87; Annual Average Estimates of Labor Force by Employment Development Department, 1980-88.

TABLE 3: POPULATION BY ETHNIC GROUP IN THE BAY AREA, 1980 and 87

Ethnic Group	Population		Percent of Total Population		Annual Growth Rate
	1980	1987	1980	1987	1980-87
Hispanic	632,500	780,300	12.2%	13.7%	3.05%
Non Hispanic White	3,579,200	3,628,400	69.1%	63.8%	0.20%
Black	459,300	480,700	8.9%	8.4%	0.65%
Asian & Other	508,700	800,000	9.8%	14.1%	6.68%
Total Population	5,179,700	5,689,400	100.0%	100.0%	1.35%

Source: California Population Charactersitics, Regional Market Update & Projections, 1988 Edition, Center for Continuing Study of the California Economy.

growing counties in the 1980s were Solano, at 3.2 percent annually, Sonoma at 2.3 percent annually, and Contra Costa at 1.7 percent annually. However, growth has slowed in some of the less urban portions of the region--Napa County, for example, saw its population growth rate drop from 2.3 percent annually in the 1970s to only 0.8 percent annually in the 1980s, and Marin County's growth slowed from an already low rate of 0.8 percent annually in the 1970s to only 0.3 percent in the 1980s. In contrast, since 1980 losses in population have been reversed in the older urban areas, perhaps resulting from the location of immigrants in central cities and from life-style choices of young adults. San Francisco lost population in the 1970s but grew at 1.1 percent annually in the 1980s, while Alameda County's growth went from 0.3 percent annually in the 1970s (a mix of central city losses and suburban growth) to 1.5 percent annually in the 1980s (see Table 4 and map, Figure 1).

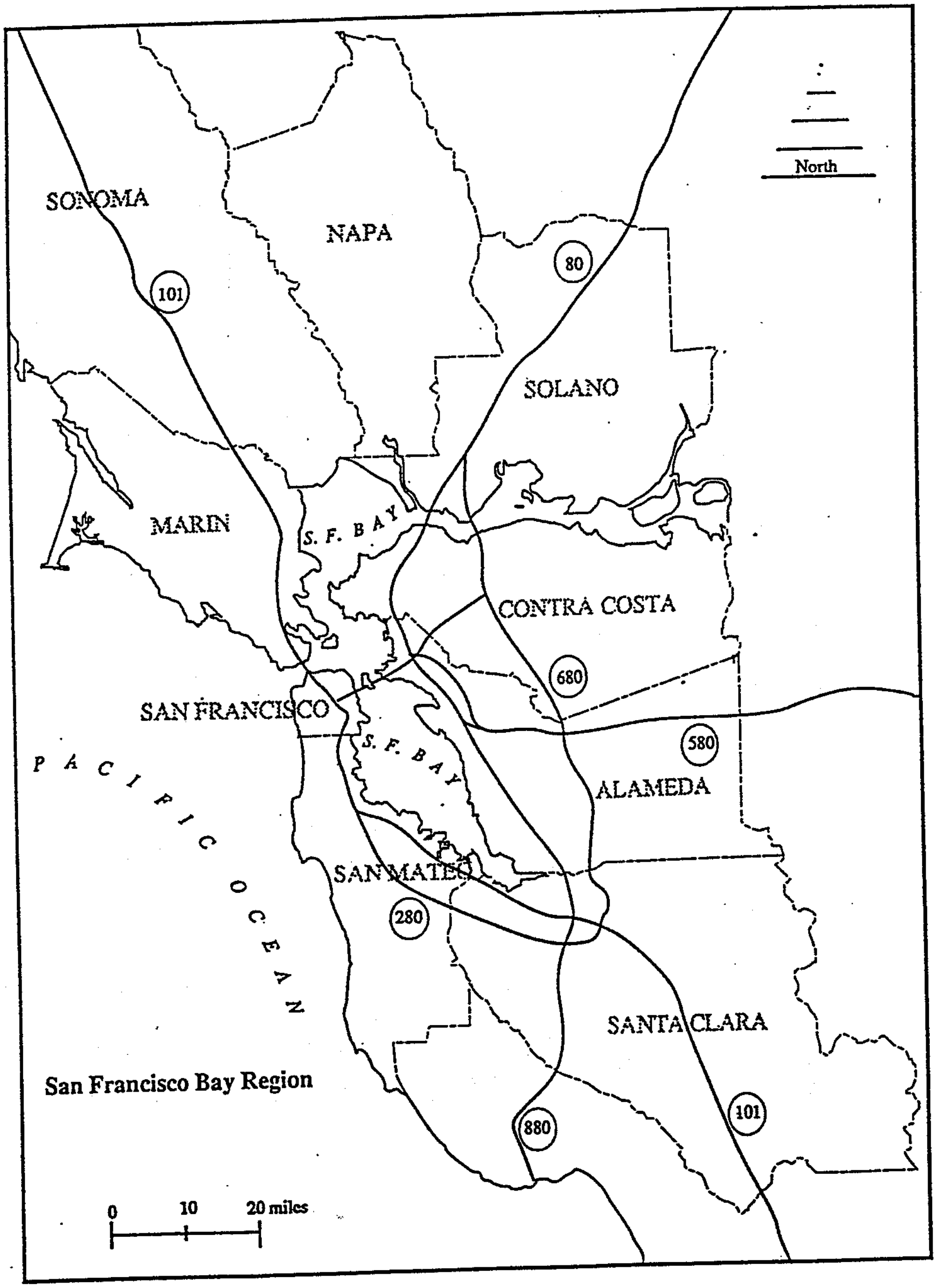
Rapid growth of the region's labor force, compared to population growth overall, has resulted not only from the changing age structure of the population but from changing labor force participation rates as well. The percent of population 16 and over participating in the labor force rose from 60.4 percent in 1970 to 63.5 percent in 1980. The increase was largely due to a rising number of women in the labor force. Labor force participation rates for women rose from 44 percent regionwide in 1970 to 56 percent in 1980, an increase 3 percentage points greater than the nationwide gain. ABAG estimates indicate that labor force participation has continued to increase in the 1980s, reaching over 67 percent for all adults and 59 percent for women

TABLE 4: POPULATION GROWTH IN BAY AREA COUNTIES, 1970-88

Counties	1970	1980	1988	Percent Share in Total 1970	1980	1988	Annual Rate of Growth 1970-80	1980-88
Alameda	1,073,184	1,105,379	1,241,592	23.2%	21.3%	21.4%	0.30%	1.46%
Contra Costa	558,389	656,380	753,456	12.1%	12.7%	13.0%	1.63%	1.74%
Marin	206,038	222,568	228,428	4.5%	4.3%	3.9%	0.77%	0.33%
Napa	79,140	99,199	105,808	1.7%	1.9%	1.8%	2.28%	0.81%
San Francisco	715,674	678,974	741,250	15.5%	13.1%	12.8%	-0.53%	1.10%
San Mateo	556,234	587,329	627,543	12.0%	11.3%	10.8%	0.55%	0.83%
Santa Clara	1,064,714	1,295,071	1,431,632	23.0%	25.0%	24.7%	1.98%	1.26%
Solano	169,941	235,203	303,546	3.7%	4.5%	5.2%	3.30%	3.24%
Sonoma	204,885	299,681	360,296	4.4%	5.8%	6.2%	3.88%	2.33%
Bay Area Total	4,628,199	5,179,784	5,793,551	100.0%	100.0%	100.0%	1.13%	1.41%
California	20,023,000	23,667,900	28,018,700	23.1%	21.9%	20.7%	1.69%	2.13%

Sources: Census 1970 and 1980, and Department of Finance Population and Housing Estimates, 1988.

FIGURE 1
MAP OF THE SAN FRANCISCO BAY AREA



in 1985.

A major economic strength of the San Francisco Bay Area is its educated population (see Table 5). One fourth of the region's population 25 years old or older had finished four or more years of college in 1980, compared to 20 percent statewide and 17 percent nationwide. More than one third of the region's labor force was in managerial or professional occupations in 1980, compared to about one fourth nationwide. The region has strong institutions of higher learning, while the quality of elementary and secondary education varies widely throughout the region.

Labor force quality varies considerably by location and among ethnic groups. The high tech industry has demanded a well trained labor force in Santa Clara and San Mateo counties, both of which have relatively high proportions of high school and college graduates, compared to the rest of the region. Education levels are also strong in Marin County and suburban Contra Costa County, where a high school and college educated labor force has made the area attractive to office employers. Education levels have historically been lower in older central cities such as Oakland and Richmond and in the less affluent North Bay counties of Solano, Sonoma and Napa.

Education levels have differed sharply among ethnic groups in the region. For example, in the San Francisco/Oakland metropolitan area in 1980, 26 percent of the SMSA's population 25 and over had completed 4 or more years of college, while percentages were 28 percent for the white population, 12 percent for the black population, 11 percent for the Hispanic population

TABLE 5: INDICATORS OF BAY AREA QUALITY OF LABOR FORCE, 1970 AND 1980

1970 Census	Alameda	C.Costa	Marin	Napa	S.F.	S.Mateo	S.Clara	Solano	Sonoma	BAY AREA	STATE	NATION
% of all highschool graduates	63.0%	68.1%	79.7%	63.8%	61.8%	71.5%	68.9%	62.7%	63.9%		62.7%	52.4%
% of 4 years or more of college	14.6%	19.3%	26.6%	11.4%	16.7%	17.1%	19.5%	9.3%	11.1%	17.0%	13.4%	10.7%
LFP Rate Total	59.8%	59.7%	60.0%	53.1%	61.2%	63.5%	61.6%	59.9%	51.4%	60.4%	56.8%	61.0%
LFP Rate Female	43.5%	40.0%	42.6%	38.7%	50.4%	46.4%	43.5%	38.4%	35.5%	44.0%	40.4%	43.4%
% of exec., adm., managerial	8.0%	10.8%	14.9%	7.6%	7.9%	10.9%	9.2%	7.5%	10.5%	9.3%	8.9%	7.2%
% professional, tech., adm. support	17.8%	18.4%	24.3%	18.5%	17.6%	17.2%	23.9%	14.8%	15.5%	19.3%	16.4%	13.8%
1980 Census												
% of all highschool graduates	76.0%	81.7%	89.9%	75.4%	74.0%	81.6%	79.5%	76.8%	70.1%		73.5%	68.7%
% of 4 years or more of college	22.3%	25.5%	38.3%	17.8%	28.2%	25.5%	26.4%	13.7%	19.3%	25.0%	19.6%	17.0%
LFP Rate Total	61.3%	61.0%	65.4%	58.2%	61.5%	66.0%	67.0%	64.6%	60.8%	63.5%	60.3%	64.1%
LFP Rate Female	54.7%	52.9%	59.0%	48.5%	56.5%	59.3%	59.7%	51.5%	49.0%	56.1%	52.5%	51.6%
% of exec., adm., managerial	11.4%	14.9%	17.8%	10.1%	13.0%	14.8%	13.1%	9.1%	10.6%	13.1%	12.0%	10.3%
% professional, tech., adm. support	21.4%	20.8%	25.6%	18.5%	22.9%	19.7%	24.3%	16.4%	19.0%	21.9%	18.8%	16.0%
Change between 1970-80												
% of all highschool graduates	13.0%	13.6%	10.2%	11.6%	12.2%	10.1%	10.6%	14.1%	6.2%		10.8%	16.3%
% of 4 years or more of college	7.7%	6.1%	11.7%	6.4%	11.5%	8.3%	6.9%	4.4%	8.2%	8.0%	6.2%	6.3%
LFP Rate Total	1.4%	1.3%	5.4%	5.1%	0.2%	2.5%	5.4%	4.8%	9.4%	3.1%	3.5%	3.1%
LFP Rate Female	11.3%	12.9%	16.3%	9.8%	6.1%	12.9%	16.2%	13.0%	13.5%	12.1%	12.1%	8.2%
% of exec., adm., managerial	3.4%	4.1%	2.9%	2.5%	5.1%	3.9%	3.9%	1.6%	0.1%	3.8%	3.1%	3.1%
% professional, tech., adm. support	3.6%	2.4%	1.3%	0.0%	5.3%	2.5%	0.4%	1.6%	3.5%	2.6%	2.4%	2.2%

Source: General Social and Economic Characteristics, Bureau of Census, 1970 and 1980.

and 31 percent for the Asian population (see Table 6). The white and Hispanic populations in the Bay Area (as of 1980) were better educated than their counterparts statewide, while the Black and Asian populations had education levels similar to their ethnic groups statewide. Data is not available to illustrate any changes in labor force quality since 1980. However, statewide concerns about declining quality of graduates and drop out rates among high school students are shared by regionwide businesses.

III. Structural Factors in the Region's Employment Base

Bay Area employment growth was remarkably strong for a decade and a half, and yet has shown some signs of weakening or instability since 1985. Despite slower population growth, wage and salary employment in Bay Area firms has grown at close to the rate of job growth for the state for much of the 1970s and for the first half of the 1980s. Between 1972 and 1980, California Employment Development Department figures indicate that wage and salary employment statewide and in the Bay Area increased by the same rate--a total of 36 percent, or 3.9 percent annually. The increase in total wage and salary employment from 1980 through 1985 was 11 percent in both the state and the region, or 2.1 percent annually. In contrast, Los Angeles County, now seen as a key competitor for Bay Area business, grew by only 0.7 percent annually from 1980 through 1985. A more severe slowdown in wage and salary employment growth hit the Bay Area in 1986 and 1987, when growth dropped to less than half the statewide rate (1.5 percent annually compared to 3.1 percent statewide).

It should be noted that total employment among Bay Area

TABLE 6: COLLEGE GRADUATES BY RACE IN CALIFORNIA AND SAN FRANCISCO-OAKLAND SMSA, 1980

	CALIFORNIA	S.F.-OAKL. SMSA
Persons 25 years and over	14,043,986	2,086,050
4 or more years of college	2,752,865	542,033
% of 4 or more years of college	19.60%	25.98%
White persons 25 years and over	11,328,655	1,589,478
4 or more years of college	2,353,534	446,727
% of 4 or more years of college	20.78%	28.11%
Black persons 25 years and over	936,970	215,178
4 or more years of college	105,512	25,304
% of 4 or more years of college	11.26%	11.76%
Asian persons 25 years and over [1]	767,274	202,681
4 or more years of college	238,641	62,254
% of 4 or more years of college	31.10%	30.72%
Spanish origin persons 25 years and over	2,037,978	180,278
4 or more years of college	131,043	20,540
% of 4 or more years of college	6.43%	11.39%

[1] Category includes both Asian and Pacific Islander persons.

Source: General Social and Economic Characteristics, Bureau of Census, 1980.

residents (including business proprietors and the self employed) has followed a different pattern than employment of wage and salary workers at their Bay Area **place of work.** Employment levels of residents has grown more slowly than statewide totals for a long time, not because the Bay Area economy is weaker, but because the region's population has grown more slowly. The number of employed residents increased at the rate of 3.3 percent annually in the 1970s, compared to a statewide rate of 3.8 percent, and at 2.2 percent annually in the 1980s, compared to 2.6 percent statewide. Again, 1987 was a relatively slow year for the Bay Area, with the number employed growing at below 2 percent annually, while it was a strong year for the state as a whole, with a 3.9 percent increase in total employment (including self employed and proprietors, as well as wage and salary workers).

The region's economic strength in the 1970s and early 1980s relative to the state followed by its apparent weakness since 1985 is related to its industry mix. In aggregate, the Bay Area employment mix is quite similar to the mix statewide. About 17 percent of the region's wage and salary workers were employed in manufacturing in 1987, compared to 17.5 percent statewide, 22.4 percent regionwide were employed in wholesale and retail trade, compared to 23 percent statewide, and 15.7 percent were employed in government, both in the region and statewide (see Table 7). The region has significantly lower shares of employment in agriculture and mining and slightly higher shares of employment in transportation/communications/utilities (TCU) and finance/insurance/real estate (FIRE) than the state as a whole. However,

TABLE 7: WAGE AND SALARY WORKERS BY INDUSTRY IN CALIFORNIA AND THE BAY AREA, 1972-1988

		Total Workers in Thousands						Percent Share in Total						Annual Rate of Growth			
		1972		1980		1988		1972		1980		1988		1972-80		1980-88	
SIC CODE	INDUSTRY	Calif.	Bay Area	Calif.	Bay Area	Calif.	Bay Area	Calif.	Bay Area	Calif.	Bay Area	Calif.	Bay Area	Calif.	Bay Area	Calif.	Bay Area
	Total	7478.0	1806.9	10201.1	2451.5	12435.7	2881.6	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	3.96%	3.89%	2.51%	2.04%
01-09	Total Agricultural	268.1	22.1	352.3	24.7	360.6	21.1	3.6%	1.2%	3.5%	1.0%	2.9%	0.7%	3.47%	1.40%	0.29%	-1.95%
10-14	Mining	29.2	2.1	43.5	4.6	42.3	5.6	0.4%	0.1%	0.4%	0.2%	0.3%	0.2%	5.11%	10.30%	-0.35%	2.49%
15-17	Construction	312.4	80.9	428.3	103.5	607.0	137.8	4.2%	4.5%	4.2%	4.2%	4.9%	4.8%	4.02%	3.13%	4.46%	3.64%
20-39	Manufacturing	1542.7	329.3	2018.2	476.1	2147.9	494.1	20.6%	18.2%	19.8%	19.4%	17.3%	17.1%	3.42%	4.72%	0.78%	0.46%
40-49	Transp. & Pub. U.	454.1	149.5	546.3	161.1	586.4	164.9	6.1%	8.3%	5.4%	6.6%	4.7%	5.7%	2.34%	0.94%	0.89%	0.29%
50-59	Wh. & R. Trade	1608.6	373.6	2266.9	527.9	2869.3	643.3	21.5%	20.7%	22.2%	21.5%	23.1%	22.3%	4.38%	4.42%	2.99%	2.50%
60-67	F.I.R.E.	409.3	122.4	623.1	181.1	812.8	212.6	5.5%	6.8%	6.1%	7.4%	6.5%	7.4%	5.39%	5.02%	3.38%	2.02%
70-89	Services	1361.0	345.3	2158.8	546.7	3074.9	759.2	18.2%	19.1%	21.2%	22.3%	24.7%	26.3%	5.94%	5.91%	4.52%	4.19%
	Government	1492.7	381.9	1763.9	425.9	1934.5	443.2	20.0%	21.1%	17.3%	17.4%	15.6%	15.4%	2.11%	1.37%	1.16%	0.50%

Source: Average Wage and Salary Employment by Industry 1972-1988, Employment Development Department, Employment Data and Research Division.

the most significant differences between the Bay Area and the state as a whole and among counties within the region are found in the structural differences within the major employment categories.

The Bay Area economy is both specialized and diversified. Its manufacturing base, for example, has become highly concentrated in high-tech related sectors (see Table 8). While the region once had a strong heavy manufacturing base centered along the east bayshore, many of these industries, ranging from food production to transportation equipment and fabricated metals, have shifted out of the region and often out of the country. As a consequence, the East Bay counties of Alameda and Contra Costa have seen their share of employment in manufacturing shrink from 19 percent in 1972 (slightly higher than the regionwide average), to less than 13 percent in 1988, significantly lower than the regionwide level of 17 percent.

High tech employment had already become a dominant part of the manufacturing sector in the early 1970s. By 1985, the high tech sectors of nonelectrical machinery, electrical and electronic equipment, and instruments accounted for almost half of all manufacturing employment in the region. High tech employment has remained heavily concentrated in Santa Clara County, which had almost four-fifths of all employment in these three sectors regionwide in 1985.

While high tech employment strongly dominates the region's manufacturing base, it is much less dominant in counties other than Santa Clara. For example, food processing is the largest manufacturing sector in Alameda, Napa and Solano Counties.

TABLE 8: PERCENT OF TOTAL MANUFACTURING EMPLOYMENT IN EACH 2-DIGIT SECTOR
BAY AREA COUNTIES COMPARED TO THE UNITED STATES

SIC	ALAMEDA	CONTR CO	MARIN	NAPA	SAN FRAN	SAN MATEO	SANTA CLARA	SOLANO	SONOMA	BAY AREA	UNITED STATES	RATIO, SFBA:US
---- Total Emp.												
19-- Manufacturing	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
2000 Food Proc.	14.6%	7.4%	2.7%	52.9%	7.2%	10.2%	2.2%	26.9%	16.7%	6.6%	7.3%	0.90
2100 Tobacco	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.01
2200 Textiles	0.4%	0.1%	0.0%	0.0%	0.7%	0.1%	0.0%	0.0%	0.1%	0.2%	3.5%	0.04
2300 Apparel	3.3%	0.9%	2.6%	6.1%	21.7%	0.8%	0.1%	0.2%	1.6%	2.8%	5.8%	0.49
2400 Lumber	1.4%	0.7%	2.8%	2.4%	2.0%	0.9%	0.3%	3.3%	9.1%	1.0%	3.4%	0.31
2500 Furniture	2.6%	0.9%	2.0%	0.2%	1.9%	1.6%	0.3%	6.2%	3.2%	1.1%	2.6%	0.43
2600 Paper	3.3%	3.4%	0.6%	1.2%	0.9%	2.8%	0.6%	2.3%	0.1%	1.4%	3.2%	0.43
2700 Printing	7.1%	11.4%	19.1%	5.6%	18.0%	11.4%	2.8%	11.8%	8.1%	6.4%	7.3%	0.88
2800 Chemicals	6.0%	9.6%	0.1%	0.2%	1.4%	4.2%	1.0%	1.9%	0.6%	2.5%	4.4%	0.56
2900 Petroleum	0.3%	16.7%	0.0%	0.2%	0.0%	0.3%	0.0%	6.9%	0.1%	1.1%	0.7%	1.61
3000 Rubber	3.0%	0.7%	9.8%	0.4%	0.8%	13.9%	1.0%	6.4%	2.1%	2.3%	3.9%	0.58
3100 Leather	0.2%	0.0%	0.0%	7.1%	0.3%	0.2%	0.0%	0.0%	0.7%	0.2%	0.8%	0.21
3200 Stone/Clay/Gl	4.6%	3.4%	5.9%	7.3%	0.9%	1.9%	0.8%	2.6%	2.3%	1.8%	2.8%	0.65
3300 Primary Met.	3.5%	6.7%	0.1%	7.2%	0.5%	1.7%	0.3%	1.3%	0.9%	1.4%	4.0%	0.34
3400 Fab. Metals	10.8%	7.6%	0.9%	1.6%	3.8%	7.1%	3.6%	12.3%	2.5%	5.2%	7.7%	0.67
3500 Nonelec. Mach.	12.7%	2.9%	12.7%	1.4%	3.2%	8.5%	23.8%	6.0%	7.2%	16.9%	10.8%	1.56
3600 Electrical M.	9.8%	3.3%	18.1%	3.0%	6.3%	19.6%	36.3%	3.6%	16.9%	24.9%	10.7%	2.32
3700 Transp. Equip.	5.5%	2.0%	3.7%	0.8%	6.6%	0.4%	12.3%	1.8%	0.9%	8.7%	9.1%	0.95
3800 Instruments	4.9%	9.6%	2.8%	1.6%	2.4%	4.5%	6.7%	1.3%	22.9%	6.4%	3.2%	2.01
3900 Misc.	1.0%	1.1%	9.8%	0.7%	2.4%	2.3%	0.5%	1.6%	3.2%	1.1%	1.9%	0.57
Admin/Aux	5.1%	11.5%	6.3%	0.0%	19.2%	7.9%	7.5%	3.6%	0.8%	8.1%	6.6%	1.23

SOURCE: Computed from County Business Patterns, 1985.

Petroleum products account for one-sixth of Contra Costa County's manufacturing base, while apparel, printing and administrative offices of manufacturing firms account for almost 60 percent of San Francisco's manufacturing base.

While Santa Clara County is highly concentrated in high-tech manufacturing activities, other Bay Area counties have developed nonmanufacturing areas of specialization and dominance, as summarized in Table 9. Alameda County is a strong transportation node, with employment dominance in air transportation, port activities and trucking. Port activities are also significant in San Francisco, while San Mateo County has a high share of employment in air transportation (because of the location of the San Francisco airport) and all three counties have significant levels of transportation services employment.

Financial, legal and business services are also significant employment sectors within the region. Financial and legal services remained heavily concentrated in San Francisco as recently as 1985, but significant suburban shifts have taken place in financial employment since then within the region. Business services are strong throughout all of the larger counties in the region, although what these encompass varies considerably within the region. For example, computer and data processing services accounted for 24 percent of all business services in Santa Clara County in 1985, compared to 10 percent in Alameda County and 8 percent in San Francisco. In contrast, management and public relations services accounted for 14 percent of business services in San Francisco, 7 percent in Santa Clara County, and 9 percent in Alameda County.

TABLE 9: LEVEL OF DOMINANCE OF ECONOMIC SECTORS IN THE SAN FRANCISCO BAY AREA ECONOMY (LOCATION QUOTIENTS FOR 1985*)

SIC #	SECTOR NAME	ALAMEDA	CONTRA COSTA	MARIN	NAPA	SAN FRANCISCO	SAN MATEO	SANTA CLARA	SOLANO	SONOMA	BAY AREA
LOCATION QUOTIENT FOR ALL MAJOR ECONOMIC (ONE-DIGIT) SECTORS											
	Ag/For/Fish	1.44	1.70	2.48	1.93	0.54	1.09	0.81	1.47	2.09	1.10
	Mining	0.11	0.11	0.12	0.47	1.30	0.03	0.03	0.38	0.21	0.35
	Construction	1.16	1.47	1.07	1.26	1.11	0.96	0.77	1.67	1.39	1.05
	Manufacturing	0.79	0.59	0.39	0.68	0.39	0.52	1.65	0.50	0.76	0.90
	Trans/Comm/Util	1.29	1.35	0.61	1.01	1.63	2.36	0.51	0.83	1.01	1.20
	Wholesale	1.37	0.79	0.79	0.48	0.84	1.39	1.06	0.63	0.85	1.05
	Retail	1.03	1.25	1.27	1.24	0.71	1.01	0.73	1.65	1.27	0.92
	Finance/Ins/RE	0.85	1.24	1.68	0.62	2.50	1.24	0.57	0.72	1.10	1.23
	Services	1.03	0.99	1.25	1.26	1.23	1.00	0.94	1.00	0.91	1.04
MANUFACTURING SECTORS WITH REGIONAL LOCATION QUOTIENT GREATER THAN 1.1											
3600	Electonic	0.73	0.18	0.66	0.19	0.23	0.96	5.60	0.17	1.20	2.09
3800	Instrumen	1.23	1.78	0.34	0.34	0.29	0.74	3.48	0.20	5.50	1.82
2900	Petroleum	0.31	14.64	0.00	0.23	0.00	0.23	0.07	5.12	0.14	1.45
3500	Nonelec M	0.93	0.16	0.46	0.09	0.12	0.41	3.63	0.27	0.51	1.41
NONMANUFACTURING SECTORS WITH REGIONAL LOCATION QUOTIENT GREATER THAN 1.1											
4400	Water	2.17	0.65	2.28	0.16	5.99	0.21	0.01	1.80	0.05	1.89
4700	Transp Se	1.67	1.08	1.38	1.07	2.87	3.49	0.93	0.71	0.75	1.78
4500	Air	1.27	0.01	0.18	0.12	0.45	12.50	0.15	0.73	0.18	1.75
4800	Commun	1.49	2.48	0.68	1.60	2.10	2.23	0.77	0.68	1.13	1.51
7300	Business	1.41	1.19	1.22	0.67	1.70	1.34	1.67	0.86	0.67	1.47
1600	Heavy	1.64	1.51	0.58	1.80	3.57	0.54	0.28	1.83	1.00	1.46
6500	Real Est.	1.04	1.54	1.56	1.29	1.85	2.35	0.92	0.92	0.97	1.38
8900	Misc	0.91	1.31	1.57	0.60	1.83	1.91	1.25	0.86	0.87	1.37
6700	Holding C	0.96	0.77	1.30	0.61	2.89	1.62	0.70	0.54	1.37	1.37
6200	Securitie	0.54	0.64	1.14	0.35	4.12	0.84	0.45	0.16	0.64	1.35
8100	Legal	0.93	0.75	0.88	0.69	3.05	0.68	0.76	0.55	0.80	1.28
6100	S&Ls	1.29	2.03	1.53	0.78	1.43	1.77	0.71	1.64	1.65	1.28
6400	Insur. Ag	0.80	1.12	1.47	0.62	2.52	1.56	0.60	0.51	0.88	1.24
6000	Banks	0.59	0.91	0.94	0.56	3.40	0.55	0.45	0.80	0.60	1.20
0700	Ag Servic	1.54	1.77	2.53	2.07	0.55	1.18	0.87	1.58	2.15	1.16
5000	Durable	1.35	0.77	0.79	0.51	0.81	1.36	1.31	0.55	0.72	1.11

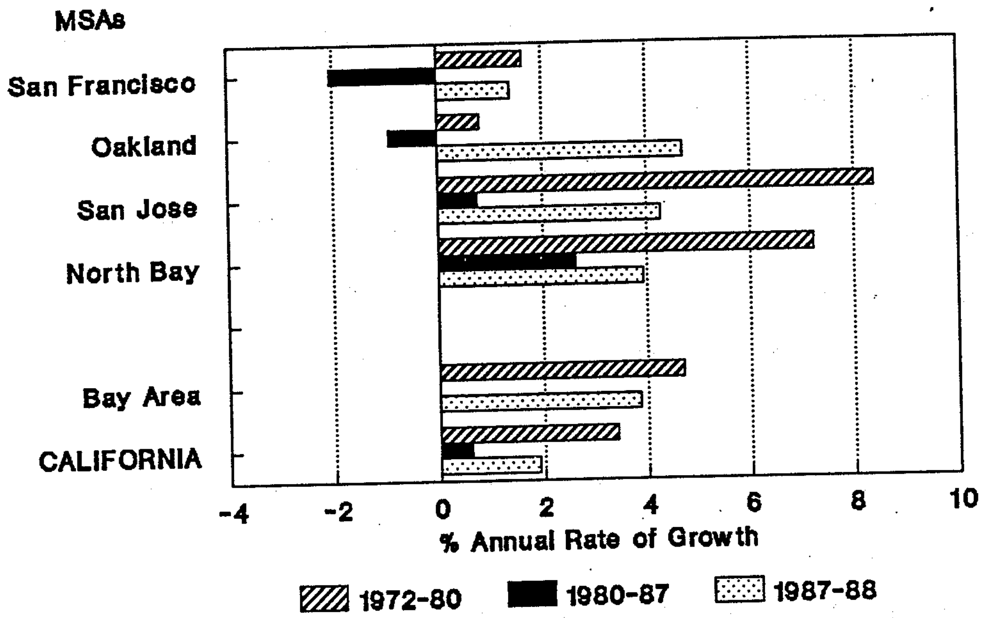
* A location quotient is an index indicating the region's share of employment in an industry relative to the share of employment in that industry at the national level. Thus, a location quotient of 1.1 indicates that a county or region has 10 percent more employment in that sector than occurs on average nationwide. Similarly, a location quotient of 4.5 would indicate a share 350 percent higher than would occur nationwide.

SOURCE: Computed from County Business Patterns 1985.

Agriculture, while weak regionwide compared to the role of agriculture in the state's economy, is extremely important to some parts of the region. North Bay counties have 3.5 percent of total wage and salary employment in agricultural production and processing, compared to 2.9 percent statewide and only 0.7 percent regionwide. In addition, the manufacturing base in these counties is strongly tied to agriculture. In 1985, food processing accounted for 53 percent of manufacturing jobs in Napa County, 27 percent in Solano County, and 17 percent in Sonoma County.

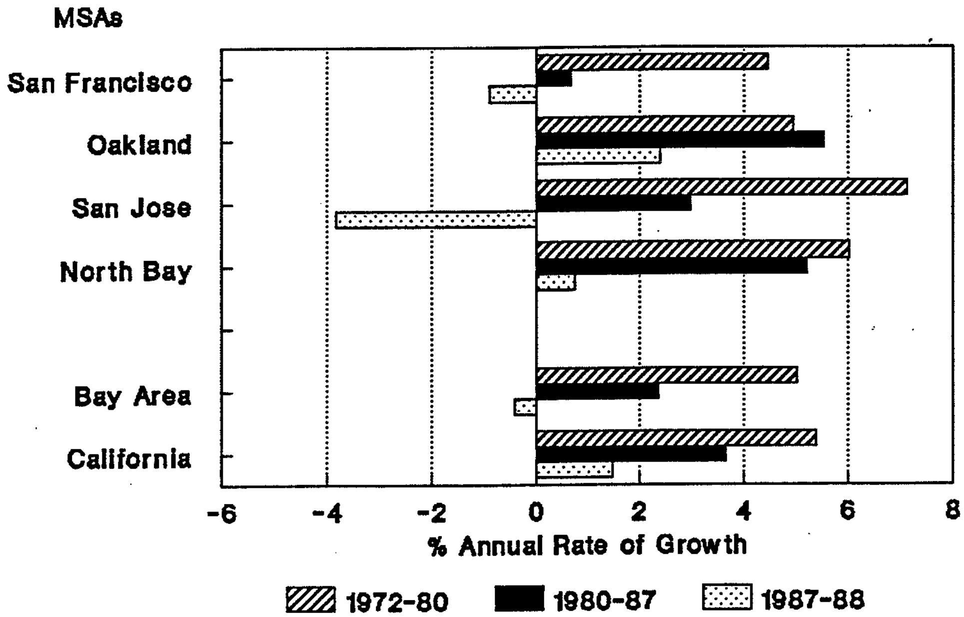
The 1980s have seen significant changes in the location of employment throughout the region. Manufacturing jobs grew by about 3 percent annually in the South Bay (Santa Clara County) and North Bay (Napa, Solano and Sonoma counties) in the first half of the 1980s, while the San Francisco metropolitan area (San Francisco, Marin and San Mateo counties) and the Oakland metropolitan area (Alameda and Contra Costa counties) lost manufacturing jobs in this period (see Figure 2). From 1985 through 1987, the region as a whole suffered losses in manufacturing jobs, largely due to two years of recession in the high tech industry, which led to annual job losses in Santa Clara County's manufacturing sector of 3.3 percent in 1986 and 1987. Employment in finance, insurance and real estate grew slowly in the San Francisco MSA but quickly in most other parts of the region in the 1980s (see Figure 3). The Oakland MSA in particular had very strong job increases in FIRE, growing by 4.8 percent annually from 1980 through 1985 and by 7.5 percent annually from 1985 through 1987 (see Table 10).

FIGURE 2: ANNUAL RATES OF GROWTH IN MANUFACTURING IN BAY AREA MSAs AND STATE



Source: CREUE from EDD data.

FIGURE 3: ANNUAL RATES OF GROWTH IN THE FIRE SECTOR IN BAY AREA MSAs AND STATE



Source: CREUE from EDD data.

TABLE 10: ANNUAL RATES OF CHANGE IN THE AVERAGE NUMBER OF WAGE AND SALARY WORKERS BY INDUSTRY IN BAY AREA MSAs, 1972-1987

SIC CODE	INDUSTRY	ANN. RATE OF CHANGE 1972-80 S.F.	Oak.	S.J.	North Bay	BAY AREA	ANN. RATE OF CHANGE 1980-85 S.F.	Oak.	S.J.	North Bay	BAY AREA
	Total All Industries	2.9%	2.7%	6.5%	5.1%	3.9%	0.9%	2.3%	2.9%	3.3%	2.1%
01-09	Total Agricultural	2.7%	0.5%	-0.2%	2.5%	1.4%	0.5%	-6.1%	-6.0%	-1.2%	-3.0%
10-14	Mining	20.3%	0.0%	9.1%	16.2%	10.3%	-2.9%	11.8%	-12.9%	0.0%	2.1%
15-17	Construction	1.5%	3.3%	3.8%	6.2%	3.1%	1.4%	4.1%	4.8%	5.8%	3.7%
20-39	Manufacturing	1.6%	0.8%	8.4%	7.2%	4.7%	-2.5%	-1.5%	2.4%	2.7%	0.7%
40-49	Transportation & Public Utilities	0.4%	0.7%	2.5%	4.0%	0.9%	-0.8%	3.1%	0.5%	1.7%	0.6%
50-59	Wholesale & Retail Trade	3.3%	3.9%	6.4%	6.1%	4.4%	1.6%	3.4%	3.6%	5.3%	3.0%
60-67	Finance, Ins and Real Estate	4.5%	5.0%	7.1%	6.0%	5.0%	0.9%	4.8%	3.0%	5.9%	2.3%
70-89	Services	5.3%	5.0%	7.5%	7.3%	5.9%	3.0%	4.7%	4.7%	5.1%	4.0%
	Government	0.6%	1.1%	2.6%	2.6%	1.4%	-0.4%	-0.0%	0.2%	0.6%	-0.0%

SIC CODE	INDUSTRY	ANN. RATE OF CHANGE 1985-87 S.F.	Oak.	S.J.	North Bay	Total Bay	ANN. RATE OF CHANGE 1987-88 S.F.	Oak.	S.J.	North Bay	Total Bay
	Total All Industries	0.6%	2.9%	0.5%	4.1%	1.5%	1.6%	3.4%	3.7%	3.5%	2.9%
01-09	Total Agricultural	-1.4%	-7.4%	0.0%	-1.6%	-2.1%	0.0%	0.0%	2.1%	7.8%	3.9%
10-14	Mining	-27.5%	23.4%	41.4%	4.9%	3.8%	-10.0%	3.1%	-50.0%	18.2%	1.8%
15-17	Construction	3.7%	2.8%	-1.2%	9.7%	2.8%	3.2%	6.3%	4.0%	7.0%	5.0%
20-39	Manufacturing	-0.8%	0.5%	-3.3%	2.4%	-1.7%	1.4%	4.7%	4.3%	3.9%	3.9%
40-49	Transportation & Public Utilities	-3.8%	5.7%	-1.6%	2.0%	-0.2%	-0.4%	-0.5%	0.5%	-1.0%	-0.4%
50-59	Wholesale & Retail Trade	-0.1%	1.8%	1.7%	4.3%	1.3%	0.3%	2.6%	4.1%	4.4%	2.4%
60-67	Finance, Ins and Real Estate	0.1%	7.5%	2.9%	3.7%	2.5%	-0.9%	2.4%	-3.8%	0.8%	-0.4%
70-89	Services	3.3%	5.0%	3.6%	6.6%	4.1%	4.4%	5.7%	6.2%	2.7%	5.1%
	Government	-0.1%	1.3%	3.8%	2.4%	1.5%	0.7%	1.8%	-0.5%	2.4%	1.1%

Source: Average Wage And Salary Employment by Industry 1972-1988, Employment Development Department, Employment Data and Research Division

Note: North Bay covers Santa Rosa-Petaluma and Vallejo-Fairfield-Napa Metropolitan Areas.

While recent figures on employment growth in the region are troubling, the 1985 through 1987 experience is not necessarily indicative of a long term trend. The Bay Area's wage and salary employment increased by 2.9 percent in 1988, a growth rate still below the statewide rate of 3.4 percent, but a welcome strengthening over the previous two years. Manufacturing employment saw great improvement in the past year, expanding by 3.9 percent, while FIRE lost employment regionwide and expanded slowly even in the East Bay, where it had previously boomed.

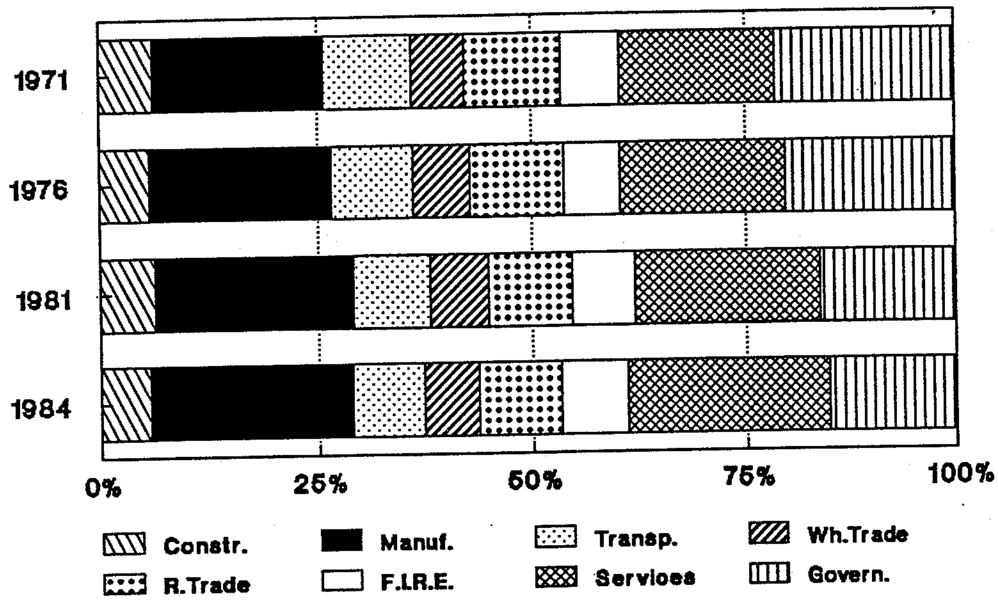
IV. Output, Incomes, Occupations, and Unemployment

Employment levels are not the only measure of the health and direction of a region's economy. Output, wage characteristics, occupational structure, and unemployment rates are also significant indicators of economic welfare.

A. Output

Although the share of jobs in manufacturing has declined since the 1970s, the share of total labor and proprietor's income in manufacturing (one measure of output) has been rising, as shown in Figure 4. Other sectors with significant increases in share of regionwide income are services and FIRE, while the greatest decrease in share has occurred from government income. Sectoral income increases may be highly tied to the economy of a particular county. For example, the increase in personal income in manufacturing in many years is due to strong growth in Santa Clara County, often offsetting losses in other parts of the region.

FIGURE 4: PERCENT SHARE OF INDUSTRIES IN LABOR AND PROPRIETOR INCOME IN BAY AREA



The total incomes from the above industries are equated to 100 percent since the rest of the industries yielded insignificant amounts of total income for all years.

B. The Influence of Job Mix on Occupational Mix

The occupational structure of the region is notably different from that of the state or nation (see Table 11). The Bay Area had significantly more managerial, technical and professional workers than the state or the nation in 1980, and substantially fewer production workers. While changes since the 1980s have not been catalogued by census figures, the types of sectors where growth is occurring offer some indication of how the Bay Area's occupational structure has been evolving. For example, California figures for the mid 1980s indicate that the manufacturing sectors with strong growth in the Bay Area have relatively low shares of production workers (between 40 and 50 percent) compared to some of the slower growing and declining manufacturing sectors such as food and kindred products (73 percent). At the same time, the high tech sectors have high shares of professional and technical workers (16 to 30 percent, depending on the sector), while food processing and other older, shrinking manufacturing sectors have less than 5 percent of employment in these categories. Apart from manufacturing, TCU sectors tend to have relatively large shares of production workers, ranging from 25 to 70 percent of their workforce, as well as substantial numbers of workers in clerical and administrative support (19 to 42 percent). Thus some of the production jobs lost in the restructuring of manufacturing are being replaced in distributive sectors such as TCU.

Nonmanufacturing sectors have much larger shares of administrative and clerical or service workers. About two thirds of FIRE workers are in clerical and administrative support

TABLE 11: COMPARISON OF OCCUPATIONS OF EMPLOYED PERSONS, 1980

OCCUPATIONS	BAY AREA	STATE	NATION
Executive, administrative, and managerial	13.06%	12.00%	10.38%
Professional specialty, health and nonhealth tech.	18.70%	16.45%	15.36%
Sales	10.91%	10.81%	10.00%
Administrative support, including clerical	19.91%	18.45%	17.26%
Service	12.20%	12.60%	12.93%
Farming, foresty and fishing	1.40%	2.83%	2.88%
Production and related	23.83%	26.86%	31.19%
Precision production, craft and repair	11.54%	12.34%	12.90%
Operators, fabricators and laborers	12.29%	14.51%	18.29%
TOTAL	100.00%	100.00%	100.00%

Source: General Social and Economic Characteristics, Bureau of Census, 1980.

services, while retail and service jobs have very high proportions of often low-paid service workers. For example, over 80 percent of workers in eating and drinking places, are service workers, as are two third of those in hotels and lodging places. However, some of the Bay Area's strongest growth sectors are services with a wider mix of occupational types. For example, in business services, statewide figures indicate that about 30 percent of workers are in clerical and administrative support and twenty percent in each of services and professional and technical positions.

C. Wages

One area of concern, as many production and craft jobs are lost in the region, due to a change in mix within manufacturing, is what happens to the mix of wage opportunities. The growth of jobs in technically skilled areas and the faster growth of jobs than labor force in the region has meant that Bay Area wages have tended to be higher than in the state or nation. This remains the case even after adjusting for different rates of increase in the cost of living (see Table 12), and despite job losses in some high wage manufacturing sectors. Employment growth has been strong both in sectors which still provide relatively high wages (e.g. nonelectrical machinery manufacturing, legal services), and in lower paying sectors such as business services. Relative to the state and the nation, in the Bay Area real wages have been particularly high in the contract construction, wholesale trade, retail food stores, and business services.

D. Unemployment

Overall strength of the region's labor force and economy are

TABLE 12: PAYROLL PER EMPLOYEE BY MAJOR INDUSTRY GROUP, 1985

SIC		Current 1985 Dollars			Adjusted by CPI (1967=100)			Bay Area Payroll = $1	
					330.4	335.1	320.1		
		BAY AREA	CALIFORNIA	U.S	BAY AREA	CALIFORNIA	U.S	CALIFORNIA	U.S
----	TOTAL	22,795	20,538	18,665	6,899	6,129	5,831	0.89	0.85
07--	AGR. SERV., FOR., FISH.	15,808	13,794	13,618	4,785	4,116	4,254	0.86	0.89
10--	MINING	40,050	32,078	29,881	12,122	9,573	9,335	0.79	0.77
15--	CONTRACT CONSTRUCTION	30,249	25,342	21,841	9,155	7,563	6,823	0.83	0.75
19--	MANUFACTURING	28,636	25,329	23,557	8,667	7,559	7,359	0.87	0.85
3500	machinery, exc. electr.	31,170	27,054	25,400	9,434	8,073	7,935	0.86	0.84
3600	electronic equipment	27,767	27,352	24,009	8,404	8,162	7,500	0.97	0.89
3800	instruments, rel. prod.	27,965	25,395	24,666	8,464	7,578	7,706	0.90	0.91
40--	TRANSP. & PUB. UTILITIES	29,543	27,125	25,510	8,941	8,095	7,969	0.91	0.89
50--	WHOLESALE TRADE	28,090	25,190	23,198	8,502	7,517	7,247	0.88	0.85
5000	durable goods	29,217	25,911	23,809	8,843	7,732	7,438	0.87	0.84
52--	RETAIL TRADE	13,171	12,199	10,633	3,986	3,640	3,322	0.91	0.83
5400	food stores	16,408	14,902	10,689	4,966	4,447	3,339	0.90	0.67
5500	automotive dealers, serv.	21,614	19,700	16,950	6,542	5,879	5,295	0.90	0.81
5800	eating and drinking pl.	7,768	7,189	6,618	2,351	2,145	2,068	0.91	0.88
60--	F.I.R.E.	24,474	22,786	21,936	7,407	6,800	6,853	0.92	0.93
6000	banking	21,094	19,619	19,155	6,384	5,855	5,984	0.92	0.94
6500	real estate	20,052	18,527	16,947	6,069	5,529	5,294	0.91	0.87
70--	SERVICES	19,829	18,819	16,072	6,001	5,616	5,021	0.94	0.84
7300	business services	20,614	18,515	16,920	6,239	5,525	5,286	0.89	0.85
8000	health services	22,942	21,795	18,351	6,944	6,504	5,733	0.94	0.83
8100	legal services	32,722	32,765	27,974	9,904	9,778	8,739	0.99	0.88
8200	educational services	12,870	14,317	13,011	3,895	4,272	4,065	1.10	1.04

Source: County Business Patterns, California and United States Summary, 1985.

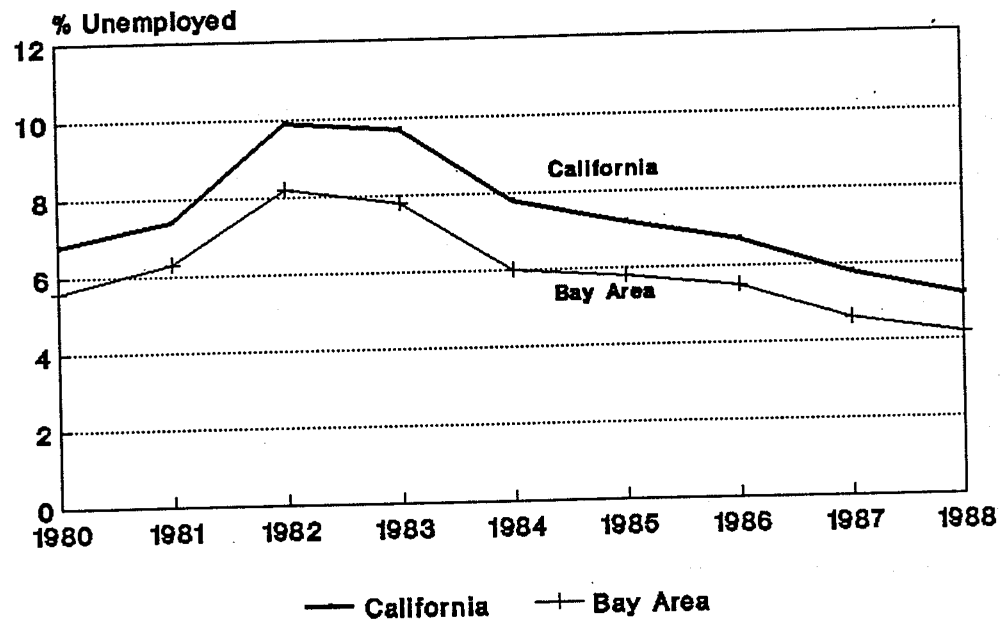
reflected in its unemployment figures. While unemployment levels have fluctuated in patterns similar to the state's, regionwide unemployment has stayed between 1 and 2 percentage points below the state average (see Figure 5). Unemployment levels vary among counties within the region, as shown in Table 13. Solano County has regularly had the highest unemployment rates, frequently at or above the statewide average, while unemployment rates have stayed lowest in Marin and San Mateo counties.

E. Personal and Per Capita Income

The Bay Area had strong growth in total personal income relative to the state and the nation throughout the 1970s and the first half of the 1980s (including net labor and proprietor income by place of residence plus dividends, interest, rent and transfer payments). In 1986, 3.1 percent of national income was generated in the region, which had only 2.3 percent of the nation's population. Despite slower employment and population growth, the annual rate of increase in total personal income generally has been greater than the state and the nation. During the first and second halves of the 1970s, the adjusted real total income in the Bay Area rose by 3.1 and 2.2 percent respectively. In the 1980s, the recession in 1982 caused the annual rate of growth to drop to 0.1 percent between 1981 and 1982, but total Bay Area income rose by 4.2 percent from 1981 to 1986 on average, despite lower rates of job growth during the same period.

Total personal income (by residence) in the 1970s grew predictably faster in counties with rapidly growing suburban communities (see Figure 6). Solano and Sonoma counties were the extreme cases, with 6 and 7.9 percent annual increases

FIGURE 5: UNEMPLOYMENT IN BAY AREA AND CALIFORNIA, 1980-88



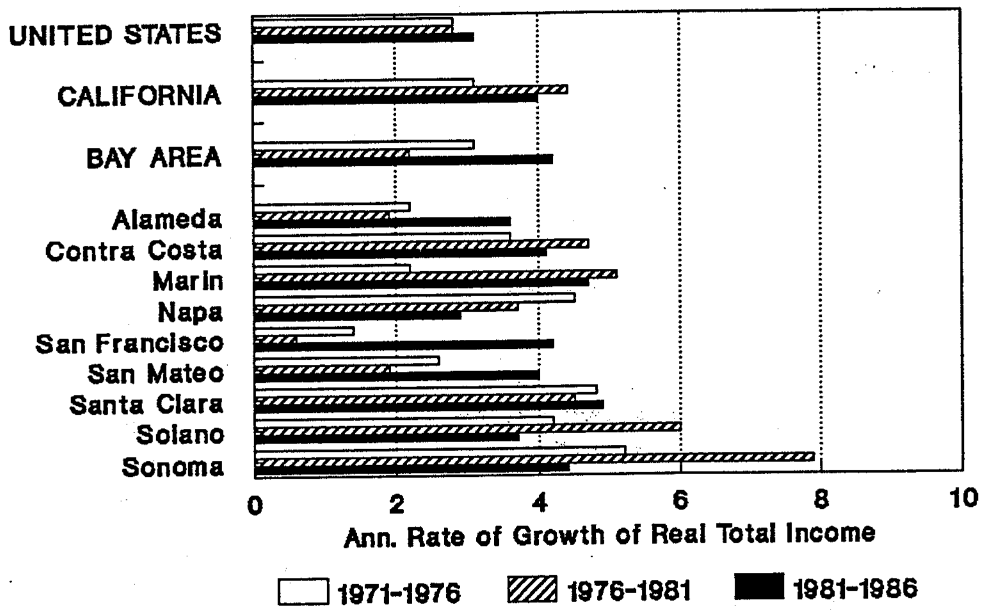
Source: Calif. EDD and CREUE estimates.

TABLE 13: UNEMPLOYMENT IN BAY AREA COUNTIES, 1970-88

County	Census 1970	Estimate 1980	Estimate 1986	Estimate 1987	Estimate 1988
Alameda	6.5	6.4	6.1	5.1	4.6
Contra Costa	5.5	5.3	5.5	5.0	4.6
Marin	4.7	4.7	3.6	3.2	3.0
Napa	4.9	6.6	5.9	4.9	4.5
San Francisco	6.4	6.3	5.5	4.6	4.3
San Mateo	4.1	3.9	3.8	3.2	2.8
Santa Clara	5.8	5.1	5.8	4.5	4.0
Solano	7.7	7.9	6.7	6.3	6.0
Sonoma	7.3	7.1	5.7	4.8	4.7
BAY AREA AVG.	5.9	5.6	5.5	4.6	4.2

Source: General Social and Economic Characteristics, Bureau of Census, 1970; Monthly Labor Force Data for Counties, Annual Averages, 1980-88, Employment Development Department, Employment Data and Research Division.

FIGURE 6: GROWTH IN REAL TOTAL PERSONAL INCOMES IN BAY AREA, STATE AND NATION



Source: CREUE from Census and DOF data.

respectively. In the 1980s, the older urban areas of the region showed a pattern of recovery. San Francisco and Alameda's rate of growth were low in the 1970s due to the middle and higher income population moving out to the suburbs. In the 1980s, however, the process was reversed, with San Francisco achieving an annual rate of increase almost as high as the rate in Santa Clara County, the income leader in the region, which produced almost 37 percent of the total personal income of the Bay Area.

Whereas total personal income is an indicator of general economic performance of the region and localities, the per capita income levels and their comparison show the relative position of the region and its localities over time. The Bay Area performed well in terms of real per capita income both in absolute numbers and annual growth rates. Despite employment growth below the statewide average, per capita income grew more rapidly than statewide or nationwide, except the recession period in the early 1980s. From 1981 through 1983, the annual growth of rate of real per capita income in the region dropped to -3.9 percent. However, between 1983-85, the rate of growth rose to 2.5 percent annually, surpassing both California and U.S. averages (see Table 14).

While during the recession per capita incomes dropped by the same amount in almost every county, the growth in the eighties is mostly due to the per capita income growth of the already high-income counties and cities. Cities such as Pleasanton, Concord, Walnut Creek, Palo Alto and Marin County have high real per capita income levels, and also have had relatively high rates of income growth. Per capita income growth, in contrast, has been low in Daly City, Oakland and Solano County. Per capita income

TABLE 14: PER CAPITA INCOME IN BAY AREA COUNTIES AND SELECTED CITIES, 1979-85

Counties/ Cities	Per Capita Income in Current Dollars				Ann. rate of Change in Real Per Capita Income			Real Income Relative to Bay Area (Bay Area Income = $1)			
	1979	1981	1983	1985	1979-81	1981-83	1983-85	1979	1981	1983	1985
ALAMEDA	8,537	10,125	11,038	12,468	-4.28%	-2.08%	2.50%	0.91	0.90	0.90	0.90
Fremont	9,087	10,814	11,983	13,689	-4.12%	-1.27%	3.08%	0.97	0.97	0.97	0.99
Oakland	7,701	9,103	9,834	10,911	-4.44%	-2.52%	1.58%	0.82	0.81	0.80	0.79
Pleasanton	9,619	11,488	13,110	15,560	-3.95%	0.19%	5.07%	1.03	1.03	1.07	1.12
CONTRA COSTA	9,821	11,752	12,876	14,563	-3.86%	-1.83%	2.56%	1.05	1.05	1.05	1.05
Concord	8,879	10,755	11,822	13,649	-3.27%	-1.67%	3.63%	0.95	0.96	0.96	0.98
Richmond	6,977	8,350	9,041	10,322	-3.85%	-2.41%	3.05%	0.75	0.75	0.74	0.74
Walnut Creek	12,764	15,543	17,066	20,180	-3.01%	-1.73%	4.87%	1.36	1.39	1.39	1.45
MARIN	12,332	14,825	16,311	18,668	-3.63%	-1.63%	3.17%	1.32	1.32	1.33	1.34
NAPA	8,376	10,117	10,761	12,188	-3.41%	-3.27%	2.64%	0.89	0.90	0.88	0.88
SAN FRANCISCO	9,265	11,101	12,116	13,575	-3.79%	-2.02%	2.08%	0.99	0.99	0.99	0.98
SAN MATEO	10,666	12,724	13,902	15,819	-4.00%	-1.97%	2.88%	1.14	1.14	1.13	1.14
Daly City	8,227	9,887	10,323	11,321	-3.65%	-4.17%	1.00%	0.88	0.88	0.84	0.81
San Mateo	11,080	13,261	14,494	16,261	-3.85%	-1.95%	2.15%	1.18	1.19	1.18	1.17
SANTA CLARA	9,518	11,424	12,869	14,585	-3.71%	-0.46%	2.67%	1.02	1.02	1.05	1.05
Palo Alto	12,799	15,780	18,183	21,141	-2.41%	0.67%	3.99%	1.37	1.41	1.48	1.52
San Jose	8,382	9,996	11,158	12,583	-4.02%	-0.91%	2.41%	0.90	0.89	0.91	0.91
Sunnyvale	10,359	12,674	14,324	16,073	-2.78%	-0.29%	2.16%	1.11	1.13	1.16	1.16
SOLANO	7,407	8,884	9,640	10,675	-3.74%	-2.30%	1.49%	0.79	0.79	0.78	0.77
SONOMA	8,087	9,633	10,393	11,809	-4.08%	-2.58%	2.80%	0.86	0.86	0.85	0.85
BAY AREA TOTAL	9,363	11,190	12,299	13,892	-3.92%	-1.67%	2.50%	1.00	1.00	1.00	1.00
CALIFORNIA	8,294	9,763	10,540	11,885	-4.33%	-2.23%	1.24%	0.88	0.87	0.86	0.84
U.S.	7,331	8,827	9,977	11,154	-1.97%	1.58%	2.09%	0.75	0.78	0.84	0.83

Source: Population Estimates and Projections, Series P 25, No. 744, U.S. Department of Commerce, Bureau of the Census, 1980, and Per Capita Income Estimates, Department of Finance, State of California, 1988.

figures raise important questions about the distribution of income among areas within the region. Major gaps in income occur among localities in the Bay Area, and over time these gaps have tended to widen. The cities of Oakland and Richmond show severe declines in comparison to the Bay Area average (for each $1 per capita income in the Bay Area there were only $.79 of income in Oakland and $.74 of income in Richmond in 1985), and the cities of Palo Alto and Walnut Creek have gained relative to the Bay Area (for each $1 per capita income in the Bay Area there were $1.52 of income in Palo Alto and $1.45 in Walnut Creek). These income disparities raise important concerns over the direction and impact of growth in the region.

F. Strengths and Concerns

Overall, employment and income indicators for the region show some new areas of vulnerability but also suggest that the region continues to have important underlying strengths. The greatest changes that have occurred in the employment base have been in the increasing concentration of manufacturing activity in high tech sectors in the South Bay and the slowdown and relocation of growth in FIRE sectors. Income, wage and unemployment levels, however, have shown far less tendency to veer away from their historic positions of relative advantage compared to the state.

V. International Trade and Port Activity

Links to the Pacific Rim trading network are likely to play a major role in driving growth of the San Francisco Bay Area economy in the coming decade, as they will in the rest of the state. One concern of business groups involved in the region is how well positioned the Bay Area is to participate in growing international trade opportunities. Has the region, for example, maintained a strong level of port activity in the 1980s?

Waterborne commerce in the San Francisco Bay and Delta areas has increased relative to waterborne traffic nationwide in the 1980s. While there was a slight drop in the tonnage shipped from U.S. ports between 1981 and 1986, the Bay Area saw increases in all types of activities, including imports, exports and domestic shipments. The Oakland and San Francisco ports have had more varied experiences, however. Both have had large increases in imports (7.7 percent annually in the San Francisco Harbor and 8.7 percent annually in the Oakland harbor, compared to a 5.3 percent annual rate nationwide) but have experienced losses in export activity close to the U.S. rate of 3 percent per year (see Table 15). Export and import growth in both of these Bay Area ports lags behind the experience of the Los Angeles harbor, which experienced an annual growth rate in imports of almost 10 percent between 1981 and 1986 while also experiencing a slower growth in exports (1.5 percent annually). However, the experience of the region's ports compares favorably with the Long Beach harbor, another major Southern California port, which had slow growth in imports (2.1 percent annually) and a loss in export volume (4.3 percent annually) from 1981 to 1986.

The major Bay Area ports are quite specialized in the types of products shipped in and out for foreign imports and exports, indicating the types of sectors likely to be affected by foreign trade in the region (see Table 16). Research by the state

TABLE 15: TOTAL WATERBORNE COMMERCE TRAFFIC OF THE SAN FRANCISCO BAY AND DELTA AREAS COMPARED TO THE OVERALL UNITED STATES, 1981 AND 1986 (THOUSANDS OF TONS)

	TOTAL		IMPORTS		EXPORTS		DOMESTIC	
	1981	1986	1981	1986	1981	1986	1981	1986
UNITED STATES	1,941,559	1,874,416	477,192	486,073	409,911	351,150	1,054,457	1,037,193
SF BAY AND DELTA	71,099	79,137	6,790	8,803	10,650	11,689	53,660	58,641
Percent Share	3.66%	4.22%	1.42%	1.81%	2.60%	3.33%	5.09%	5.65%
Ann. Change U.S.		-0.70%		0.37%		-3.05%		-0.33%
Ann. Change B.A.		2.17%		5.33%		1.88%		1.79%

Source: Department of the Army, Corps of Engineers, "Waterborne Commerce of the United States, Calendar Year 1986," Parts 4 and 5.

TABLE 16: Major Waterborne Import and Export Sectors for the Ports of Oakland, Richmond and San Francisco, 1984

PORT	IMPORTS (% of Total)	EXPORTS (% of Total)
Port of Oakland	Primary Metal Products (33%) Food and Kindred Products (15%)	Food and Kindred Products (24%) Waste and Scrap Materials (22%) Agricultural Products (17%) Chemicals and Allied Products (17%)
Port of Richmond	Crude Petroleum (63%)	Petroleum and Coal Products (69%) Waste and Scrap Materials (16%)
Port of San Francisco	Pulp, Paper & Allied (35%) Food and Kindred Products (15%) Agricultural Products (11%)	Agricultural Products (25%) Food and Kindred Products (21%) Waste and Scrap Materials (18%) Chemicals and Allied Products (15%)

Source: California Department of Commerce, Office of Economic Research, California's Major Commercial Ports, 1986.

Department of Commerce indicates that over half of all imports through the Port of San Francisco in 1984 were agricultural products, food and kindred products, or pulp, paper and allied products. Agricultural and food products alone accounted for 45 percent of the port's exports, while another 33 percent was in chemicals and allied products and waste and scrap materials. The Port of Oakland's import volume is three times the size of San Francisco's and export volume is six to seven times that of San Francisco. Primary metal products accounted for one third of Oaklands imports in 1984, with food and kindred products making up an additional 15 percent of the import volume. The port's exports are primarily in agricultural products (17 percent), food products (24 percent), chemicals and allied products (17 percent) and waste and scrap materials (22 percent). The Port of Richmond's total tonnage shipped exceeds that of either San Francisco or Oakland, but the port's shipments are largely domestic, rather than international. International shipments through the Port of Richmond are primarily related to the petroleum industry.

Bay Area port activities indicate some of the sectors in the region most sensitive to international trade conditions in the future. However, many high value products with major export markets are not shipped via water and do not appear in the port statistics. Overall, the Bay Area's port activity, when considered in the context of population and employment growth trends in the region, appears to have maintained its competitive position relative to other ports in the state. Long term trends of imports and exports are clearly affected by national conditions as well as by the competitive position of the region's economic sectors. Both the import and export sectors identified from port activity statistics, as well as the many different service sector activities that assist businesses involved in foreign trade, will be affected by growing demand in the Pacific Rim in the coming decade.

VI. Built Space

Growth of the region's population and economy has led to tremendous levels of building activity in the 1980s. Construction activity has been a significant element in the Bay Area economy in the 1980s. Construction accounted for 4.7 percent of wage and salary employment regionwide in 1987 and 5.6 percent of total personal income in 1984, the most recent year for which income data is available. Jobs in construction grew at 3.7 percent annually in the first half of the 1980s and at 3.1 percent annually from 1985 to 1987.

Building activity regionwide, however, has not always kept pace with changing demands. The rate of housing construction exceeded household growth in the 1970s, while the situation was sharply reversed in the 1980s (see Table 17). In contrast, office and industrial construction activity was very strong in the 1980s, growing far faster than the demand for space, as measured by employment growth.

In 1987 there were an estimated 2.2 million housing units in the Bay Area, giving an average household size of 2.6. The 1980s has been a period of a tightening housing market, due in part to a recession early in the decade and in part to land use and

TABLE 17: COMPARATIVE RATES OF GROWTH OF HOUSEHOLDS, EMPLOYMENT HOUSING UNITS AND OFFICE SQUARE FOOTAGE, 1970-1988

INDICATORS	TOTAL 1970	1980	1988	ANNUAL RATE OF CHANGE 1970-80	1980-88
Households	1,552,373	1,804,281	2,207,504	1.52	2.55
Housing Units	1,622,767	2,079,315	2,289,378	2.42	1.21
Employment	1,806,900*	2,451,500	2,881,600	3.89**	2.04
Office Square Footage (millions)	35	74	164	7.77	10.46

* 1972 Employment.
** Annual Rate of Change between 1972 and 1980.

Source: Population and Housing Characteristics, Bureau of Census, 1970 and 1980; Population Research Unit Estimates for Housing Units and Households, 1988; Employment Development Department, Estimates of Employment 1988 (estimates of growth 80-88 in employment based on 1980 EDD estimates rather than Bureau of the Census estimates); office data is from CREUE estimates based on information from brokers.

building restrictions in some local areas. In the 1980s, the annual rate of growth of housing units fell from 2.4 percent to 1.2 percent, far below the annual rates of growth of both population (1.4 percent) and households (2.6 percent). In all but San Francisco and Sonoma counties, the rate of construction of housing decreased substantially (see Table 18). In the southern counties of Santa Clara and San Mateo annual rates of growth in housing units decreased from 3.5 and 2.1 percent in the 1970s to 1.3 and 0.6 percent respectively in the 1980s. Rates of housing growth have been highest in the northern counties of Solano and Sonoma, with rates of increase of 3.0 and 2.5 percent in the 1980s. Housing construction has been particularly strong in Solano County, where stock rose by 7.0 percent in the 1986-87 period alone. The shift of housing stock toward the northern part of the region poses a regional transportation problem, as much of the employment growth remains in the traditional centers of the region, the Oakland, San Francisco, and San Jose MSAs, and in their nearby suburbs.

The regionwide decline in the housing vacancy rates from 4.7 percent vacant in 1980 to 3.6 in 1987 is a direct result of slower growth in the supply of new housing. Vacancy rates are highest where the rate of growth in the housing stock has also been highest, despite rapid growth of households in outlying areas. According to the Department of Finance estimates, vacancy rates declined from 4.5 to 3.3 percent in Alameda, from 4.3 to 3.0 percent in Contra Costa, from 4.9 to 2.9 percent in Marin, and from 4.2 to 3.1 percent in Santa Clara County during the 1980-87 period. In the northern and north-eastern parts of

TABLE 18: TOTAL HOUSING UNITS AND VACANCIES IN BAY AREA, 1980-88

Counties	Total Units		% Vacant		Ann. Rate of Change 1980-88	
	1980	1988	1980	1988	Total Units	Vacant Units
Alameda	444,427	492,271	4.5	3.2	1.3%	-4.1%
Contra Costa	245,562	297,800	4.3	3.4	2.4%	-2.9%
Marin	92,663	98,758	4.2	3.2	0.8%	-3.4%
Napa	37,239	44,162	6.3	7.4	2.2%	2.1%
San Francisco	316,608	325,367	5.6	5.1	0.3%	-1.3%
San Mateo	230,734	247,010	2.9	2.7	0.9%	-0.7%
Santa Clara	469,270	524,709	4.2	3.0	1.4%	-4.3%
Solano	84,113	107,891	7.1	3.6	3.2%	-8.1%
Sonoma	117,708	151,410	7.5	6.7	3.2%	-1.3%
BAY AREA	2,038,324	2,289,378	4.7	3.6	1.5%	-3.3%

Source: Estimates of Population Research Unit, Department of Finance, State of California.

the region, where most of the new housing developments occured in the 1980s, the vacancy rates were 7.6 percent in Napa County and 7.1 percent in Sonoma. Despite high rates of construction, vacancy rates dropped sharply in Solano County, from 7.1 to 3.5, perhaps a response to the rapid growth in employment opportunities in nearby suburban Contra Costa County.

Slower housing construction has meant rapid increases in single family housing prices. The average price of a home in the Bay Area in October 1988 was 1.8 times greater than the price in 1980. Prices were rising even into the 1981 recession period, then grew quite slowly through 1984, but have risen rapidly again since 1985. Prices have risen most rapidly in the San Francisco market, especially since 1980 (see Table 19). San Francisco is followed by the Peninsula market area, which includes San Mateo and Santa Clara counties. The market prices in these counties showed increases above the Bay Area averages as early as the mid-1970s, and stayed high in the 1980s. The East Bay market, which includes very divergent housing areas, approximated the regionwide averages during the eighties. The North Bay housing market, where supply has increased most rapidly, had the lowest annual rate of increase in housing prices (prices rose by 55 percent in the North Bay as opposed to 121 percent in San Francisco).

The nonresidential market has followed a very different pattern of growth in the 1980s. The Bay Area added over 90 million square feet of office space between 1980 and 1988, a 120 percent increase in the total stock of office space in less than a decade. The growth in supply far exceeded demand, and

TABLE 19: SINGLE FAMILY HOUSING MARKET TRENDS IN THE BAY AREA, 1967-1988
(Trend Index: 1980 = 100)

Years	EAST BAY MARKET TREND		NORTH BAY MARKET TREND		S.F. COUNTY MARKET TREND		PENINSULA MARKET TREND		BAY AREA MARKET TREND	
	Market Trend Index	% Change	Market Trend Index	% Change	Market Trend Index	% Change	Market Trend Index	% Change	Market Trend Index	% Change
1967 Apr.	25.2		23.3		23.1		22.4		23.7	
1980 Apr.	100.0	11.2%	100.0	11.8%	100.0	11.9%	100.0	12.2%	100.0	11.7%
1988 Oct.	182.5	7.3%	167.3	6.2%	220.9	9.8%	222.1	9.8%	195.8	8.2%

Source: Northern California Real Estate Report, Real Estate Research Council of Northern California, 1988.

Note: East Bay Housing Market includes Alameda and Contra Costa Counties.
North Bay Housing Market includes Marin, Napa, Solano, and Sonoma Counties.
Peninsula Housing Market includes San Mateo and Santa Clara Counties.

vacancies peaked in 1986 at 30 million square feet, 21 percent of total stock. This was up from a vacancy rate of about 2 percent in 1980. Building activity has slowed substantially since 1986, with the result that vacancy levels have begun to drop. However, many parts of the region remain heavily overbuilt. For example, the San Francisco market, with a relatively low vacancy rate of 13 percent (compared to regionwide levels of 16 percent) in December 1988, still has a level of vacancy over 5 times its annual absorption rate, while the South Bay, with a vacancy rate of 18 percent, would require about 2.5 years of average demand and competitive lease rates to absorb the excess space now available.

Similar historical data is unavailable for industrial space. However, a CREUE study in 1987 found that the region had at least 50 million square feet of space vacant, with areas such as Santa Clara County having up to a 6 year supply of vacant industrial space at the end of 1986. A severe cutback in industrial construction is likely to keep this situation from worsening.

The building environment, as controlled by the public sector, has become more and more restrictive in recent years. Growth controls and high permit fees have been commonplace in residential communities since the late 1970s, while nonresidential fees and restrictions on building activity have grown in a number of key communities experiencing industrial and office development. Because of the level of overbuilding, these measures are unlikely to create a crisis situation in nonresidential space in the immediate future. However, housing prices are already affected by the combination of the desirability of the Bay Area economy and physical and cultural environment and the the slow rate of housing construction in the 1980s. These factors are likely to influence if not the rate of employment growth, the location and type of growth occuring in the region.

VII. Looking Towards the 1990s: Some Key Factors

As we approach the next decade, the region faces both opportunities and concerns. First, demographic changes will continue to affect the region. While the number of people thirty-five and over is expected to increase by about one third, between 1985 and 2000, according to ABAG projections, the population between the ages of 20 and 35 will decrease by 6 percent. This changing age mix implies that businesses may face a shortage of entry level workers in the coming decade.

Second, while the region's major universities continue to produce highly trained professional, technical and managerial workers, the public school system has been much less successful in producing well educated high school graduates. This nationwide problem may prove particularly troubling for the San Francisco Bay Area in the coming decade, as the number of high school graduates overall drops and high costs discourage workers in low and moderate income wage categories from migrating to the region.

Third, both because of national trends and because of the changing labor force mix in the Bay Area, the region's economy is likely to be made up more and more of employment in highly technical production activities (such as high-tech and bio-tech sectors) and in specialized business-oriented service activities, such as management and consultant activities, computer and data processing services, and legal services. Specialization in these sectors will augment the region's relative advantages in income levels, but may also make the region more vulnerable than it has been in the past to recessions in particular economic sectors. Furthermore, the loss of high-paying job opportunities in heavy manufacturing and distribution activities will make living in the high cost Bay Area particularly difficult for workers without a college education.

Fourth, there will be increasing pressure on the single family home market in suburban parts of the region in the coming decade. The major growth in the adult population will be occuring in age groups most likely to seek home ownership in single family areas. Most of the available land for residential development is in the North Bay and East Bay. Without careful planning and cooperation among jurisdictions over the location of both homes and employment activities, the Bay Area could continue to face escalating housing prices and more congested roadways. Already, the geographic patterns of development are leading road usage to expand far more quickly than population or employment growth would suggest (see Table 20).

Finally, the public policy arena is likely to ask more from both the business community and from local jurisdictions. Interest in applying regional solutions to regional land use and economic problems has risen to a level not seen since the late 1960s. While there are many barriers to a regional government

TABLE 20: COMPARISON OF POPULATION, EMPLOYMENT AND TRAFFIC GROWTH IN BAY AREA SUBREGIONS, 1980-1988

SUBREGION	1980	1988	PERCENT CHANGE 1980-88
EAST BAY			
Population	1,761,759	1,995,048	1.6%
Employment (000s)	688.3	844.5	2.6%
Vehicle Miles* (millions)	6,717	9,876	4.9%
SAN FRANCISCO MSA			
Population	1,488,871	1,597,221	0.9%
Employment (000s)	879.0	946.8	0.9%
Vehicle Miles* (millions)	5,337	6,888	3.2%
SOUTH BAY			
Population	1,295,071	1,431,632	1.3%
Employment (000s)	681.8	823.4	2.4%
Vehicle Miles* (millions)	3,758	5,538	5.0%
NORTH BAY			
Population	634,083	769,650	2.5%
Employment (000s)	202.4	266.9	3.5%
Vehicle Miles* (millions)	2,833	3,850	3.9%
SAN FRANCISCO BAY AREA			
Population	5,179,784	5,793,551	1.4%
Employment (000s)	2,451.5	2,881.6	2.0%
Vehicle Miles* (millions)	18,645	26,152	4.3%

* Total vehicle miles traveled; vehicle miles are for 1979 and 1987, rather than 1980 and 1988.

Note: The subregions include the following counties--East Bay (Alameda, Contra Costa), San Francisco MSA (Marin, San Francisco, San Mateo), South Bay (Santa Clara), North Bay (Napa, Solano, Sonoma).

Source: CREUE calculations from California Department of Finance, Employment Development Department, and CALTRANS data.

emerging out of this interest, it is likely that a variety of other strategies will be applied, ranging from voluntary cooperative planning efforts among cities within subregions of the Bay Area to state-imposed incentives or restrictions to encourage regional cooperation in development decisions. Furthermore, private business, already heavily involved in contributing to infrastructure development and traffic solutions in local areas, will be called on to increase their participation more in addressing social problems as well, in factors such as child care, education, and affordable housing. Future directions of growth of the Bay Area (both economic and geographic) will depend not only on national and international market trends but also on the ability of the public sector and private business to work together towards resolving development concerns in the region.

Bibliography

Association of Bay Area Governments, Projections-87: Forecasts for the San Francisco Bay Area to the Year 2005, Oakland, 1987.

California Department of Finance, Per Capita Income Estimates, 1988.

California Department of Finance, Population Research Unit, Estimates for Population and Households, 1980 - 1988.

California Employment Development Department, Annual Average Estimates of Labor Force and Unemployment, for 1980 - 1987 and Monthly Estimates for 1988.

California Employment Development Department, Employment Data and Research Division, Average Wage and Salary Employment By Industry, 1972-1988, 1988 Benchmark Series, March 1989.

California's Major Commercial Ports 1986, California Department of Commerce, Office of Economic Research, Sacramento, 1986.

Center for the Continuing Study of the California Economy, California Population Characteristics: Regional Market Update & Projections, Palo Alto, 1988 Edition.

Real Estate Research Council of Northern California, Northern California Real Estate Report, San Francisco, 1988.

U.S. Department of Commerce, Bureau of the Census, County Business Patterns 1985 (computer disk), 1985.

U.S. Department of Commerce, Bureau of the Census, 1980 Census of Population and Housing, Census Tracts (for San Francisco-Oakland, San Jose, Santa Rosa and Vallejo-Napa-Fairfield SMSAs), 1983.

U.S. Department of Commerce, Bureau of the Census, General Social and Economic Characteristics, 1970 and 1980.

U.S. Department of Commerce, Bureau of the Census, Population Estimates and Projections, Series P-25, No. 744.

U.S. Department of the Army, Corps of Engineers, Waterborne Commerce of the United States, Calender Year 1986, Parts 4 and 5.