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THE CENTRAL VALLEY: CHANGING ECONOMIC STRUCTURE AND THE COSTS OF DOING BUSINESS

BY

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ABSTRACT

This paper examines the changing structure of the economy of California's Central Valley and the cost factors that may be bringing about that change. The economy of California's Central Valley is becoming less dependent on its agricultural employment base. The acreage of land in agriculture is declining. Acreage has increased slightly in high valued crops, but acreage in low valued crops (field crops) has decreased considerably. Production has fluctuated in recent years, but remains below peak levels of the late 1970s and early 1980s.

While employment growth in agriculture and related sectors is relatively weak, other sectors of the economy expanded rapidly in the 1980s. The Central Valley outpaced the state as a whole in the 1980s in growth in manufacturing, retail, finance, insurance and real estate, and services employment.

Differentials in factor costs appear to be significant in attracting nonagricultural activities to the Central Valley. There is a readily available (although sometimes untrained) labor force, at costs significantly below wage rates in some of the state's coastal metropolitan areas. Housing prices are substantially less in the Central Valley as compared to coastal areas, and until 1989 this gap was widening, rather than narrowing. Industrial space is also much less expensive in the Central Valley.

Surveys of economic development specialists and plant managers indicate that in addition to cost factors, the Central Valley has an advantage over other California places in the ease of starting a business. Traffic and commuting is less of a problem, freight access is good, and many communities are accomodating towards new industry.

All of these factors suggest that further change is likely within the Central Valley economy, especially if growth pressures continue to be strong in the state's coastal areas. However, some of the Valley's advantages, such as lower costs of housing and labor, are sensitive to growth impacts. For example, the growing demand for housing in Central Valley areas neighboring to the San Francisco Bay Area has caused housing costs in some parts of the region to escalate more rapidly than in coastal areas.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF FIGURES

THE CENTRAL VALLEY: CHANGING ECONOMIC STRUCTURE AND THE COSTS OF DOING BUSINESS[1]

The economy of California's Central Valley is experiencing many pressures for change. While agriculture remains a primary component to the Valley's economy, it is no longer the major component of growth, and in some parts of the region agriculture is no longer a major element of the local economy. Economic growth in the Central Valley now comes from a variety of forces. Demand for agricultural products continues to grow, as West Coast markets expand and with the growth of other markets throughout the Pacific Rim. However, agricultural producers must compete more and more with demand for land and labor from other economic activities. The growing population base in the region is supporting the expansion of service employment throughout the region. High prices, congestion, and other factors are leading all types of firms, from manufacturers to data processors, in the Los Angeles and San Francisco areas to seek alternative locations within the state. Firms entering the west coast market from outside of the state may bypass the larger coastal markets to select an accessible, less expensive inland location. Furthermore, population is spilling over from the coastal areas, largely to places within commuting distance of coastal employment centers, bringing with it competing demands for land and services.

This paper examines the role of agriculture in the Central Valley's changing economic structure and the diverse forces underlying recent growth trends. The analysis focusses particularly on the relative costs of Central Valley places as compared to coastal California and the ways in which cost differentials are placing pressures on the economic structure of Central Valley communities. The paper first describes the changing employment structure of Central Valley counties. A second section addresses agricultural production and income and the changes that have occurred in this sector of the economy. The next section of the paper examines the cost structure of the Central Valley as compared to coastal areas. Then, through interviews of economic development officials and business operators in Central Valley counties, the paper explores the influence of this cost structure and of other factors in drawing firms to the Central Valley.

I. Employment Structure and Agriculture in the Central Valley

Although analyses of the Central Valley often focus on its agricultural economy, the region is in fact quite diverse. Regionwide, agricultural production accounted for about 11 percent of employment in the Central Valley in 1988, compared to less than 3 percent statewide. The share of employment in agricultural production ranges from about 40 percent of all jobs in Colusa County to less than 1 percent of all jobs in Sacramento and Nevada counties (see Table 1 and Figure 1). Overall, agriculture has accounted for a shrinking share of employment statewide and throughout the region since 1980. However, absolute trends in agricultural employment have been quite unstable. Statewide, as shown in Figure 2, agricultural employment dropped from 352,300 in 1980 to a low of 327,600 in 1986, but increased again to 345,000 in 1987 and to 360,600 in

TABLE 1: SHARE OF EMPLOYMENT IN AGRICULTURE - 1980, 1987, AND 1988

COUNTY/ SUBREGION	TOTAL EMPLOYMENT 1980	TOTAL EMPLOYMENT 1987	TOTAL EMPLOYMENT 1988	EMPLOYMENT IN AG 1980	EMPLOYMENT IN AG 1987	EMPLOYMENT IN AG 1988	PERCENTAGE EMPLOYMENT IN AG 1980	PERCENTAGE EMPLOYMENT IN AG 1987	PERCENTAGE EMPLOYMENT IN AG 1988
NORTH SACRAMENTO VALLEY:									
Butte	46,550	53,500	56,825	3,200	3,000	3,200	6.9%	5.6%	5.6%
Colusa	5,700	5,900	5,600	2,250	2,000	2,200	39.5%	33.9%	39.3%
Glenn	8,300	7,675	7,950	2,200	1,700	1,725	26.5%	22.1%	21.7%
Shasta	36,850	43,500	46,475	900	1,025	1,125	2.4%	2.4%	2.4%
Tehama	11,075	12,100	12,425	1,275	1,075	1,100	11.5%	8.9%	8.9%
Yuba/Sutter	33,675	34,475	35,425	6,075	5,200	5,775	18.0%	15.1%	16.3%
TOTAL for Subregion:	142,150	157,150	164,700	15,900	14,000	15,125	11.2%	8.9%	9.2%
SACRAMENTO AREA:									
Sacramento	323,700	422,300	437,700	3,200	2,900	3,400	1.0%	0.7%	0.8%
Solano	70,800	90,000	91,200	1,700	1,100	1,800	2.4%	1.2%	2.0%
Yolo	46,700	57,500	60,500	5,100	4,600	4,600	10.9%	8.0%	7.6%
TOTAL for Subregion:	441,200	569,800	589,400	10,000	8,600	9,800	2.3%	1.5%	1.7%
NORTH SAN JOAQUIN VALLEY:									
San Joaquin	137,600	157,700	162,800	19,000	15,700	16,100	13.8%	10.0%	9.9%
Stanislaus	102,300	118,300	123,500	14,700	14,000	14,600	14.4%	11.8%	11.8%
TOTAL for Subregion:	239,900	276,000	286,300	33,700	29,700	30,700	14.0%	10.8%	10.7%
FOOTHILL COUNTIES:									
El Dorado	20,225	27,400	27,800	250	200	300	1.2%	0.7%	1.1%
Nevada	13,025	17,550	18,350	50	100	75	0.4%	0.6%	0.4%
Placer	37,000	50,400	53,100	500	600	600	1.4%	1.2%	1.1%
TOTAL for Subregion:	70,250	95,350	99,250	800	900	975	1.1%	0.9%	1.0%
SOUTH SAN JOAQUIN VALLEY:									
Fresno	236,000	255,300	264,400	52,900	52,200	57,000	22.4%	20.4%	21.6%
Kern	162,800	190,400	188,100	31,600	33,200	27,100	19.4%	17.4%	14.4%
Kings	24,350	25,375	26,650	7,075	5,275	5,200	29.1%	20.8%	19.5%
Madera	21,825	22,550	24,700	6,975	5,900	7,250	32.0%	26.2%	29.4%
Merced	46,350	52,925	55,125	10,800	9,725	10,900	23.3%	18.4%	19.8%
Tulare	94,300	107,100	108,300	29,400	29,700	29,900	31.2%	27.7%	27.6%
TOTAL for Subregion:	585,625	653,650	667,275	138,750	136,000	137,350	23.7%	20.8%	20.6%
Central Valley	1,479,125	1,751,950	1,806,925	199,150	189,200	193,950	13.5%	10.8%	10.7%
California	10,201,300	12,268,500	12,435,700	352,300	345,000	360,600	3.5%	2.8%	2.9%

Source: Employment Development Department, Wage and Salary Employment, Annual Benchmark Data.

FIGURE 1
SUBREGIONS OF CALIFORNIA'S CENTRAL VALLEY

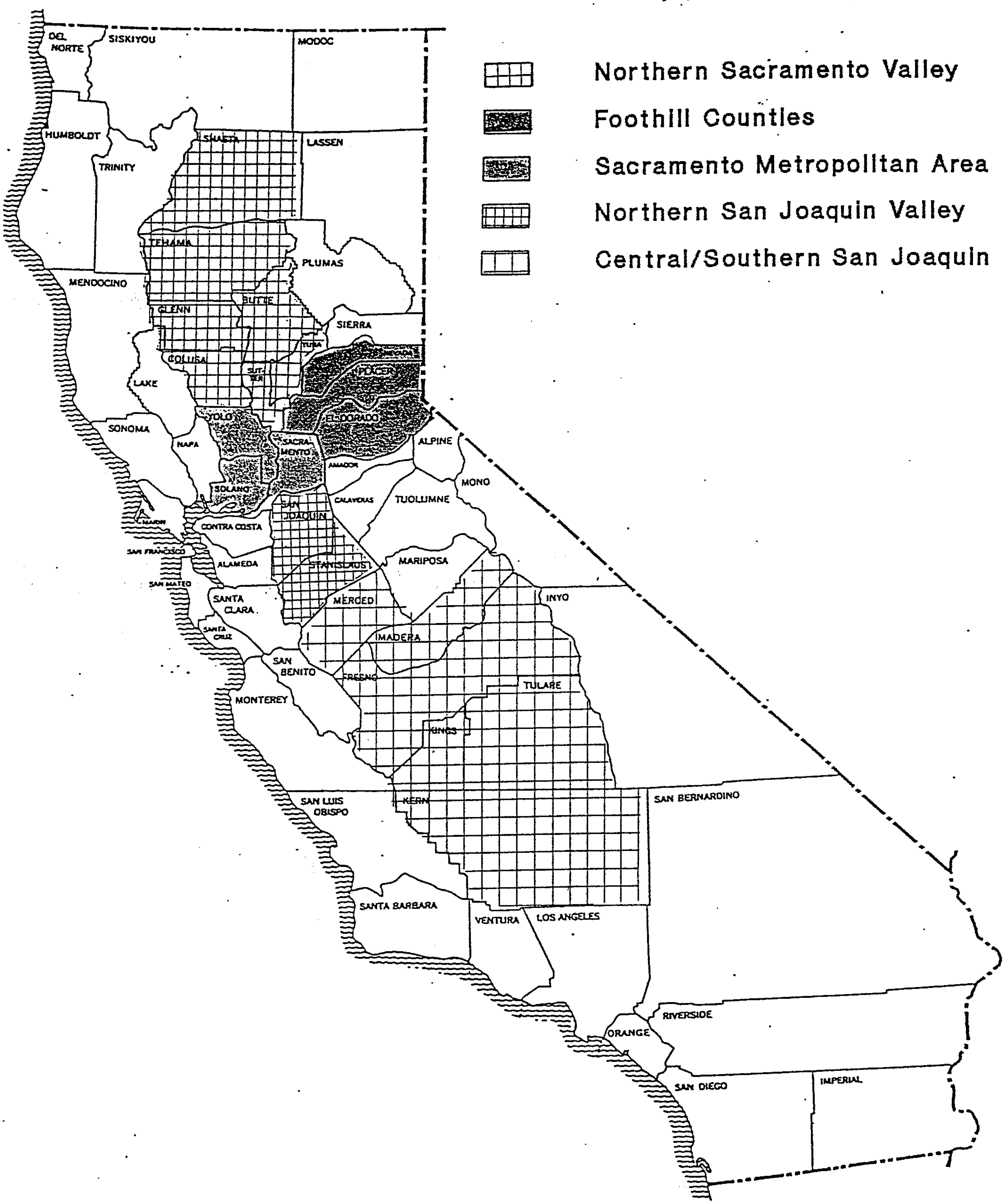
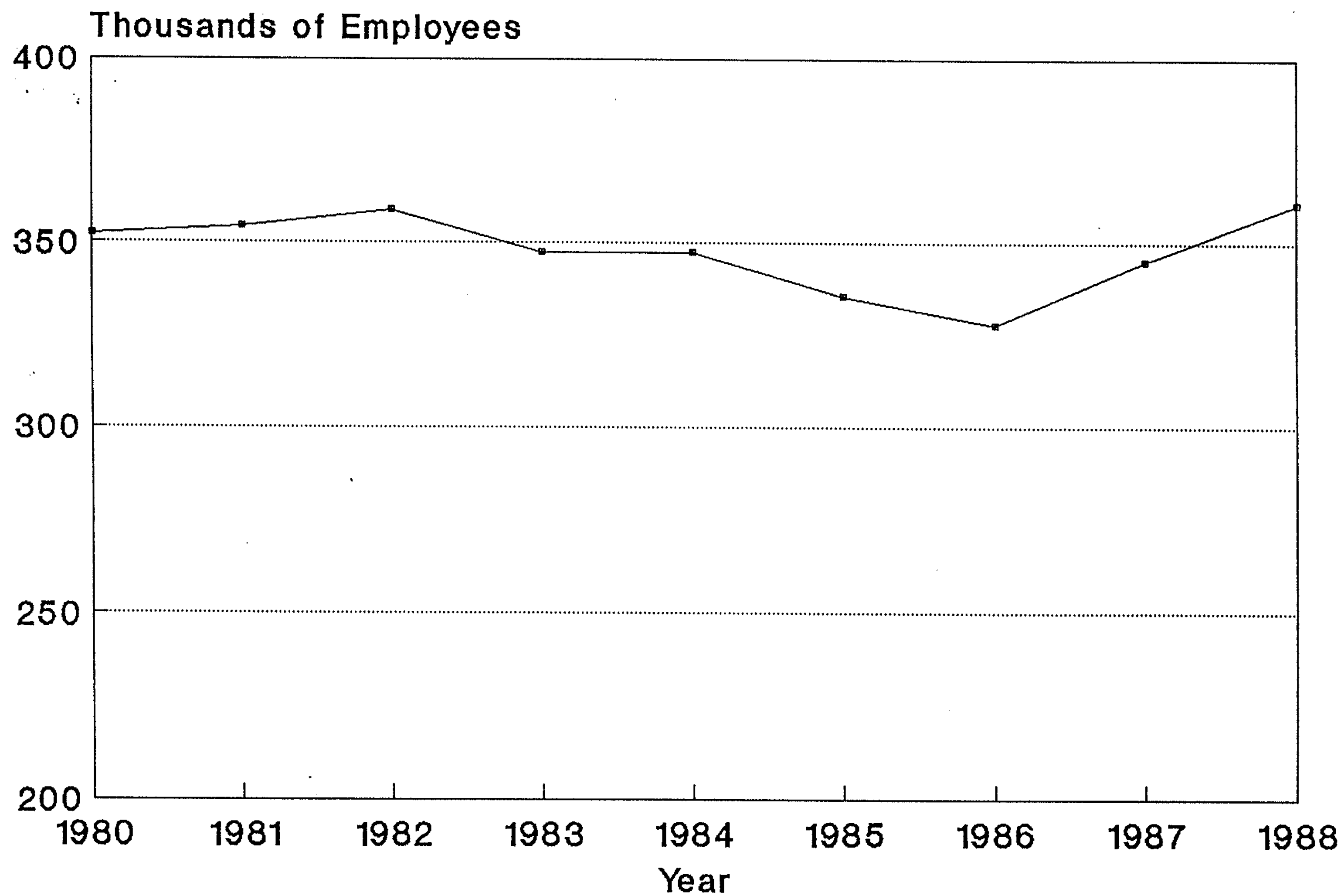


FIGURE 2
CALIFORNIA EMPLOYMENT IN AGRICULTURE



Source: Employment Development Dept.

1988.

In the Central Valley as a whole, agricultural production employment dropped by 5 percent between 1980 and 1987 but increased by 2.5 percent in 1988, giving an overall 1980 to 1988 drop of 2.6 percent. Even though employment levels have risen again in recent years, the Central Valley's share of employment in agriculture relative to other sectors has been dropping steadily, from 13.5 percent in 1980 to 10.8 percent in 1987 and to 10.7 percent in 1988. This shift is coming from the rapid growth of employment in nonagricultural sectors.

As a result of these trends, the composition of employment is changing within the counties of the Central Valley. At the outset of the 1980s, 7 Central Valley counties had more than 20 percent of employment in agricultural production, with shares ranging from 22.4 percent (Fresno) to 39.5 percent (Colusa). By 1988, only 5 counties had more than 20 percent of employment in agricultural production, ranging from 21.6 percent in Fresno to 39.3 percent in Colusa. Similarly, in 1980, only 7 of the 21 counties included in our analysis of the Central Valley had less than 10 percent of all jobs in agriculture. By 1988, 10 of the counties, including major producers such as San Joaquin County, had less than 10 percent of employment in agriculture.

Some of the changes observed parallel nationwide changes in the structural composition of employment. Employment in production sectors, such as agriculture and manufacturing, has been growing more slowly than population serving sectors such as retail, finance, insurance and real estate, and services. In the Central Valley, the growth of these non-production sectors has been particularly strong, even compared to growth in other parts of California.

Although the Central Valley continues to be the state's prime agricultural region, the area has had higher percentage losses and lower percentage gains in agricultural jobs than have occurred in the state as a whole since 1980. Instead, the Central Valley appears to have gained competitively in attracting nonagricultural firms. Since 1980, the Central Valley has gained employment in several nonagricultural sectors substantially more rapidly than average rates experienced in the state. Manufacturing employment in the Central Valley grew by 18.5 percent between 1980 and 1988, compared to 6.4 percent statewide, employment in finance, insurance and real estate (FIRE) grew by 37.3 percent in the Central Valley, compared to 30.4 percent statewide, and employment in retail trade and in services each grew at about 3 percentage points faster than statewide growth rates (see Tables 2 and 3).

The employment growth that has occurred in sectors apart from agriculture appears to be linked to trends other than agricultural production. For example, the fastest growth in manufacturing employment is occurring in counties such as Placer, El Dorado and Sacramento. In these counties, traditional manufacturing sectors such as food processing and lumber and wood products have grown little, if at all. The greatest increases are occurring in durable goods (rather than nondurable such as food processing), in sectors not related to lumber. Durable goods manufacturing employment (excluding lumber and wood

TABLE 2: TOTAL EMPLOYMENT BY SECTOR, 1988

COUNTY/ SUBREGION	Agr	Const Mining	Manu	TUC	Whole	Retail	FIRE	Svcs	Govt	TOTAL	TOTAL Non-Agr
NORTH CENTRAL VALLEY:											
Butte	3,200	2,425	5,400	2,500	1,650	12,900	2,825	13,775	12,175	56,850	53,650
Colusa	2,200	125	275	300	225	700	150	600	1,025	5,600	3,400
Glenn	1,725	275	1,165	300	200	1,075	150	750	1,850	7,490	5,765
Shasta	1,125	3,250	5,175	3,275	2,175	9,975	1,550	11,350	8,625	46,500	45,375
Tehama	1,100	400	2,700	375	175	2,475	425	2,200	2,575	12,425	11,325
Yuba/Sutter	5,775	1,950	3,200	1,250	1,400	6,600	1,450	5,575	8,225	35,425	29,650
TOTAL for Subregion:	15,125	8,425	17,915	8,000	5,825	33,725	6,550	34,250	34,475	164,290	149,165
SACRAMENTO AREA:											
Sacramento	3,400	24,100	28,200	17,000	21,600	81,700	29,300	97,800	134,600	437,700	434,300
Solono	1,800	7,400	7,200	3,400	2,400	19,900	3,000	16,800	29,300	91,200	89,400
Yolo	4,600	2,800	5,100	3,700	3,900	9,000	2,000	8,100	21,100	60,300	55,700
TOTAL for Subregion:	9,800	34,300	40,500	24,100	27,900	110,600	34,300	122,700	185,000	589,200	579,400
SAN JOAQUIN:											
San Joaquin	16,100	8,500	24,100	8,900	7,400	26,800	8,800	30,600	31,600	162,800	146,700
Stanislaus	14,600	7,200	23,700	4,500	5,100	23,300	4,400	22,700	18,100	123,600	109,000
TOTAL for Subregion:	30,700	15,700	47,800	13,400	12,500	50,100	13,200	53,300	49,700	286,400	255,700
FOOTHILL COUNTIES:											
El Dorado	300	2,700	1,900	800	600	7,100	1,400	7,000	6,000	27,800	27,500
Nevada	75	1,500	2,650	525	350	4,450	975	4,425	3,450	18,400	18,325
Placer	600	4,700	6,500	3,400	1,400	12,600	2,800	11,600	9,600	53,200	52,600
TOTAL for Subregion:	975	8,900	11,050	4,725	2,350	24,150	5,175	23,025	19,050	99,400	98,425
SOUTH CENTRAL VALLEY:											
Fresno	57,000	12,700	22,000	11,500	12,600	40,700	12,200	49,700	46,100	264,500	207,500
Kern	27,100	23,900	10,600	7,200	7,000	31,600	6,400	33,700	40,800	188,300	161,200
Kings	5,200	950	3,675	650	650	4,500	600	3,425	7,000	26,650	21,450
Madera	7,250	975	3,800	825	625	3,450	500	3,175	4,100	24,700	17,450
Merced	10,900	1,600	9,350	1,800	1,750	8,850	2,250	7,100	11,450	55,050	44,150
Tulare	29,900	3,700	11,175	4,375	4,950	15,800	2,725	15,300	20,350	108,275	78,375
TOTAL for Subregion:	137,350	43,825	60,600	26,350	27,575	104,900	24,675	112,400	129,800	667,475	530,125
TOTALS:											
Central Valley	193,950	111,150	177,865	76,575	76,150	323,475	83,900	345,675	418,025	1,806,765	1,612,815
California	360,600	649,300	2,147,900	586,400	719,700	2,149,600	812,800	3,074,900	1,934,500	12,435,700	12,075,100
Share in CV	53.8%	17.1%	8.3%	13.1%	10.6%	15.0%	10.3%	11.2%	21.6%	14.5%	13.4

Source: Employment Development Department, Wage and Salary Employment, Annual Benchmark Data.

TABLE 3: PERCENTAGE CHANGE IN EMPLOYMENT, 1980-1988

COUNTY/ SUBREGION	Agr	Const Mining	Manu	TUC	Whole	Retail	FIRE	Svcs	Govt	TOTAL	TOTAL Non-Agr
NORTH SACRAMENTO VALLEY:											
Butte	0.0%	11.5%	31.7%	-4.8%	-21.4%	33.0%	44.9%	51.0%	5.2%	22.1%	23.8%
Colusa	-2.2%	-16.7%	-15.4%	9.1%	-10.0%	7.7%	0.0%	4.3%	-4.7%	-1.8%	-1.4%
Glenn	-21.6%	10.0%	-4.9%	-7.7%	-69.2%	10.3%	-14.3%	20.0%	-1.3%	-4.2%	-5.5%
Shasta	25.0%	25.0%	20.3%	15.9%	33.8%	35.7%	6.9%	57.1%	0.6%	26.1%	26.2%
Tehama	-13.7%	0.0%	14.9%	-25.0%	-12.5%	33.8%	21.4%	35.4%	2.0%	12.2%	15.6%
Yuba/Sutter	-4.9%	27.9%	-20.5%	-26.5%	30.2%	15.8%	23.4%	20.5%	5.8%	5.2%	7.4%
TOTAL by Subregion:	-4.9%	18.7%	9.7%	-3.0%	-1.3%	28.6%	24.8%	43.9%	3.2%	15.9%	18.5%
SACRAMENTO AREA:											
Sacramento	6.3%	52.5%	41.7%	14.1%	49.0%	34.2%	55.9%	60.1%	17.5%	35.2%	35.5%
Solano	5.9%	72.1%	22.0%	-2.9%	50.0%	41.1%	25.0%	51.4%	11.8%	28.8%	29.4%
Yolo	-9.8%	47.4%	6.3%	37.0%	85.7%	34.3%	42.9%	76.1%	21.3%	29.6%	33.9%
TOTAL by Subregion:	-2.0%	55.9%	32.4%	14.2%	53.3%	35.4%	51.8%	59.8%	16.9%	33.6%	34.4%
SAN JOAQUIN VALLEY:											
San Joaquin	-15.3%	41.7%	14.8%	8.5%	1.4%	32.0%	72.5%	28.6%	17.5%	18.3%	23.7%
Stanislaus	-0.7%	20.0%	23.4%	15.4%	13.3%	37.9%	33.3%	35.1%	6.5%	20.7%	24.4%
TOTAL by Subregion:	-8.9%	30.8%	18.9%	10.7%	5.9%	34.7%	57.1%	31.3%	13.2%	19.3%	24.0%
FOOTHILL COUNTIES:											
El Dorado	20.0%	125.0%	49.0%	-13.5%	50.0%	43.4%	16.7%	41.4%	18.2%	37.5%	37.7%
Nevada	50.0%	81.8%	43.2%	-16.0%	40.0%	50.8%	44.4%	67.0%	9.5%	40.9%	41.2%
Placer	20.0%	74.1%	150.0%	-19.0%	40.0%	61.5%	55.6%	50.6%	10.3%	43.5%	44.1%
TOTAL by Subregion:	21.9%	88.4%	93.0%	-17.8%	42.4%	53.8%	40.8%	50.5%	12.6%	41.3%	41.5%
SOUTH SAN JOAQUIN VALLEY:											
Fresno	7.8%	4.1%	-6.0%	4.5%	-10.0%	17.6%	10.9%	38.1%	12.7%	12.0%	13.3%
Kern	-14.2%	24.5%	14.0%	-6.5%	-11.4%	23.0%	33.3%	42.8%	23.6%	15.5%	22.9%
Kings	-26.5%	35.7%	16.7%	-31.6%	-13.3%	29.5%	4.3%	28.0%	40.0%	9.4%	24.2%
Madera	3.9%	5.4%	34.5%	0.0%	-13.8%	26.6%	-4.8%	17.6%	13.9%	13.2%	17.5%
Merced	0.9%	12.3%	32.2%	-14.3%	25.0%	28.3%	5.9%	37.9%	22.1%	18.9%	24.2%
Tulare	1.7%	15.6%	-3.2%	18.2%	22.2%	22.5%	26.7%	39.1%	24.5%	14.8%	20.8%
TOTAL by Subregion:	-1.0%	16.4%	5.8%	0.3%	-4.3%	21.6%	16.5%	38.6%	19.9%	13.9%	18.6%
Central Valley	-2.6%	33.2%	18.5%	4.2%	14.7%	30.9%	37.3%	45.5%	15.9%	22.2%	26.0%
California	2.4%	37.6%	6.4%	7.3%	23.3%	27.7%	30.4%	42.4%	9.7%	21.9%	22.6%

Source: CREUE from Employment Development Department data.

products) increased by 283 percent in Placer County, by 56 percent in Sacramento County, and by 74 percent in El Dorado County between 1980 and 1988.

These new trends, however, are only slowly reshaping the entire economy. A closer look at the major "export-based" activities in the region (production serving markets beyond the county) shows that even counties with very low levels of agricultural employment continue to show significant employment levels in agricultural processing and other raw material processing activities.[2] The tool used to identify export-based activities, or activities that are relatively highly concentrated in the region, is the location quotient. The location quotient (LQ) compares the share of employment by sector in the county or region to the average share over the state or nation. Thus, a state-based location quotient of 3.7 for agricultural employment in the Central Valley indicates that the Central Valley region has 3.7 times the amount of agricultural employment than it would be expected to have based on the overall size of its economy relative to the state.[2] A location quotient greater than 1 implies that the industry is exporting goods to customers beyond the local area (but not necessarily internationally).

A study of location quotients for Central Valley counties relative to the statewide economy indicates that 6 of the region's 21 counties, accounting for 37 percent of the region's employment, show very little dependence on agricultural. Solano and Sacramento counties, Shasta County, and the Foothills counties of Placer, El Dorado and Nevada all have location quotients for agriculture of less than 1 (see Table 4). Many

TABLE 4: 1980 AND 1988 STATE BASED LOCATION QUOTIENTS FOR AGRICULTURE

COUNTY/ SUBREGION	LOCATION QUOTIENT 1980	LOCATION QUOTIENT 1988	CHANGE 1980-88
NORTH CENTRAL VALLEY:			
Butte	1.99	1.94	-0.05
Colusa	11.43	13.55	2.12
Glenn	7.68	7.48	-0.19
Shasta	0.71	0.83	0.13
Tehama	3.33	3.05	-0.28
Yuba/Sutter	5.22	5.62	0.40
SACRAMENTO:			
Sacramento	0.29	0.27	-0.02
Solano	0.70	0.68	-0.01
Yolo	3.16	2.62	-0.54
SAN JOAQUIN:			
San Joaquin	4.00	3.41	-0.59
Stanislaus	4.16	4.08	-0.08
FOOTHILL COUNTIES:			
El Dorado	0.36	0.37	0.01
Nevada	0.11	0.14	0.03
Placer	0.39	0.39	0.00
SOUTH CENTRAL VALLEY:			
Fresno	6.49	7.43	0.94
Kern	5.62	4.97	-0.65
Kings	8.41	6.73	-1.68
Madera	9.25	10.12	0.87
Merced	6.75	6.82	0.07
Tulare	9.03	9.52	0.49
Central Valley	3.90	3.70	-0.20

Source: CREUE from Employment Development Department data.

other Central Valley counties are highly dependent on agriculture and continue to be so, despite regionwide employment losses in agriculture. Counties such as Yuba, Sutter, Kings, Merced, Fresno, Glenn, Tulare, Madera and Colusa all have location quotients for agriculture greater than 5, indicating that they have more than 5 times the employment in agriculture than their size relative to the state would suggest. In all but two of these counties, the agriculture location quotient has increased since 1980.

Table 5 shows a typology of Central Valley counties by 1988 (state-based) location quotients greater than 1. Despite relatively strong employment growth in sectors such as manufacturing and FIRE, these sectors show little signs of dominance in Central Valley counties and appear infrequently in the county typology. Instead, those counties which do not show a dominance in agriculture employment tend to have relatively dominant mining and construction sectors (e.g. the Foothill counties and Shasta County) or government employment (e.g. Sacramento and Solano counties). These figures suggest that while diversification is expanding employment opportunities in the Central Valley, agriculture remains the key economic activity in the region.

An examination of more detailed location quotients within manufacturing further emphasizes this point. Table 6 shows U.S. based manufacturing location quotients by 2-digit SIC code for 1986.[4] Within manufacturing, 2 different types of dominance emerge. About half of the Central Valley counties have relatively high shares of food-processing activity, while the

TABLE 5: COUNTY TYPOLOGIES BASED ON 1988 STATE BASED LOCATION QUOTIENTS

AGRICULTURE AND GOVERNMENT DOMINANT:			
Colusa	13.55 Ag	1.18 Govt	1.14 TUC
Madera	10.12 Ag	1.07 Govt	
Tulare	9.52 Ag	1.21 Govt	
Glenn	7.48 Ag	1.50 Govt	
Fresno	7.43 Ag	1.12 Govt	
Merced	6.82 Ag	1.34 Govt	
Kings	6.73 Ag	1.69 Govt	
Yuba/Sutter	5.62 Ag	1.49 Govt	1.08 Retail
San Joaquin	3.41 Ag	1.25 Govt	1.16 TUC
Tehama	3.05 Ag	1.33 Govt	1.26 Manu
Yolo	2.62 Ag	2.24 Govt	1.30 TUC
Butte	1.94 Ag	1.38 Govt	1.31 Retail
AGRICULTURE, MINING AND CONSTRUCTION DOMINANT:			
Kern	4.97 Ag	2.43 Mining, Const	1.39 Govt
Stanislaus	4.08 Ag	1.12 Mining, Const	1.11 Manu
GOVERNMENT DOMINANT:			
Solano	2.07 Govt	1.55 Mining, Const	1.26 Retail
Sacramento	1.98 Govt	1.08 Retail	1.05 Mining, Const
MINING AND CONSTRUCTION, AND RETAIL DOMINANT:			
El Dorado	1.86 Mining, Const	1.48 Retail	1.39 Govt
Placer	1.70 Mining, Const	1.37 Retail	1.36 TUC
Nevada	1.57 Mining, Const	1.40 Retail	1.21 Govt
Shasta	1.34 Mining, Const	1.49 TUC	1.24 Retail

Source: CREUE from Employment Development Department data.

TABLE 6: 1986 U.S. BASED MANUFACTURING LOCATION QUOTIENTS

COUNTY/ DOMINANT INDUSTRY	OVERALL LQ FOR MANU	--- HIGHEST LQs FOR MANUFACTURING SECTORS ---		
FOOD PROCESSING COUNTIES:				
Stanislaus	1.08		8.36 Food	2.46 Paper
Merced	1.10		7.84 Food	2.85 Furniture
Glenn	1.20	13.25 SCG	7.50 Food	
Madera	1.19	9.93 SCG	6.30 Food	
Yuba	0.63	5.23 Lumber	4.43 Food	
San Joaquin	0.85		3.89 Food	2.56 Lumber
Yolo	0.74		3.73 Food	2.71 Lumber
Sutter	0.56	4.28 Lumber	3.45 Food	
Fresno	0.57		2.45 Food	
Solano	0.50	6.01 Petro/Coal	1.83 Food	
Sacramento	0.44		1.70 Food	1.03 Lumber
WOOD PROCESSING COUNTIES:				
Tehama	1.23		23.40 Lumber	4.04 Paper
Shasta	0.65		7.83 Lumber	2.58 Paper
Yuba	0.63		5.23 Lumber	4.43 Food
Butte	0.56		4.44 Lumber	2.75 Leather
Sutter	0.56		4.28 Lumber	3.45 Food
Nevada	0.69		3.64 Lumber	3.26 Electrical Equip
Placer	0.54		2.79 Lumber	2.21 SCG
Yolo	0.74	3.73 Food	2.71 Lumber	
El Dorado	0.28		2.58 Lumber	
San Joaquin	0.85	3.89 Food	2.56 Lumber	
Tulare	0.82	2.40 Publishing	2.35 Lumber	
Sacramento	0.44	1.70 Food	1.03 Lumber	
OTHER COUNTIES:				
Colusa	0.52	9.98 Metal		
Kern	0.30	5.33 Petro/Coal	1.02 SCG	
Kings	0.91	16.29 Petro/Coal	5.55 Rubber	

Source: County Business Patterns, U.S. Department Commerce, Bureau of the Census.

other half are dominant primarily in lumber and wood products. A few counties, such as San Joaquin and Yuba, show dominance in both lumber and food processing. Of the few counties that show manufacturing strength in other industries as well, most are dominant in mining related activities, such as stone, clay and glass or petroleum refining (Kern, Solano, Glenn, Madera and Placer counties), or in lumber-related activities such as paper (Stanislaus, Tehama, and Shasta counties). While growth patterns that emerged in the 1980s may lead to changes in the overall balance of economic activity in the Central Valley in the 1990s, these counties currently continue to be based primarily on raw materials production and processing, balanced by government and some distribution activity.

The most recent data available, for nonagriculture employment growth, shows that trends in 1989 and the first quarter of 1990 continue to point to the Central Valley as a major site of nonagricultural employment expansion. While statewide employment growth slowed slightly in 1989, employment growth accellerated in Fresno and Stanislaus counties and remained above the statewide average in the Sacramento/Foothills area (Sacramento MSA figures are for Sacramento, El Dorado, Placer and Yolo counties). The economy has slowed further statewide in the 1990s, but growth has increased from 1989 levels in the 5 largest Central Valley metropolitan statistical areas (MSAs), as shown in Table 7.

TABLE 7: ESTIMATES OF RECENT GROWTH RATES
CENTRAL VALLEY METROPOLITAN AREAS
TOTAL NONAGRICULTURAL EMPLOYMENT

MSAS	ANNUAL RATE OF GROWTH 1987-88	1988-89E	1ST QUARTER 1990
Bakersfield	3.0%	1.8%	2.5%
Fresno	3.1%	3.7%	5.8%
Modesto	4.2%	5.2%	5.6%
Sacramento	4.9%	4.4%	4.5%
Stockton	2.6%	2.5%	3.5%
California	3.6%	3.5%	2.6%

Source: CREUE analysis from BLS statistics.

II. Agricultural Production and Income--Some Other Measures of Change

The value of agricultural production in the Central Valley is less than it was a decade ago, but has stabilized or increased since the middle of the 1980s. Acreage in production is lower today than a decade ago, and the relative share of county income in agriculture is down sharply.

A. The Value of Production

The value of agricultural production between 1965 and 1988 has fluctuated in the Central Valley. In 1982 dollars, agricultural production was $7.2 billion in 1965, went up to $10-$11 billion during 1973-81, and then dropped sharply in the early 1980's. Since 1983, in real terms, the value of agricultural production has been slowly increasing at about 1.5 percent per year. The same trends occurred in each of the five subregions, as can be seen in Table 8. The high point in real output in each subregion occurred in 1979. This mirrors what happened for agriculture in the state of California--high values during mid-1970s to early 1980s with a sharp decline following, followed by a gradual increase. This is not surprising since Central Valley agriculture makes up almost 60 percent of the dollar volume of agriculture in the state. As a share of state gross product, California agriculture, forestry and fisheries declined from 3.2 percent in 1965, to 2.1 percent in 1988. During most of this time the real cost to consumers of agricultural production dropped as productivity increases continued. In addition, the share of the final food price going to agriculture dropped sharply also. As we show below, there were agricultural acreage

TABLE 8: VALUES OF AGRICULTURAL PRODUCTION IN CENTRAL VALLEY REGIONS FOR SELECTED YEARS

(Current Dollars)

Year	Northern Sacramento Valley $1,000	Foothills $1,000	Metro Sacramento Area $1,000	Northern San Joaquin Valley $1,000	Southern San Joaquin Valley $1,000	CENTRAL VALLEY $1,000
1965	252,670	26,617	209,464	387,259	1,459,042	2,335,052
1967	270,547	29,829	201,933	428,709	1,462,309	2,393,327
1969	314,437	35,387	212,625	469,498	1,533,515	2,565,462
1971	317,134	33,872	227,388	516,374	1,732,186	2,826,954
1973	643,084	49,960	349,335	785,151	2,798,964	4,626,494
1975	672,316	47,398	435,329	879,459	3,445,144	5,479,646
1977	711,436	45,034	418,286	1,027,805	3,813,232	6,015,793
1979	1,025,710	68,778	557,385	1,395,617	5,688,196	8,735,686
1981	1,167,194	79,090	599,079	1,527,461	6,105,559	9,478,383
1983	775,355	65,683	466,442	1,368,894	5,544,707	8,221,081
1985	908,007	77,497	534,551	1,471,706	6,383,562	9,375,323
1987	986,408	76,438	514,821	1,627,542	7,307,164	10,512,373
1988	1,002,242	75,189	561,991	1,847,654	7,781,437	11,268,513

(1982 Constant Dollars; California CPI: 1982 = 100)

Year	Northern Sacramento Valley $1,000	Foothills $1,000	Metro Sacramento Area $1,000	Northern San Joaquin Valley $1,000	Southern San Joaquin Valley $1,000	CENTRAL VALLEY $1,000
1965	780,470	82,217	647,011	1,196,200	4,506,819	7,212,716
1967	797,704	87,950	595,396	1,264,042	4,311,596	7,056,688
1969	847,499	95,378	573,086	1,265,434	4,133,269	6,914,666
1971	785,169	83,861	562,973	1,278,453	4,288,593	6,999,049
1973	1,455,164	113,049	790,472	1,776,632	6,333,470	10,468,788
1975	1,250,791	88,180	809,895	1,636,164	6,409,417	10,194,447
1977	1,163,407	73,644	684,021	1,680,763	6,235,756	9,837,591
1979	1,399,742	93,858	760,639	1,904,538	7,762,433	11,921,210
1981	1,242,538	84,195	637,750	1,626,061	6,499,682	10,090,226
1983	762,811	64,620	458,896	1,346,748	5,455,005	8,088,081
1985	813,527	69,433	478,930	1,318,573	5,719,342	8,399,806
1987	823,135	63,786	429,606	1,358,146	6,097,659	8,772,332
1988	799,985	60,016	448,579	1,474,789	6,211,106	8,994,473

Sources: 1. Summary of Agricultural Commissioners' Reports, various issues.
2. California Statistical Abstract, 1989.

reductions in the Central Valley, but acreage was shifted to higher valued commodities.

B. Acreage

Total agricultural acreage in the Central Valley decreased 12 percent from 1970 to 1988 or 1989, from 17.9 million acres to 15.7 million acres. There were decreases in field crops and large decreases in pasture and range during this period, as can be seen in Table 9. Fruit, vegetable, and nursery acreage all increased significantly between 1970 and 1989. Thus, land has gone out of production in low valued crops like pasture and field crops, and increased in high valued crops such as fruits, vegetables and nuts. However, much more acreage went out of production than came into production. Pasture land went down by 24 percent or more in the subregions, except for the northern Sacramento Valley, where it went down by 8 percent. Land is probably going out of production because of increasing costs, as well as profitable alternative uses of the land driving lower valued crops out and causing conversions of land, when possible, to higher valued crops or nonagricultural uses.

C. Acreage and Production Shifts by Subregions

Acreage and production trends vary by subregion of the Central Valley. While all areas have experienced a decline in acreage under production, changes in the value of production vary from long term decreases in parts of the Sacramento Valley to the experience in the southern San Joaquin Valley of increases followed by milder drops and fluctuations.

In the Northern Sacramento Valley, the value of production in 1988 was very close to its 1965 level in real terms. The

TABLE 9: CENTRAL VALLEY SUBREGIONS--AGRICULTURAL ACREAGE, 1970-1989

SUBREGION Commodity Group	HARVESTED/BEARING ACREAGE 1970	1975	1980	1985	1989 [*1988]	Percent Change 70-89
CENTRAL VALLEY--ALL SUBREGIONS						
Field Crops	4,454,458	4,854,841	5,118,693	4,436,194	4,017,482	-9.8
Vegetable Crops	353,617	501,211	420,502	500,846	574,186	62.4
Fruit & Nut Crops	984,222	1,249,158	1,393,661	1,565,880	1,577,802	60.3
Seed Crops	217,841	183,188	227,029	243,877	260,876	19.8
Nursery Products	4,297	4,795	6,390	6,110	8,309	93.4
Pasture & Range *	11,885,879	11,231,160	9,732,200	9,551,550	9,305,902	-21.7
Totals	17,900,314	18,024,353	16,898,475	16,304,457	15,744,557	-12
NORTHERN SACRAMENTO VALLEY SUBREGION						
Field Crops	738,067	909,464	1,000,283	786,760	679,552	-7.9
Vegetable Crops	16,420	41,954	34,211	37,223	39,098	138.1
Fruit & Nut Crops	160,958	186,268	207,580	220,107	233,426	45
Seed Crops	36,866	58,489	65,601	67,808	65,155	76.7
Nursery Products	892	1,224	1,122	960	1,139	27.7
Pasture & Range *	2,662,504	2,648,800	2,539,300	2,478,300	2,449,587	-8
Totals	3,615,707	3,846,199	3,848,097	3,591,158	3,467,957	-4.1
FOOTHILL COUNTIES SUBREGION						
Field Crops	31,774	43,685	39,645	23,000	21,650	-31.9
Vegetable Crops	16	24	33	33	95	493.8
Fruit & Nut Crops	8,220	6,670	5,893	5,106	5,128	-37.6
Seed Crops	1,636	0	0	0	0	-100
Nursery Products	304	36	31	42	66	-78.3
Pasture & Range *	907,140	653,640	629,600	624,050	583,380	-35.7
Totals	949,090	704,055	675,202	652,231	610,319	-35.7
SACRAMENTO METROPOLITAN AREA SUBREGION						
Field Crops	615,210	549,821	598,939	541,864	472,407	-23.2
Vegetable Crops	60,689	89,636	81,931	77,137	79,588	31.1
Fruit & Nut Crops	44,833	46,079	44,246	43,537	42,617	-4.9
Seed Crops	15,335	13,072	33,522	28,288	38,368	150.2
Nursery Products	118	317	933	915	1,473	1148.3
Pasture & Range *	644,500	651,700	530,200	448,000	438,300	-32
Totals	1,380,685	1,350,625	1,289,771	1,139,741	1,072,753	-22.3
NORTHERN SAN JOAQUIN VALLEY SUBREGION						
Field Crops	469,593	507,983	494,450	479,390	470,473	0.2
Vegetable Crops	115,197	117,478	91,307	107,203	113,284	-1.7
Fruit & Nut Crops	189,631	217,389	239,655	253,899	255,351	34.7
Seed Crops	18,329	14,659	15,027	13,535	8,531	-53.5
Nursery Products	613	483	777	734	887	44.7
Pasture & Range *	824,210	790,500	682,500	613,500	610,500	-25.9
Totals	1,617,573	1,648,492	1,523,716	1,468,261	1,459,026	-9.8
CENTRAL/SOUTHERN SAN JOAQUIN VALLEY SUBREGION						
Field Crops	2,599,814	2,843,888	2,985,376	2,605,180	2,373,400	-8.7
Vegetable Crops	161,295	252,119	213,020	279,250	342,121	112.1
Fruit & Nut Crops	580,580	792,752	896,287	1,043,231	1,041,280	79.4
Seed Crops	145,675	96,968	112,879	134,246	148,822	2.2
Nursery Products	2,370	2,735	3,527	3,459	4,744	100.2
Pasture & Range *	6,847,525	6,486,520	5,350,600	5,387,700	5,224,135	-23.7
Totals	10,337,259	10,474,982	9,561,689	9,453,066	9,134,502	-11.6

* May include minor amounts of crop stubble acreage, thereby duplicating some field crop acreage.

Source: California County Agricultural Commissioners' Annual Repports, 1970-1989.

value went up in the late 1970's and early 1980's but came down again and leveled off. Both field crops and pasture acreage declined by about 8 percent from 1970 to 1989. However, vegetable, fruit and nut and seed crops all had large increases in acreage, leaving total acreage down by only 4 percent. This may reflect both the relatively low water prices of the region and low demand for alternative uses of the agricultural land.

In the Foothill counties, total acreage in agriculture has decreased by 36 percent, the largest of all the subregions. The large users of land, field crops, fruit and nuts, and pasture and range, have all declined by about that percentage. The value of production has actually decreased by about 27 percent, during the period from 1965 to 1988 and is continuing to decline. Land is being taken up in these fast growing counties by housing and business development.

In the rapidly growing Sacramento Metro area, agricultural land use is down 22 percent from 1970 to 1989, and the real value of agricultural production was down 31 percent between 1965 and 1988. Field crops and pasture and range land have gone down considerably as the region increases in population. Perhaps because of the close distance to an expanding population, acreage in nursery products has grown 1,148 percent during the period, the highest percent change shown in Table 9. As the area continues to grow, the low valued field crops and pasture will almost certainly continue to decline in acreage.

In the Northern San Joaquin subregion, where growth is also occurring, acreage is only down by 10 percent. The value of production rose by 60 percent in real terms between 1965 and 1979, but by 1988 was 23 percent below the 1979 level. Only pasture and range land is decreasing and this is going down quite quickly (down 26 percent). As the area develops as a suburb of the San Francisco Bay area, field crops are likely to decline in acreage. Bay area spillover should put extreme pressure on agricultural land in the years ahead.

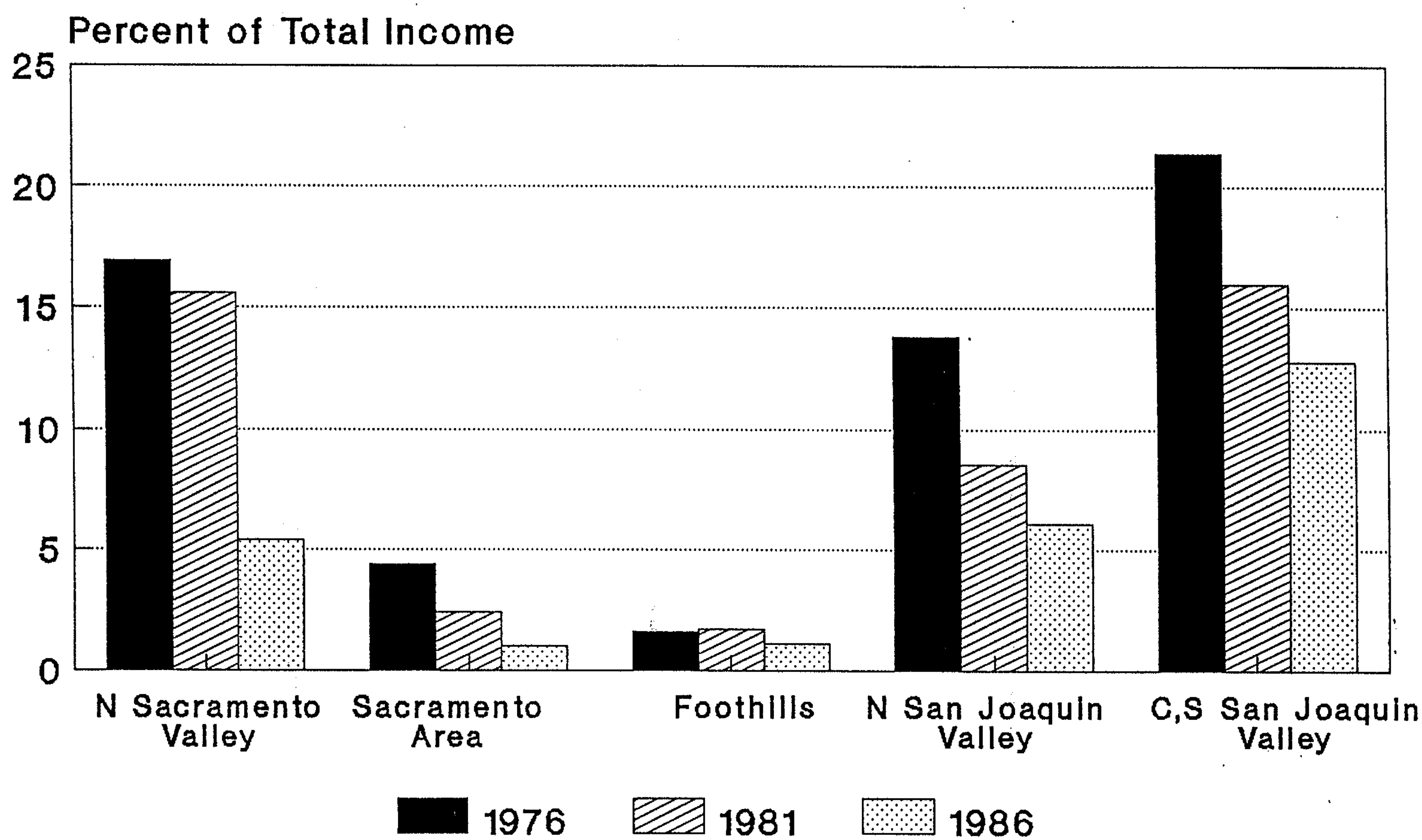
In the Central/Southern San Joaquin subregion, acreage is down 12 percent, the same amount as the Valley as a whole. Production value in real terms was up 72 percent between 1965 and 1979 and down by 20 percent between 1979 and 1988. Pasture and range acreage is down 24 percent, about what it is for the whole Central Valley, but field crop acreage is down only 9 percent. There is less growth pressure here than higher up in the Valley, but State Water Project water prices would be higher than further north. This may be the area where high valued water drives low valued agricultural out of production. Where high valued water is now being subsidized at Federal rates, there will be great pressure to allocate that water to other uses.

D. Changes in Agricultural Income

As shown in Figures 3 through 6, the share of personal income derived from the farm sector dropped sharply in almost all of the Central Valley counties between 1976 and 1986 (1976 was a drought year in California, so personal income would be biased downward over an average year for that period). This was a result of the nonagricultural part of the economy (and especially services) expanding rapidly in most of the counties. The drop in share was greatest in the North Sacramento Valley,

FIGURE 3

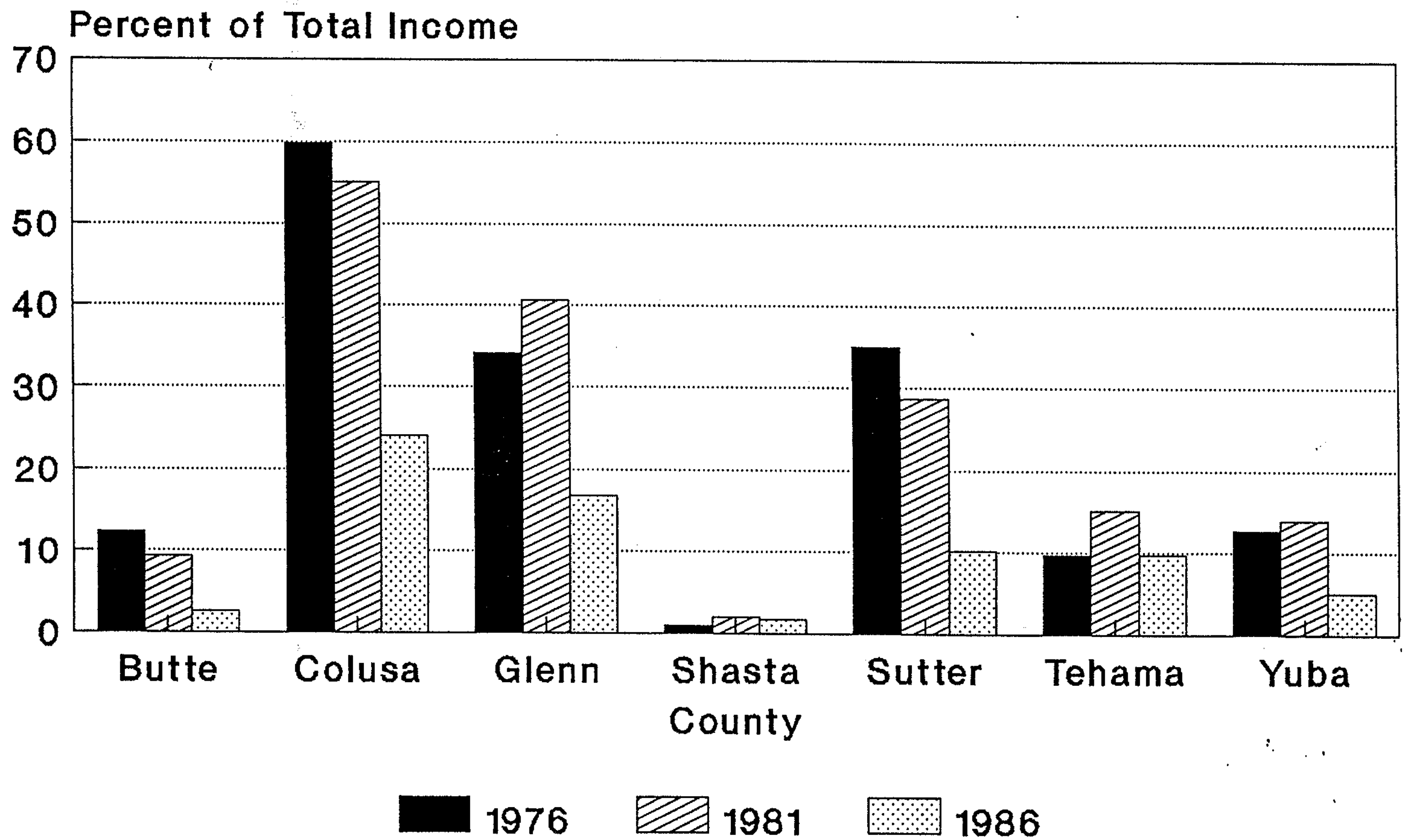
FARM SECTOR SHARE, TOTAL PERSONAL INCOME
CENTRAL VALLEY SUBREGIONS



Source: U.S. Bureau of Economic Analysis
Local Area Personal Income

FIGURE 4

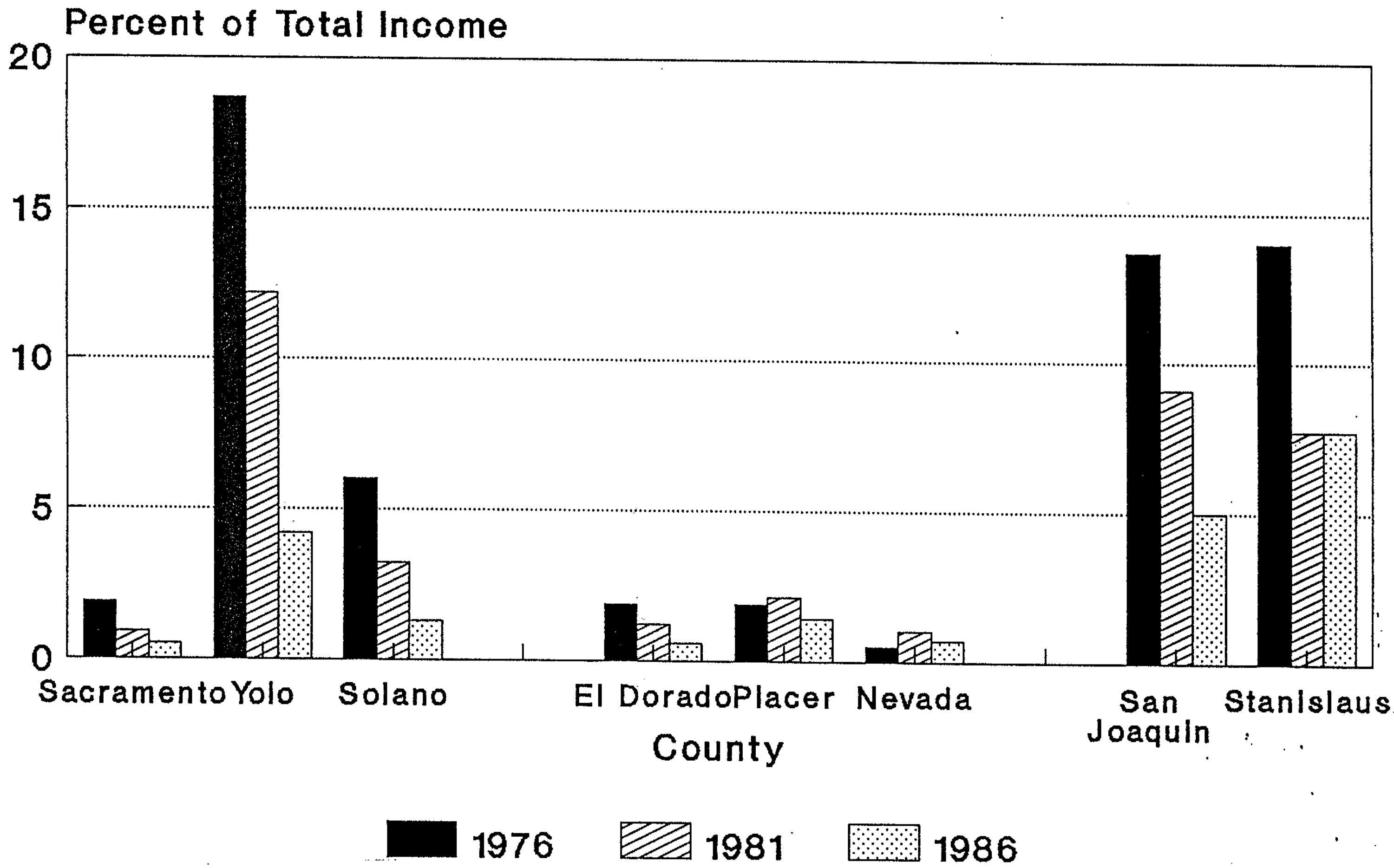
FARM SECTOR SHARE, TOTAL PERSONAL INCOME
NORTHERN SACRAMENTO VALLEY



Source: U.S. Bureau of Economic Analysis
Local Area Personal Income.

FIGURE 5

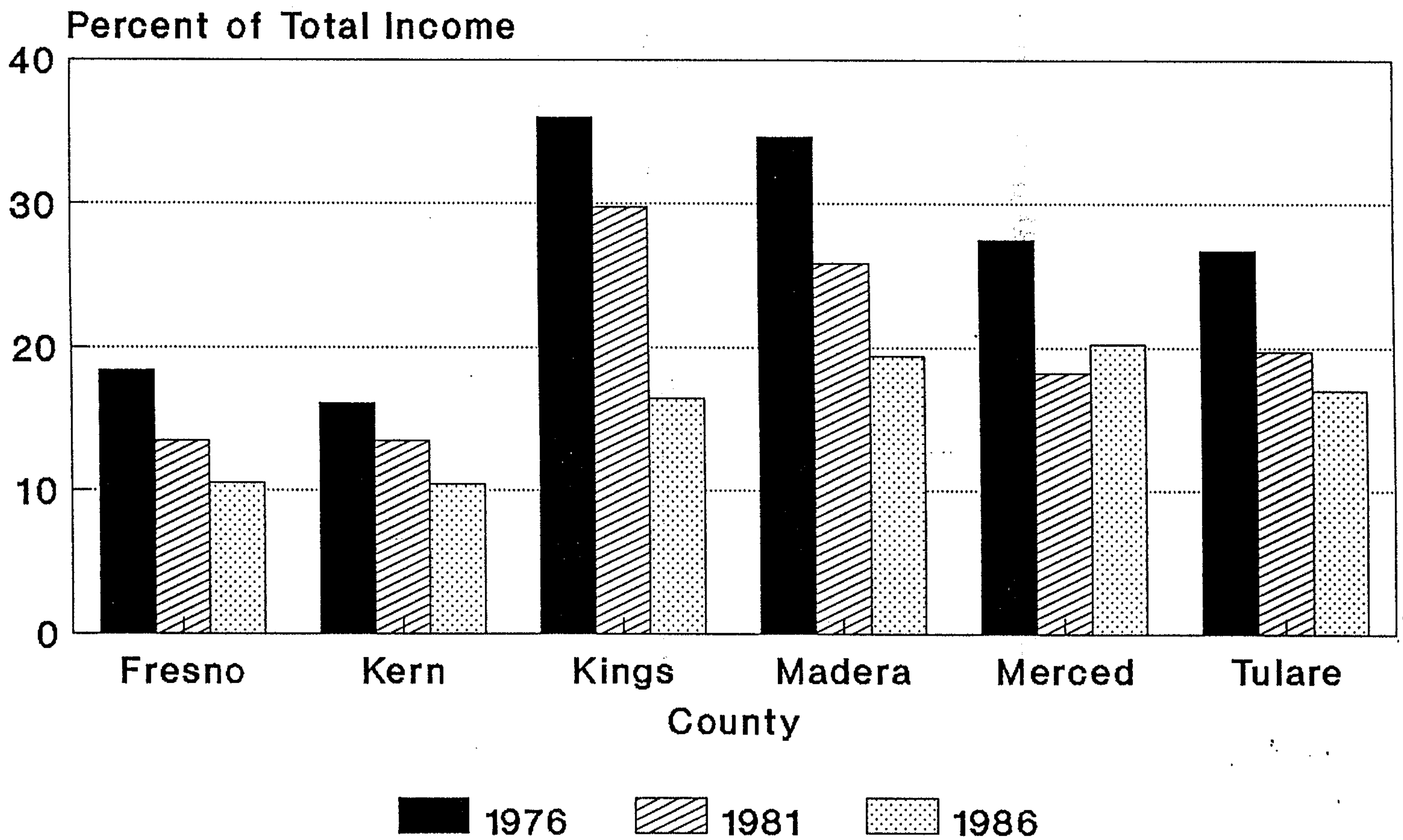
FARM SECTOR SHARE, TOTAL PERSONAL INCOME
SACRAMENTO, FOOTHILLS & N. SAN JOAQUIN



Source: Local Area Personal Income

FIGURE 6

FARM SECTOR SHARE, TOTAL PERSONAL INCOME
CENTRAL/SOUTHERN SAN JOAQUIN VALLEY



Source: U.S. Bureau of Economic Analysis
Local Area Personal Income

where the major agricultural producers, Colusa, Glenn and Sutter counties, all experienced substantial drops in income shares in agriculture. San Joaquin Valley Counties, also major agricultural producers, experienced drops in income shares of 5 to 10 percent.

Thus, during the 1980s, Central Valley agriculture has shown a slow decline in total acreage in agriculture; a shifting away from livestock and field crops to more high valued crops like nursery, vegetables, and fruits and nuts; fluctuations in the real (inflation-adjusted) value of agricultural production; and a very large decline in the direct share of personal income produced by production agriculture. In the 1990s, although some further recovery in agricultural production may occur, nonagricultural economic activity is likely to expand more rapidly than agricultural activity. Agriculture's share of regional economic activity should continue to decline as the Central Valley economic base becomes more diversified.

III. Relative Costs--How Attractive is the Central Valley to Employers?

While its agricultural past still dominates the Central Valley economy, its present growth and thus its future clearly lie in an expanded economic base. Among the factors likely to affect the type of growth experienced by Central Valley counties are those affecting the region's competitiveness relative to the rest of the state and other parts of the nation. New firms tend to be attracted to a region and local firms to expand locally when the size of the market for their commodity is growing, when the area provides good transportation and communications, access to labor and to markets, and when factor prices are competitive. The Central Valley, especially when contrasted to California's coastal metropolitan areas, shows several of these characteristics. Population growth has been strong in the Central Valley, expanding the local market for goods and services. Strong transportation networks link the Central Valley to the wider expanding market areas of the Western United States and the Pacific Rim nations. To the extent that data is available on factor availability and prices, the Central Valley appears to have a more readily available labor force and expanding residential, commercial and industrial facilities at a cost below that found in coastal areas. The next three sections of this paper examine relative costs of labor and land.

IV. Labor Availability and Costs in the Central Valley

While the composition of the labor force differs in the Central Valley from coastal places, overall labor force availability, as measured by unemployment rates, is clearly greater in the Central Valley. A detailed analysis of the cost structure of labor in the Central Valley also suggests that costs are lower than in coastal metropolitan areas, although enough variation exists that knowledge of trends in specific markets appears to be important.

A. Unemployment and Labor Force Availability

Labor markets in California's coastal areas have been very tight in recent years. Annual average unemployment was 4.7 percent in Los Angeles County, 2.9 percent in Orange County, 4.1

percent in San Francisco and 3.8 percent in Santa Clara County in 1989, all below the statewide rate of 5.1 percent (see Figure 7). In contrast, unemployment rates for the whole Central Valley have been well above the California average.

The unemployment differential between Central Valley areas and coastal areas stems from the difference in economic structure and in labor force mix. Higher unemployment rates are typical of agricultural areas, because of the seasonality of the work. In addition, agricultural counties tend to have a less highly trained labor force, in terms of education levels and the occupations of residents. However, interviews with companies for earlier research projects suggest that agricultural workers are attractive as a labor force to a number of other types of firms, because of their "work ethic" and their lower wage expectations.[6]

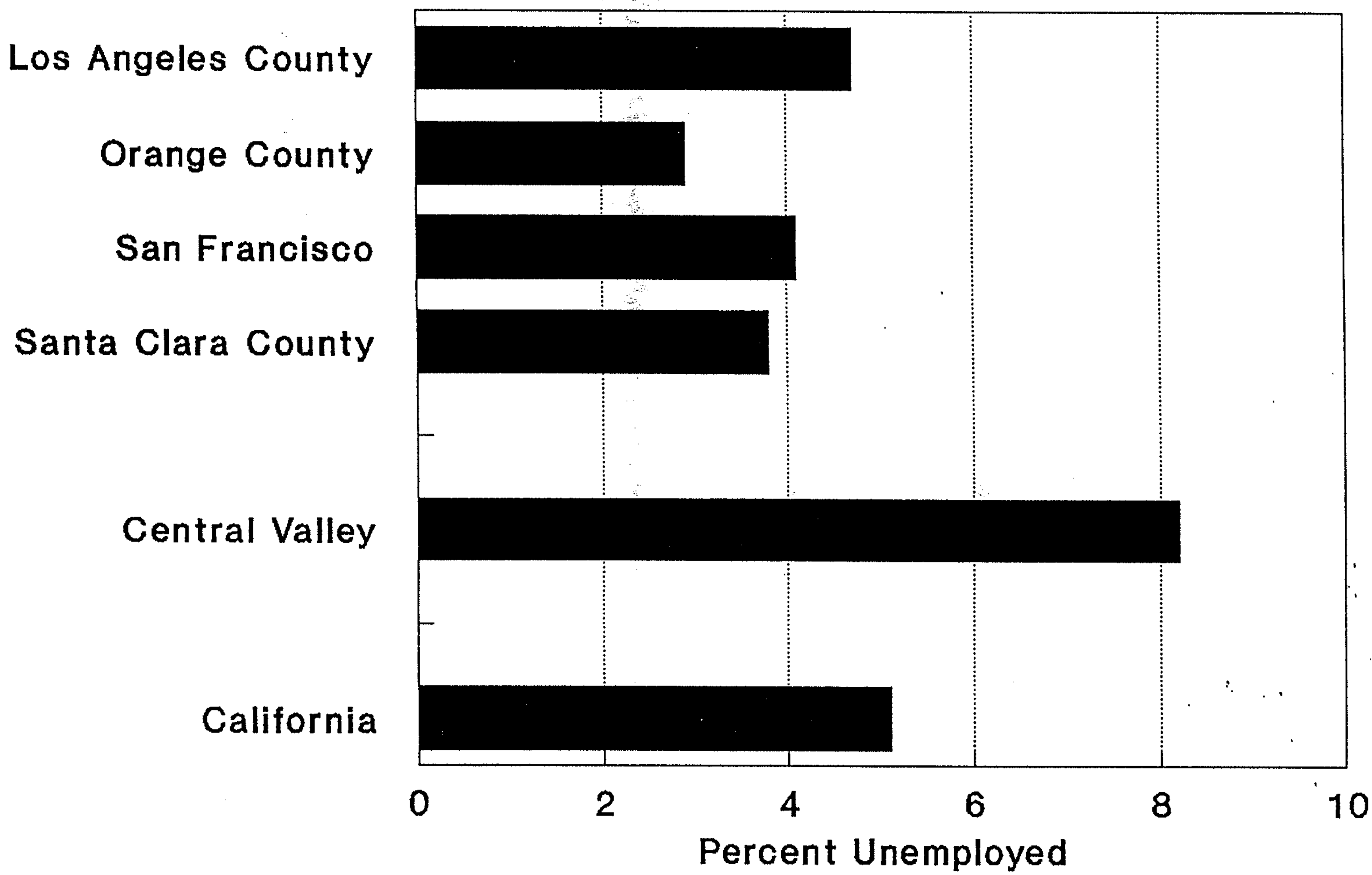
Within the Central Valley, unemployment rates differ widely by region (see Table 10). In the Sacramento area, unemployment rates are close to, and at times below, statewide averages. The Foothill counties also have had quite low unemployment rates since 1985, especially for an area where part of the economy depends on tourism and on timber industries. In other parts of the Central Valley, the unemployment rates remain well above statewide levels, indicating that these subregions continue to offer employers an available labor supply.

B. Per Capita Income and Wage Levels

Overall, data on income and wages suggests that labor costs in the Central Valley remain substantially below those of coastal areas and below statewide averages. All sections of the Central Valley have per capita incomes consistently below statewide

FIGURE 7

COMPARATIVE UNEMPLOYMENT RATES
CENTRAL VALLEY AND OTHER CALIFORNIA



Source: Employment Development Dept.

TABLE 10: UNEMPLOYMENT IN THE CENTRAL VALLEY REGION

COUNTY/ REGION	1980	1981	1982	1983	1984	1985	1986	1987	1988
NORTH SACRAMENTO VALLEY:									
Butte	10.1%	11.4%	14.6%	13.5%	11.7%	10.7%	9.7%	7.9%	7.8%
Colusa	8.3%	8.7%	12.0%	16.0%	13.8%	13.8%	13.1%	9.8%	9.8%
Glenn	8.1%	9.8%	13.6%	15.7%	13.9%	12.9%	12.6%	11.0%	10.1%
Shasta	12.9%	15.1%	18.3%	15.5%	7.7%	13.2%	11.3%	9.2%	9.0%
Sutter	14.1%	15.7%	21.4%	23.0%	12.0%	18.1%	14.5%	11.7%	12.1%
Tehama	11.8%	13.8%	16.7%	15.1%	13.2%	11.3%	10.0%	8.5%	8.5%
Yuba	13.5%	14.9%	19.2%	19.6%	16.1%	14.3%	14.4%	11.6%	11.4%
TOTAL for Subregion:	11.6%	13.3%	16.9%	16.2%	11.3%	12.9%	11.5%	9.3%	9.2%
SACRAMENTO AREA:									
Sacramento	7.7%	8.5%	11.0%	9.9%	13.2%	6.7%	6.0%	5.5%	5.3%
Solano	7.9%	8.7%	11.1%	10.8%	16.1%	7.3%	6.7%	6.2%	5.9%
Yolo	9.1%	10.0%	12.8%	12.8%	10.3%	9.2%	8.2%	7.1%	6.6%
TOTAL for Subregion:	7.9%	8.7%	11.2%	10.4%	13.8%	7.1%	6.4%	5.8%	5.5%
NORTH SAN JOAQUIN VALLEY:									
San Joaquin	10.9%	12.3%	16.1%	16.0%	14.1%	12.6%	11.6%	9.8%	9.7%
Stanislaus	13.1%	14.5%	18.4%	18.6%	19.5%	15.2%	14.0%	12.0%	11.9%
TOTAL for Subregion:	11.9%	13.2%	17.1%	17.2%	15.8%	13.8%	12.7%	10.8%	10.7%
FOOTHILL COUNTIES:									
El Dorado	9.2%	10.0%	12.6%	19.5%	9.2%	6.9%	5.8%	4.8%	4.7%
Nevada	9.7%	11.5%	15.0%	12.7%	9.5%	8.2%	7.1%	6.0%	6.1%
Placer	9.3%	10.3%	12.7%	10.6%	8.3%	6.9%	5.8%	5.1%	5.2%
TOTAL for Subregion:	9.3%	10.4%	13.1%	11.8%	8.8%	7.1%	6.0%	5.2%	5.2%
SOUTH CENTRAL VALLEY:									
Fresno	9.1%	10.5%	13.8%	14.0%	12.9%	13.0%	12.4%	10.6%	10.6%
Kern	7.7%	8.6%	12.0%	13.4%	12.2%	11.6%	11.5%	10.5%	10.2%
Kings	8.0%	10.2%	14.0%	15.5%	11.9%	11.8%	12.3%	10.2%	10.3%
Madera	8.6%	10.2%	12.8%	13.6%	11.9%	12.0%	11.8%	9.5%	10.4%
Merced	10.8%	12.1%	14.4%	14.8%	13.3%	13.9%	12.8%	11.2%	11.0%
Tulare	8.2%	9.2%	12.5%	12.8%	12.6%	13.5%	12.6%	10.5%	10.3%
TOTAL for Subregion:	8.6%	9.9%	13.1%	13.8%	12.6%	12.7%	12.2%	10.6%	10.4%
STATE	6.8%	7.4%	9.9%	9.7%	7.8%	7.2%	6.7%	5.8%	5.3%

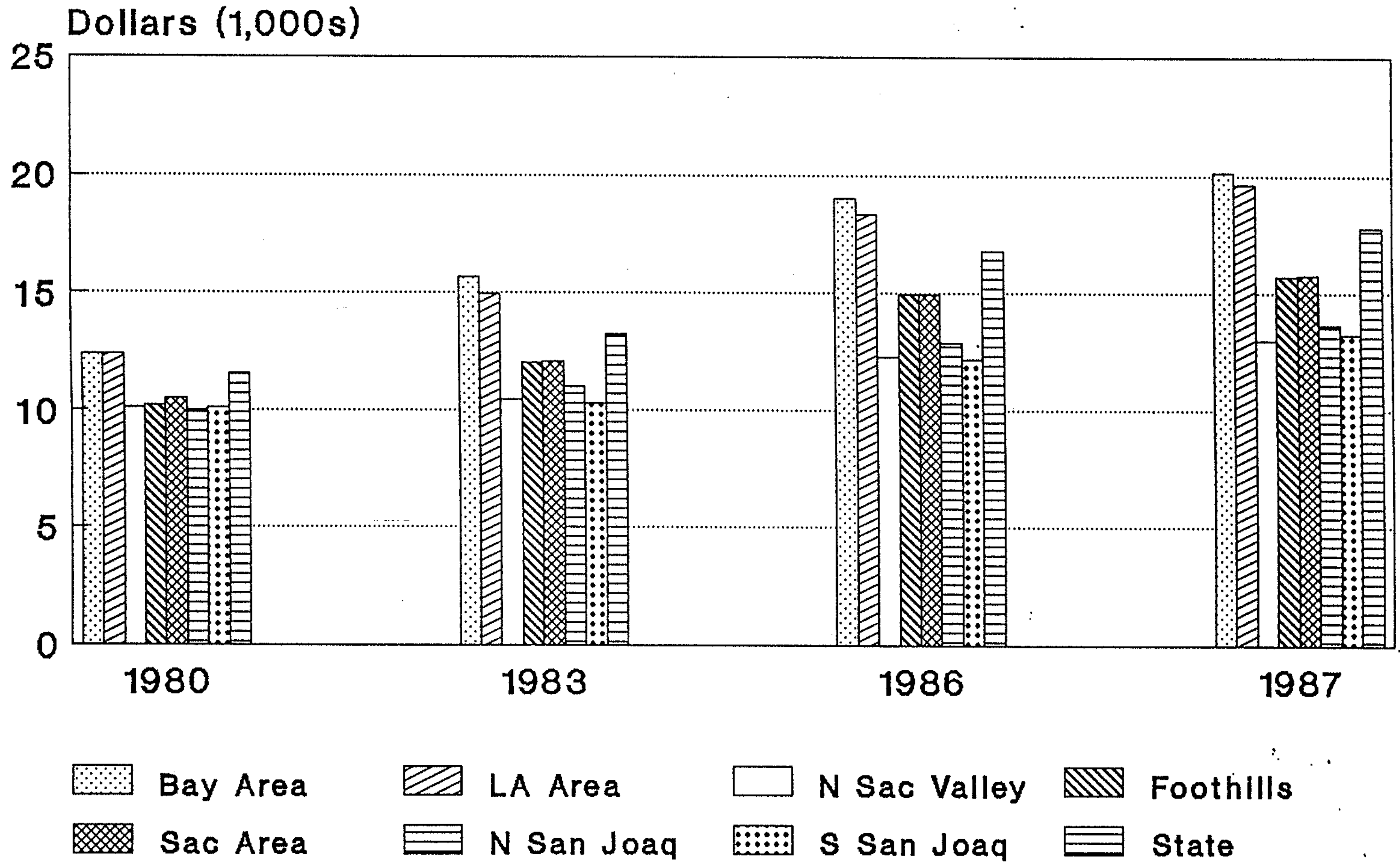
Source: California Employment Development Department.

averages, with the gap being much wider for the San Joaquin Valley counties and the North Sacramento Valley counties than for the Sacramento area and the Foothills counties (see Figures 8 and 9). Despite the fact that nonagricultural employment has grown while agricultural employment declined in the 1980s, the income differential between Central Valley and coastal counties has widened rather than narrowed in the past decade. This is true in relative as well as absolute terms. Thus per capita income levels in Central Valley subregions were a smaller percentage of the statewide per capita income in the late 1980s than at the beginning of the decade.

Income levels are not a good measure of differences in the cost of labor for particular occupations, however. A poor year in agricultural receipts can drop average per capita income levels even if wages in other sectors rise. Data on wage levels in Central Valley places is limited in availability and level of detail. To the extent that this data is available, it suggests that wage differentials exist, not only between coastal and central areas but also between northern and southern parts of the state.

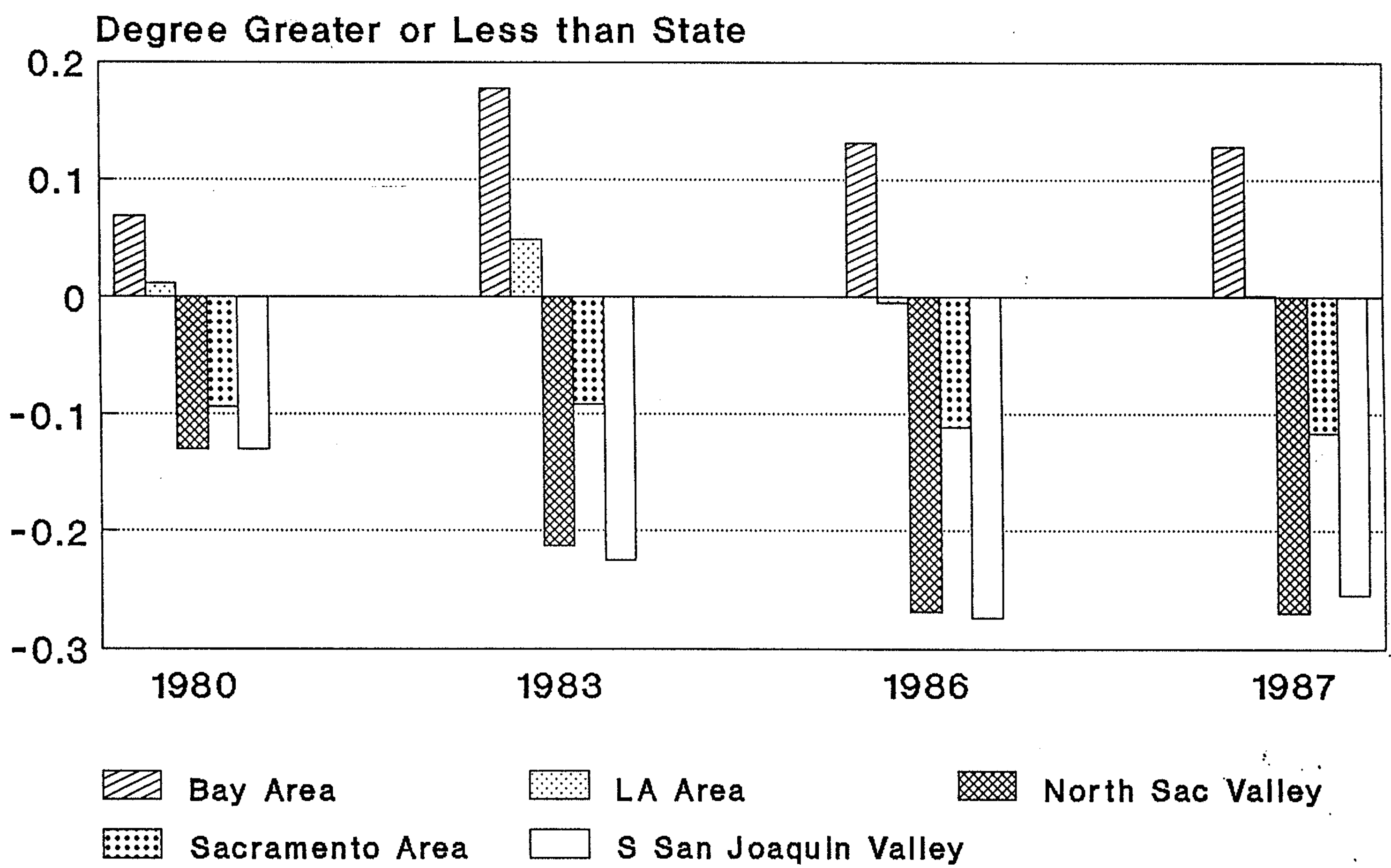
The U.S. Bureau of Labor Statistics tracks wage levels in the San Francisco/Oakland area, the Los Angeles area, the Stockton area (San Joaquin County), the Sacramento area, the Fresno area, and the Bakersfield area (Kern County). For the great majority of occupations, wage levels are highest in the San Francisco Bay Area (see statistics on average wages, Figure 10). Central Valley wages are consistently below those of the San Francisco Bay Area. For several occupations, wages in Los

FIGURE 8
PER CAPITA PERSONAL INCOME
CENTRAL VALLEY AND COASTAL AREAS



Source: Calif. Dept. of Finance

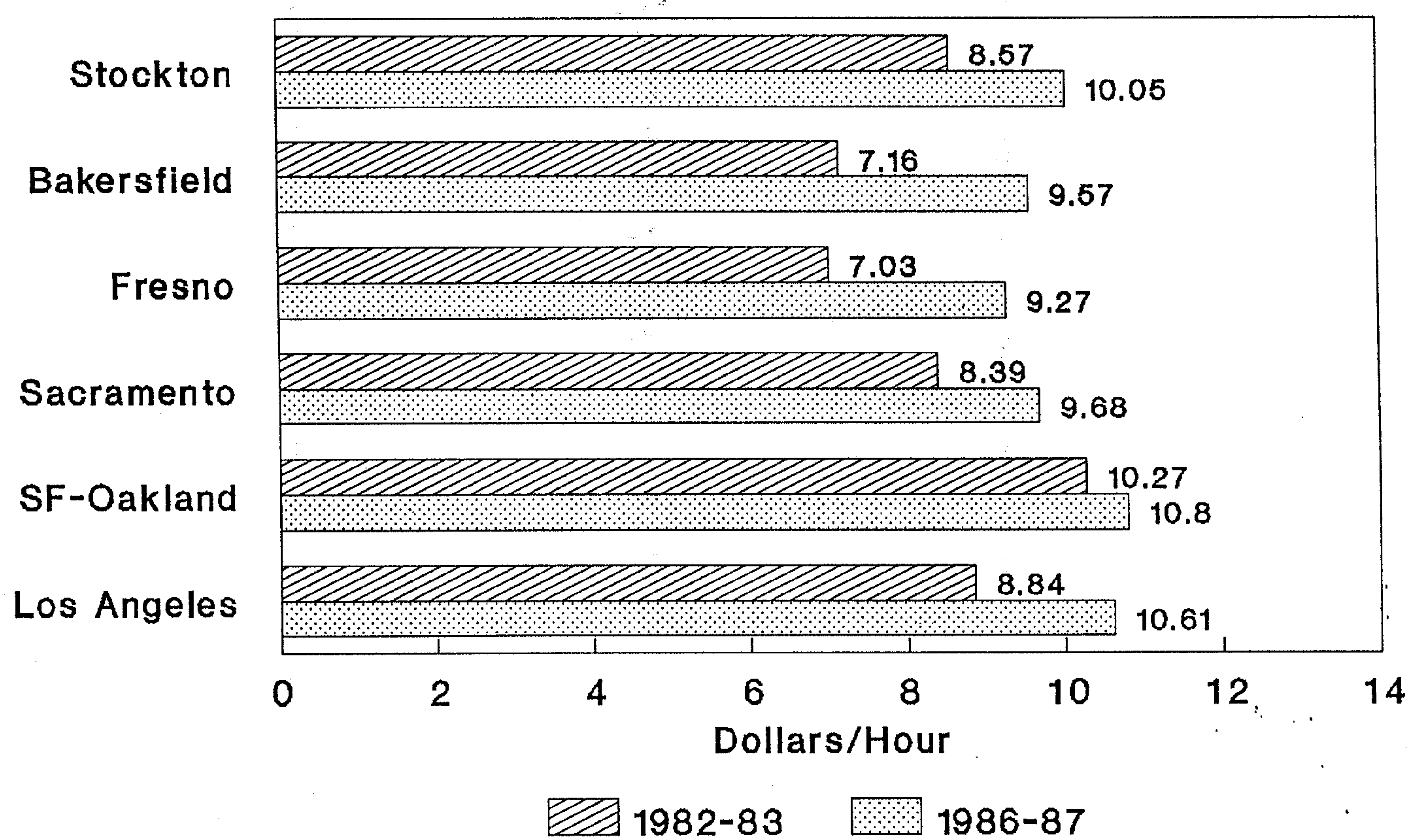
FIGURE 9
PER CAPITA INCOME INDEXED TO STATE
CENTRAL VALLEY AND COASTAL AREAS



Note: Sacramento Area Includes Foothills, N. San Joaquin.
Source: CREUE from Dept. of Finance.

FIGURE 10

AVERAGE WAGES, 1982 AND 1987
CENTRAL VALLEY, SF-OAKLAND, LOS ANGELES



Source: Bureau of Labor Statistics

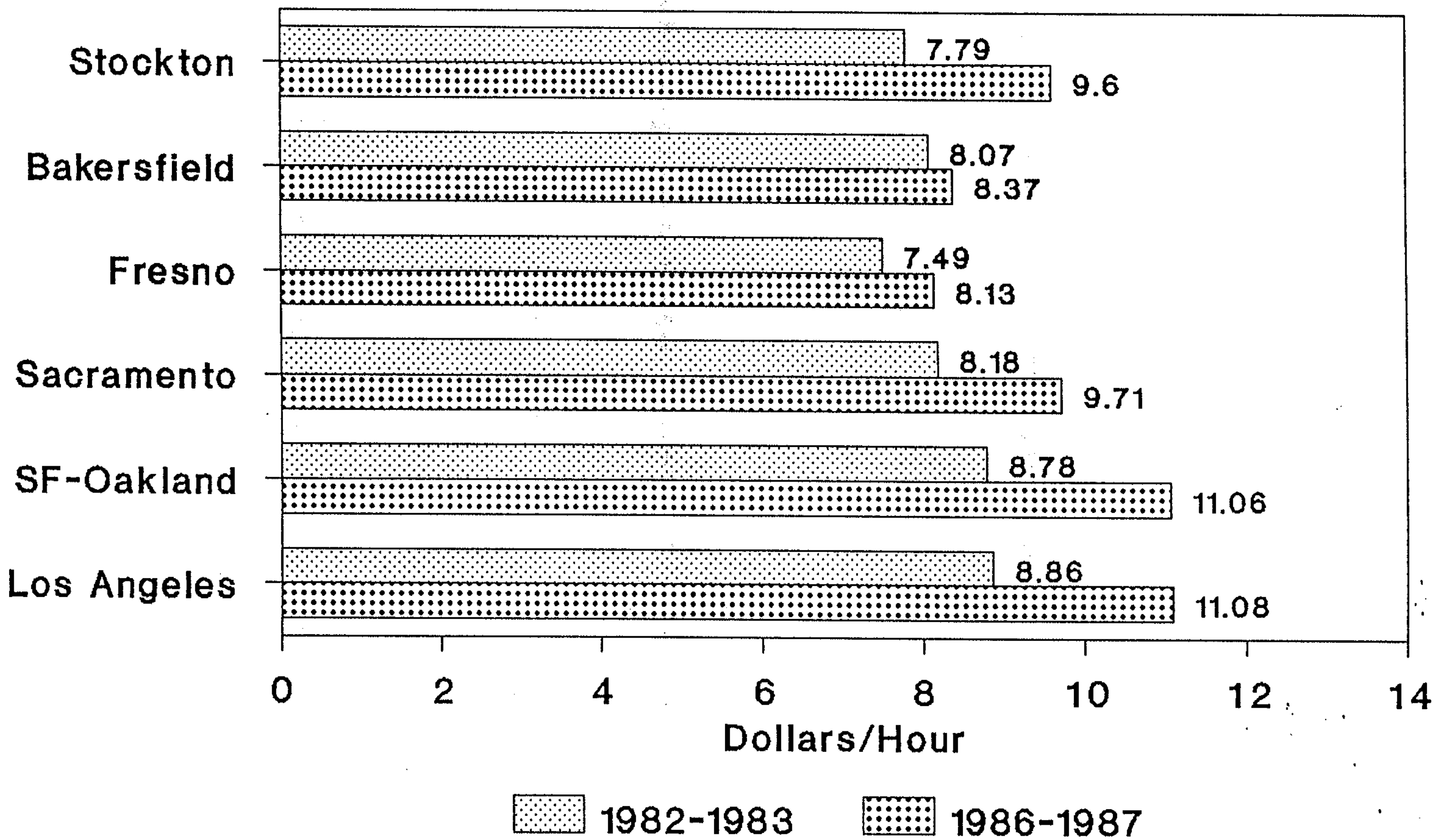
Angeles come close to or even exceed those found in the San Francisco Bay Area (e.g. secretarial, computer operators--see Figures 11 and 12). In other occupations, however, wages in some parts of the Central Valley are much closer to wages found in the Los Angeles Area (e.g. maintenance mechanics, forklift operators, truck drivers--Figures 13, 14 and 15), and for janitorial workers (Figure 16), the Los Angeles area apparently has the lowest wages statewide.[7]

Similar patterns are available for wages tracked by the California Industrial Labor Relations Board. Both San Francisco Bay Area and Los Angeles Area wage rates are consistently above those in the Central Valley (see Table 11).

A comparison of manufacturing wages reported by the Employment and Earnings series of the U.S. Bureau of Labor Statistics again highlights the particularly high wage rates of the San Francisco Bay Area compared to other places (see Table 11). Durable goods manufacturing wages tend to be higher in the Southern California metropolitan areas than in most Central Valley MSAs, but lower than San Francisco Bay Area wages. Nondurable wages, however, are often lower in Southern California places than in the Central Valley, reflecting the very different mix of industries in the two places. In interpreting this data, it is important to realize that in contrast to the other two data sources mentioned, this BLS series reports average hourly earnings over a particular <u>industry</u> (manufacturing) rather than for specific <u>occupations</u>. Thus, the industry mix affects average hourly earnings by area. Nevertheless, these figures may give employers a sense of the prevailing wages in an area, although

FIGURE 11

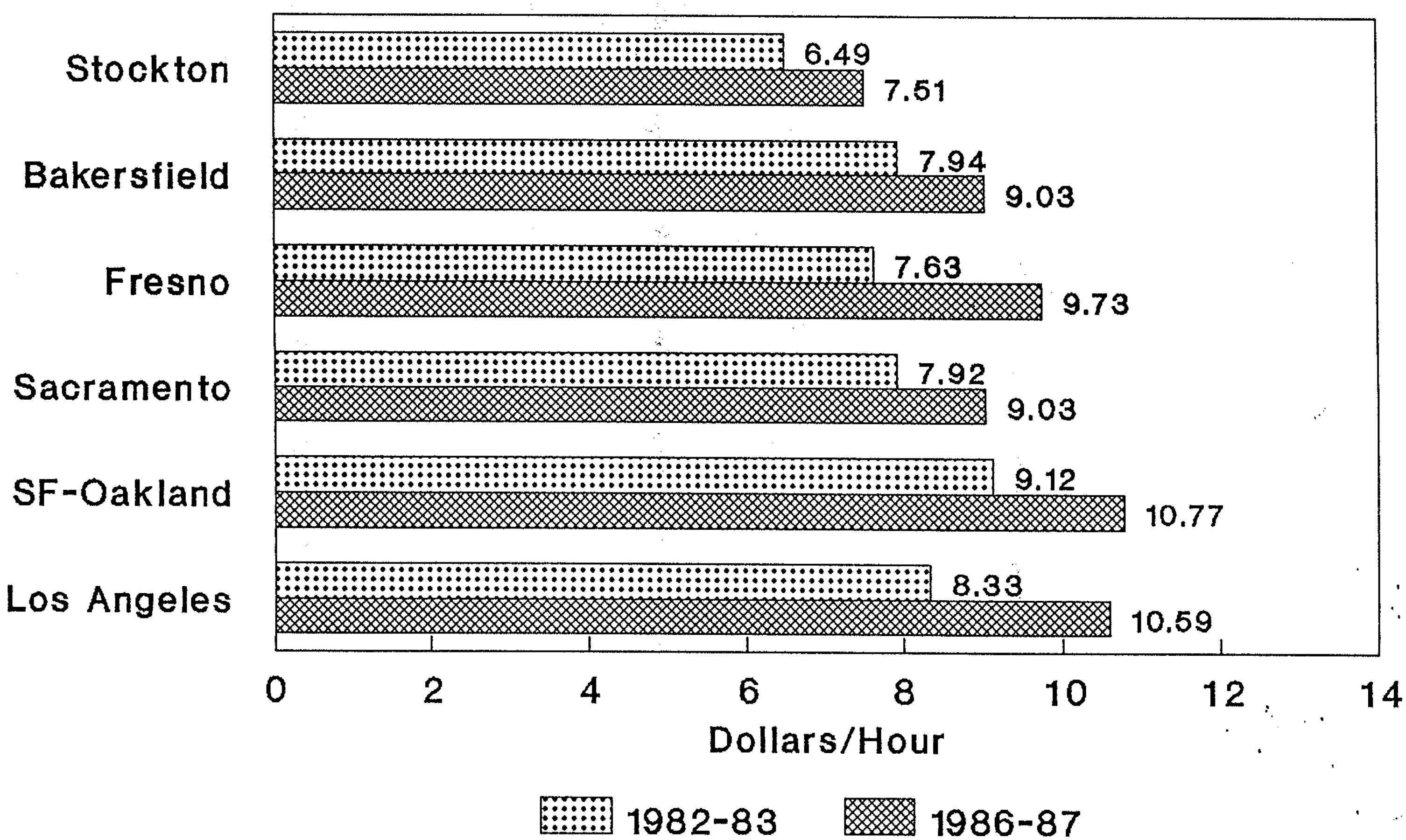
GENERAL SECRETARIAL WAGES, 1982 AND 1987
CENTRAL VALLEY, SF-OAKLAND, LOS ANGELES



Source: Bureau of Labor Statistics.

FIGURE 12

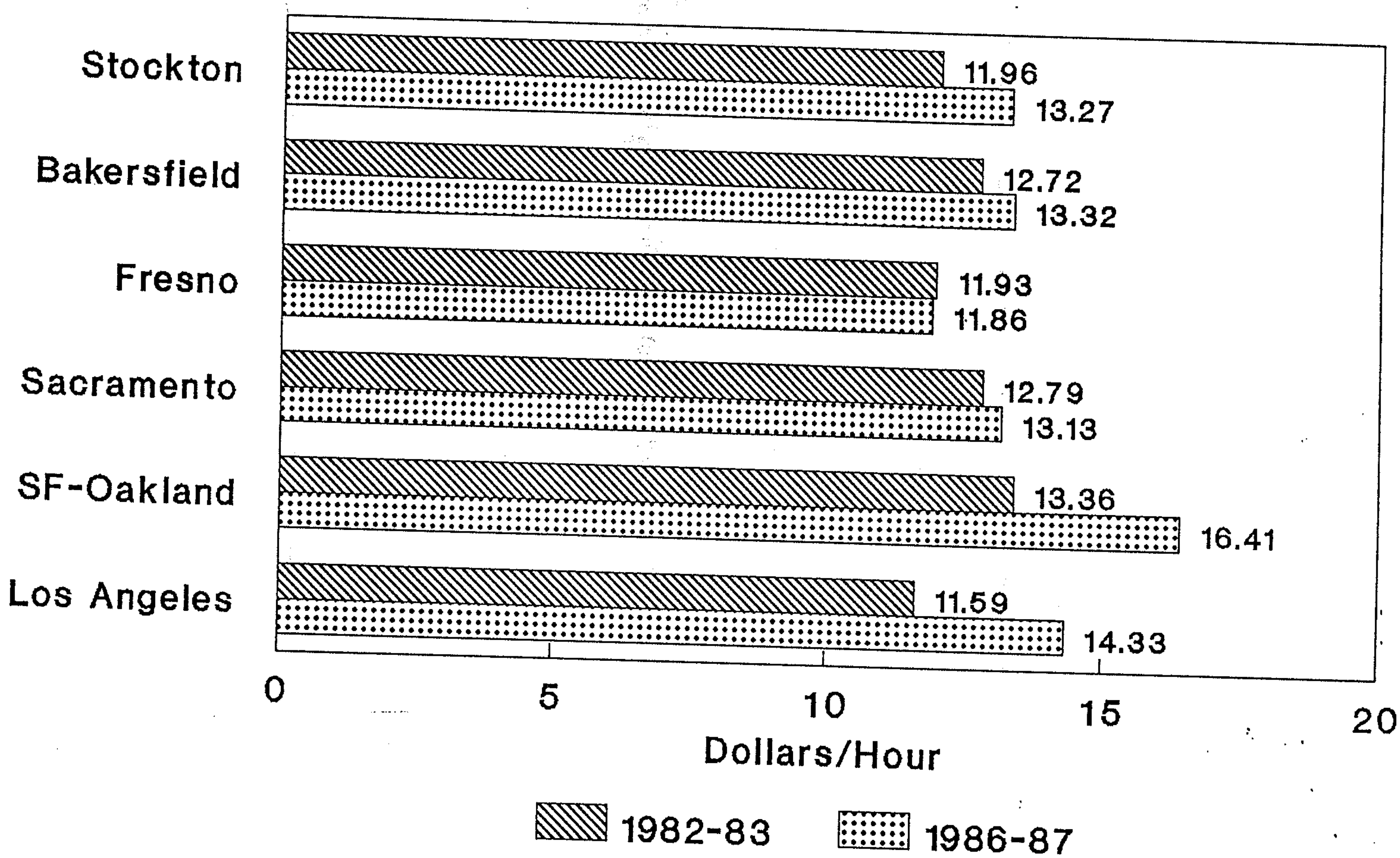
COMPUTER OPERATOR WAGES, 1982 AND 1987
CENTRAL VALLEY, SF-OAKLAND, LOS ANGELES



Source: Bureau of Labor Statistics

FIGURE 13

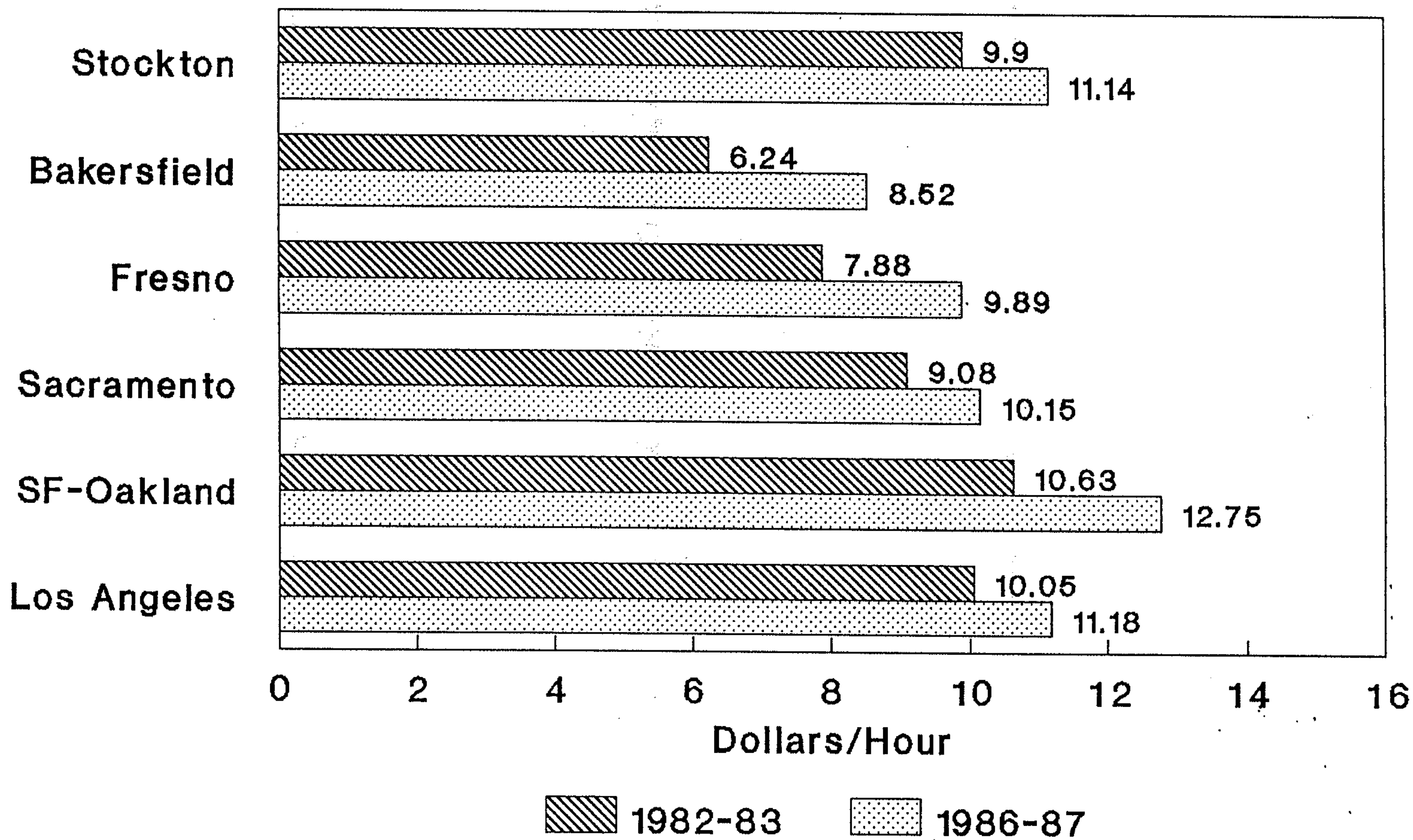
MAINTENANCE MECHANIC WAGES, 1983 & 1987
CENTRAL VALLEY, SF-OAKLAND, LOS ANGELES



Source: Bureau of Labor Statistics

FIGURE 14

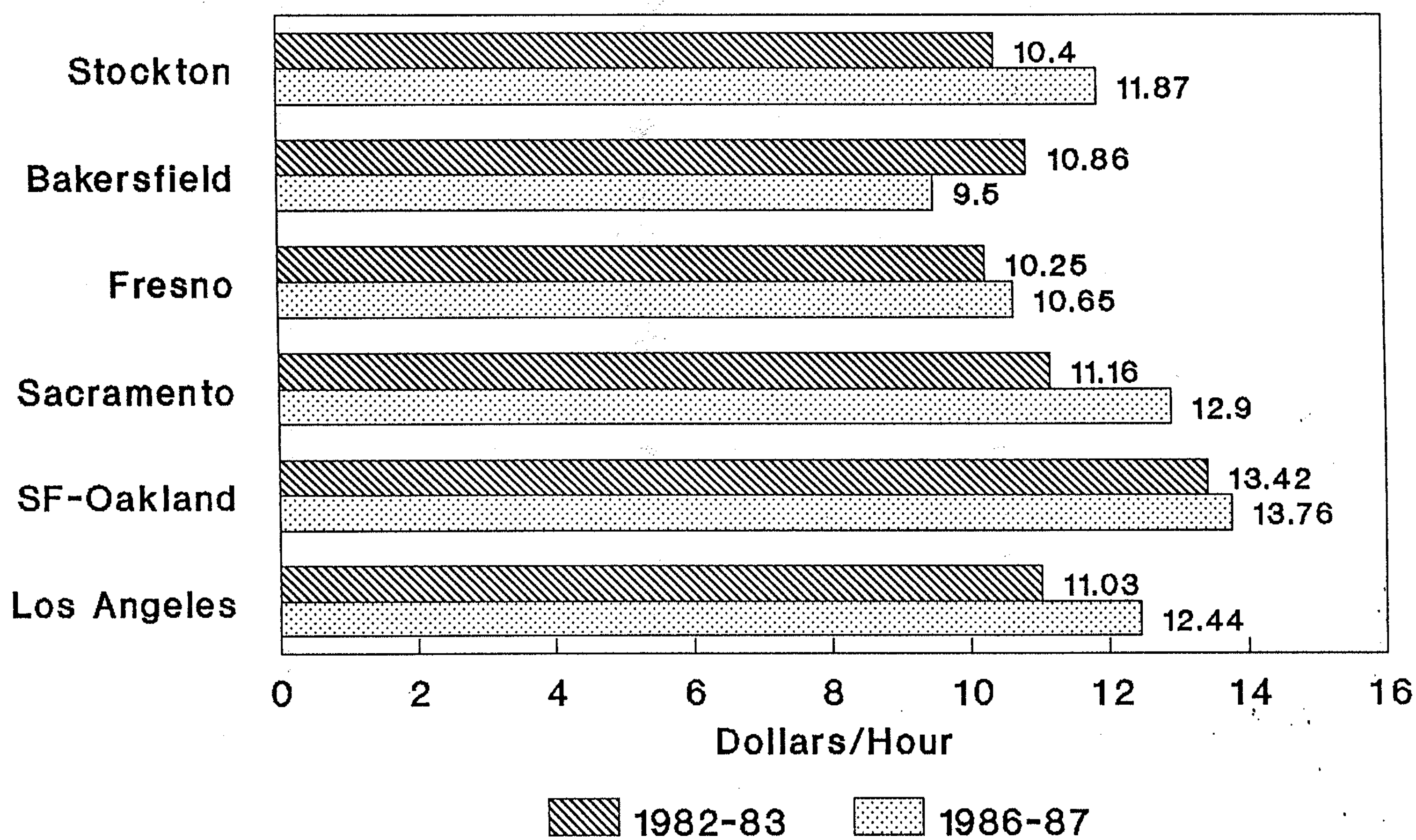
FORKLIFT OPERATOR WAGES, 1982 AND 1987 CENTRAL VALLEY, SF-OAKLAND, LOS ANGELES



Source: Bureau of Labor Statistics

FIGURE 15

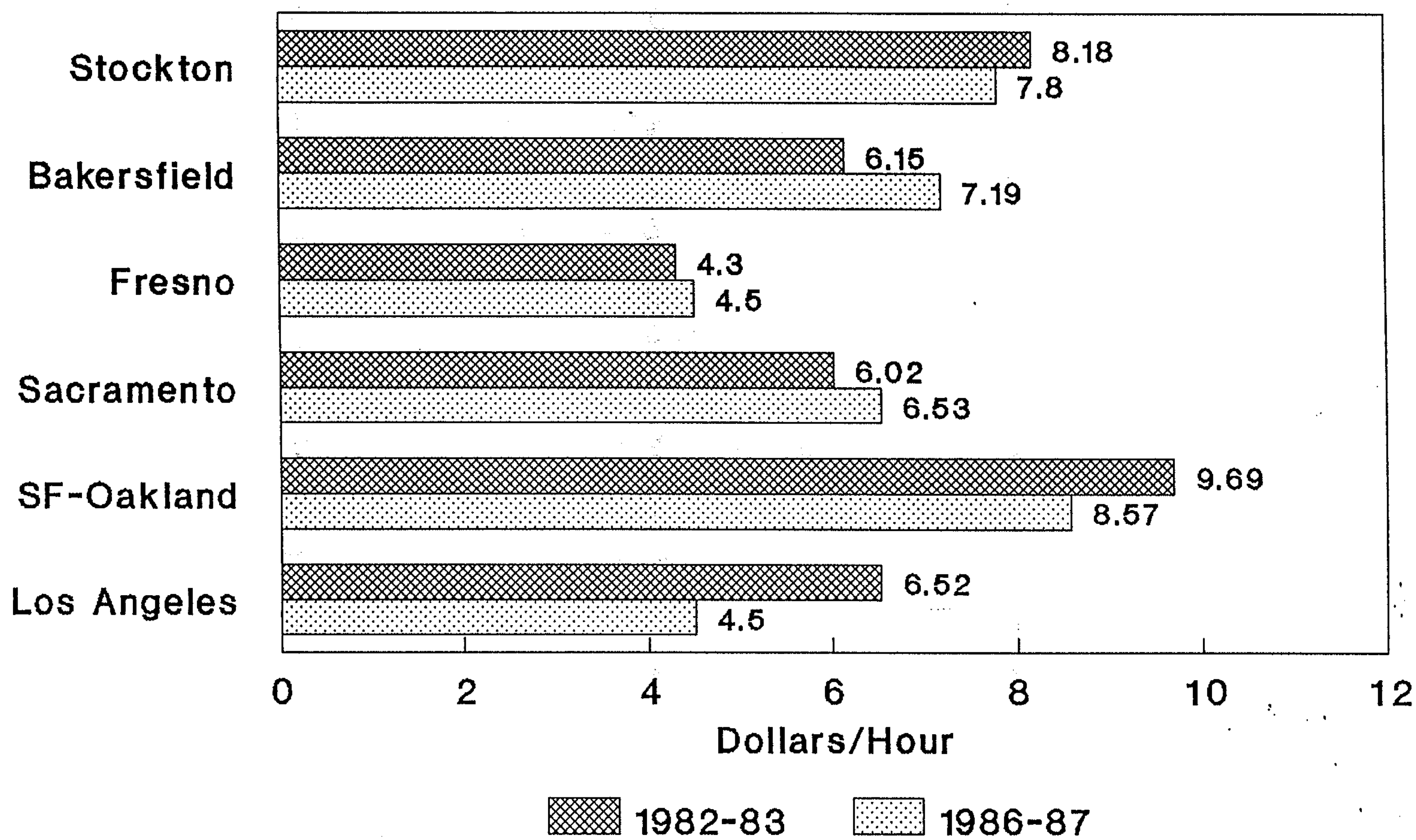
TRUCK DRIVER WAGES, 1982 AND 1987
CENTRAL VALLEY, SF-OAKLAND, LOS ANGELES



Source: Bureau of Labor Statistics

FIGURE 16

JANITOR/PORTER/CLEANER WAGES 1982 & 1987
CENTRAL VALLEY, SF-OAKLAND, LOS ANGELES



Source: Bureau of Labor Statistics

TABLE 11: HOURLY WAGES IN OCCUPATIONS RELATED TO PUBLIC WORKS PROJECTS
1989 WAGES

County	Electrician (Inside Wireman)	Plasterer	Sprinkler Fitter	Tile Setter
Glenn	$18.24	$17.25	$24.18	$21.16
Tehama	$18.24	$13.00	$24.18	$11.00
Butte	$18.24	$17.25	$24.18	$21.16
Yuba	$20.49	$17.25	$24.18	$21.16
Sacramento	$22.68	$17.25	$24.18	$21.16
Solano	$20.97	$18.48	$29.74	$21.63
Yolo	$20.49	$17.25	$24.18	$21.16
San Joaquin	$20.59	$17.25	$24.18	$21.48
Stanislaus		$18.80	$24.18	$21.48
El Dorado	$22.68	$17.25	$24.18	$21.16
Placer	$22.68	$17.25	$24.18	$21.16
Fresno	$20.50	$17.68	$24.18	$17.80
Kern	$19.65	$16.22	$24.18	$17.40
Madera	$20.50	$17.68	$24.18	$17.80
Tulare	$20.50	$17.68	$24.18	$17.80
San Francisco	$26.76	$23.43	$29.74	$21.63
Alameda	$25.27	$23.43	$29.74	$21.63
Santa Clara	$26.70	$20.03	$29.74	$21.63
Orange	$24.55	$23.53	$24.18	$23.27
Los Angeles	$23.00	$23.53	$27.27	$23.27

Source: Industrial Labor Relations Board, Prevailing Wages Rates.

the mix of occupations within manufacturing may vary from place to place.

The BLS figures suggest that while wage advantages exist in the Central Valley, the degree of advantage is much greater for some sectors than for others. In addition, the differential appears to be greater compared to the Northern California coastal cities than compared to the Southern California metropolitan area.

An additional question of interest is whether wage levels are rising more rapidly or more slowly in Central Valley places compared to other parts of the state. An examination of the 1982 and 1987 BLS data for wages by occupation shows that no regular patterns exist. Secretarial wages, a key back office occupation, appear to be rising more rapidly in the coastal metropolitan areas than in the Central Valley, while changes in the wages of heavy equipment operators vary sharply by places within coastal and Central Valley areas, with some Central Valley places experiencing very large increases in wage levels of these workers.

V. Real Estate Markets and Prices

One reason frequently cited for periods of rapid growth in the Central Valley is its relatively low land and housing costs compared to California's coastal metropolitan areas. Real estate data indicate that prices are indeed lower in Central Valley places. However, recent trends suggest that many Central Valley places are not immune to the higher prices produced by pressures of growth that have most recently been experienced in other parts of the state.

A. Residential Construction Trends and Housing Prices

The Central Valley has over 1.9 million units of housing, over 17 percent of the state's housing stock (see Table 12). Housing construction in the Central Valley has been strong in the 1980s. Almost 23 percent of new housing units added in the state since 1980 have been constructed in Central Valley counties.

Faster housing construction and slower economic growth have led to more moderate price levels and rates of price increase than have been experienced elsewhere in the state (see Table 13). In August 1989, the median home price for the Central Valley region, according to data compiled by the California Asssociaiton of Realtors, was $98,659, half the median home price level for the state. This relative difference in home prices has widened compared to earlier years--in 1982 Central Valley median home price levels were about two thirds of that of the state.

Overall, Central Valley places have not participated in the very large price increases experienced in other parts of the state in recent years. While statewide, home prices increased by 46 percent between 1982 and 1988, increases in the Central Valley were on aggregate about 19 percent, compared to 50 percent in the Los Angeles area and 66 percent in the San Francisco Bay Area.

Nevertheless, there are signs that some parts of the housing market are experiencing gains similar to the larger metropolitan areas in the state. To identify comparative price changes by submarket within the Central Valley, we compiled housing sale records for the June - August period for 1984, 1988 and 1989 from the DAMAR on-line system, which tracks residential single family

TABLE 12: CENTRAL VALLEY HOUSING STOCK GROWTH

COUNTY/ REGION	STOCK 1980	OCCUPIED 1980	STOCK 1989	OCCUPIED 1989	% CHANGE 80-89 STOCK	% CHANGE 80-89 OCCUPIED	VACANCY RATES 1980	VACANCY RATES 1989
NORTH SACRAMENTO VALLEY:								
Butte	61,360	56,904	75,726	70,076	23.4%	23.1%	7.3%	7.5%
Colusa	5,334	4,690	6,123	5,411	14.8%	15.4%	12.1%	11.6%
Glenn	8,425	7,707	9,755	8,873	15.8%	15.1%	8.5%	9.0%
Shasta	47,446	43,014	60,248	53,624	27.0%	24.7%	9.3%	11.0%
Sutter	20,425	18,809	23,779	22,150	16.4%	17.8%	7.9%	6.9%
Tehama	16,556	14,538	20,592	18,065	24.4%	24.3%	12.2%	12.3%
Yuba	19,248	17,504	22,087	19,978	14.7%	14.1%	9.1%	9.5%
TOTAL for Subregion:	178,794	163,166	218,310	198,177	22.1%	21.5%	8.7%	9.2%
SACRAMENTO AREA:								
Sacramento	323,702	299,805	406,945	383,958	25.7%	28.1%	7.4%	5.6%
Solano	84,270	80,426	112,223	109,027	33.2%	35.6%	4.6%	2.8%
Yolo	43,605	41,304	52,750	50,849	21.0%	23.1%	5.3%	3.6%
TOTAL for Subregion:	451,577	421,535	571,918	543,834	26.6%	29.0%	6.7%	4.9%
NORTH SAN JOAQUIN VALLEY:								
San Joaquin	136,001	124,626	165,014	154,087	21.3%	23.6%	8.4%	6.6%
Stanislaus	102,472	94,675	129,955	121,822	26.8%	28.7%	7.6%	6.3%
TOTAL for Subregion:	238,473	219,301	294,969	275,909	23.7%	25.8%	8.0%	6.5%
FOOTHILLS COUNTIES:								
El Dorado	44,987	32,505	58,842	45,176	30.8%	39.0%	27.7%	23.2%
Placer	54,014	42,732	73,233	59,968	35.6%	40.3%	20.9%	18.1%
Nevada	24,759	20,012	35,163	29,542	42.0%	47.6%	19.2%	16.0%
TOTAL for Subregion:	123,760	95,249	167,238	134,686	35.1%	41.4%	23.0%	19.5%
SOUTH SAN JOAQUIN VALLEY:								
Fresno	193,653	178,506	236,405	217,410	22.1%	21.8%	7.8%	8.0%
Kern	155,702	139,811	197,819	181,777	27.0%	30.0%	10.2%	8.1%
Kings	25,694	23,499	31,562	29,063	22.8%	23.7%	8.5%	7.9%
Madera	24,607	20,950	31,340	26,746	27.4%	27.7%	14.9%	14.7%
Merced	50,016	44,508	58,998	54,629	18.0%	22.7%	11.0%	7.4%
Tulare	88,744	80,646	104,581	95,954	17.8%	19.0%	9.1%	8.2%
TOTAL for Subregion:	538,416	487,920	660,705	605,579	22.7%	24.1%	9.4%	8.3%
Central Valley (CV)	1,531,020	1,387,171	1,913,140	1,758,185	25.0%	26.7%	9.4%	8.1%
California	9,279,049	8,629,893	10,966,024	10,286,146	18.2%	19.2%	7.0%	6.2%
CV as share of California	16.5%	16.1%	17.4%	17.1%				
San Francisco Bay Area*	1,977,053	1,890,113	2,216,277	2,135,149	12.1%	13.0%	4.4%	3.7%
Southern California	4,962,695	4,638,471	5,871,838	5,529,049	18.3%	19.2%	6.5%	5.8%

* Solano County appears in Sacramento Area figures rather than San Francisco Bay Area figures.

Source: California Department of Finance, Population and Housing Estimates, 1989.

TABLE 13: REGIONAL MEDIAN HOME PRICES

	1982	1984	1986	1988	August 1989
	--- Median Home Prices --- (Annual Average)				
HOME PRICES:					
Los Angeles Area	$120,109	$122,134	$136,359	$180,081	$229,618
San Francisco Bay Area	$124,027	$129,916	$161,150	$206,463	$272,016
Orange County	$134,455	$135,519	$149,803	$211,402	$247,641
Central Valley *	$72,972	$74,365	$77,065	$86,945	$98,659
Sacramento **	$76,292	$76,086	$87,377	$94,379	$116,967
STATE:	$109,218	$115,780	$130,648	$159,542	$201,028

YEARLY PERCENT CHANGE:	Yearly 1982-84	Yearly 1984-86	Yearly 1986-88	August 88-August 89
Los Angeles Area	0.8%	5.7%	14.9%	20.8%
San Francisco Bay Area	2.3%	11.4%	13.2%	23.0%
Orange County	0.4%	5.1%	18.8%	17.7%
Central Valley *	0.9%	1.8%	6.2%	9.7%
Sacramento **	-0.1%	7.2%	3.9%	15.1%
STATE:	3.0%	6.2%	10.5%	15.0%

REGIONAL HOME PRICES RELATIVE TO STATE:	1982	1984	1986	1988	August 1989
Los Angeles Area	1.10	1.05	1.04	1.13	1.14
San Francisco Bay Area	1.14	1.12	1.23	1.29	1.35
Orange County	1.23	1.17	1.15	1.33	1.23
Central Valley *	0.67	0.64	0.59	0.54	0.49
Sacramento **	0.70	0.66	0.67	0.59	0.58

* Central Valley includes Sacramento
** These prices are for April of each year, not yearly averages.

Source: California Real Estate Trends Newsletter, California Association of Realtors, various issues.

sales. The median home prices by city reported here are calculated from DAMAR records.[8] These median home price data indicate that experience varies widely among submarkets in the Central Valley. While California Association of Realtors reports indicate that price changes have averaged about 5 percent annually in the Central Valley over the past five years, annual rates of change have varied from less than 1 percent annually in Bakersfield (Kern County) to over 16 percent annually in Tracy (San Joaquin County). As is shown in Table 14, 1989 has been particularly strong for many Central Valley cities, with the rate of increase of home prices approaching rates experienced in coastal areas a year or two earlier. This trend is further confirmed by the most recent California Association of Realtors data, which show median home prices rising by 8 percent in the Central Valley and by 10 percent in the Sacramento subregion during the last half of 1989, a period when median home prices dropped 4 percent in the San Francisco Bay area and 2 percent in the Los Angeles area.[9]

Places with particularly strong price changes tend to be places that are experiencing new growth pressures. Tracy, Manteca, Modesto and Stockton are now drawing commuters from the San Francisco Bay Area, while towns in Placer County (Roseville and Auburn) have seen demand change as growth occurs in the number of employees commuting to Sacramento, in new service and manufacturing businesses within the county, and in retirement in-migration. The rapid change in housing prices in these areas reflects a significant change in the types of homes being built and sold, with newer homes, often larger and more expensive,

TABLE 14: MEDIAN SINGLE FAMILY HOME PRICES, 1984-1989
CENTRAL VALLEY AND SAN FRANCISCO BAY AREA CITIES

		Median Price			Annual Rate of Change	
CITY	COUNTY	1984	1988	1989	1984-89	1988-89
Auburn	Placer	$95,000	$122,500	$144,000	8.7%	17.6%
Bakersfield	Kern	$71,100	$79,000	$73,000	0.5%	-7.6%
Fresno	Fresno	$70,000	$77,250	$77,000	1.9%	-0.3%
Manteca	San Joaquin	$74,750	$89,000	$123,000	10.5%	38.2%
Modesto	Stanislaus	$61,000	$81,500	$107,000	11.9%	31.3%
Roseville	Placer	$79,900	$100,000	$164,000	15.5%	64.0%
Sacramento	Sacramento	$67,000	$79,750	$88,000	5.6%	10.3%
Stockton	San Joaquin	$66,000	$86,500	$102,750	9.3%	18.8%
Tracy	San Joaquin	$72,000	$118,000	$155,000	16.6%	31.4%

Source: CREUE estimates using DAMAR Real Estate Information Services data.

meeting the demands of the changing population base. This change in home value is reflected in the rising average value of permits per unit, especially in Foothills, Sacramento area, and north San Joaquin Valley counties, suggesting that recent construction has involved relatively more expensive homes (see Figure 17).

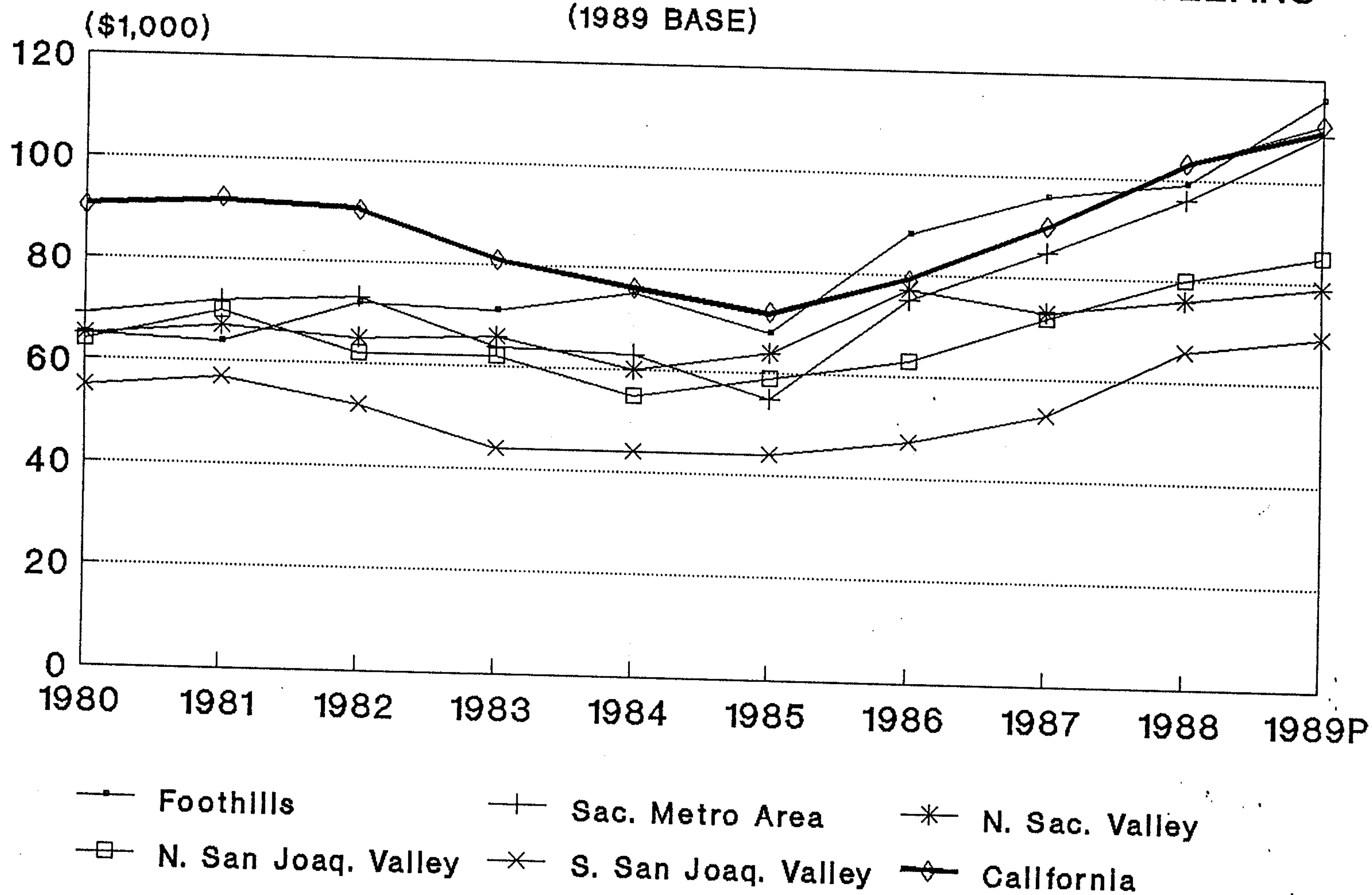
Housing vacancy figures also suggest that the affordable home advantage held by many Central Valley places could narrow in the future. While the Central Valley as a whole has had a far more rapid expansion in housing stock than coastal metropolitan California, even this portion of California has not kept up with the growth in demand. Most Central Valley counties have seen a drop in housing vacancy levels since 1980, as shown in Table 11. Counties in the Sacramento metropolitan area have housing vacancy rates similar to those of coastal areas, ranging from 2.8 percent in Solano County to 3.6 percent in Yolo and 5.6 percent in Sacramento County. Even less urban places with substantial vacation home capacity (and thus higher overall vacancy levels) are seeing a drop in vacancy levels. Foothill counties of El Dorado, Placer and Nevada had an average housing vacancy rate of 23 percent in 1980 (including vacation homes) but had dropped to 19.5 percent in 1989.

Central and southern San Joaquin Valley counties (counties south of Stanislaus) may prove an exception to some of these trends. Fresno and Bakersfield have experienced far more modest home price increases than in other parts of the state. This is consistent with their agriculture and natural resource based economies, which have been slower growing in recent years than the economies of Central Valley counties with more diversified

FIGURE 17

AVERAGE PERMIT VALUE PER UNIT, CONSTANT DOLLARS

(1989 BASE)



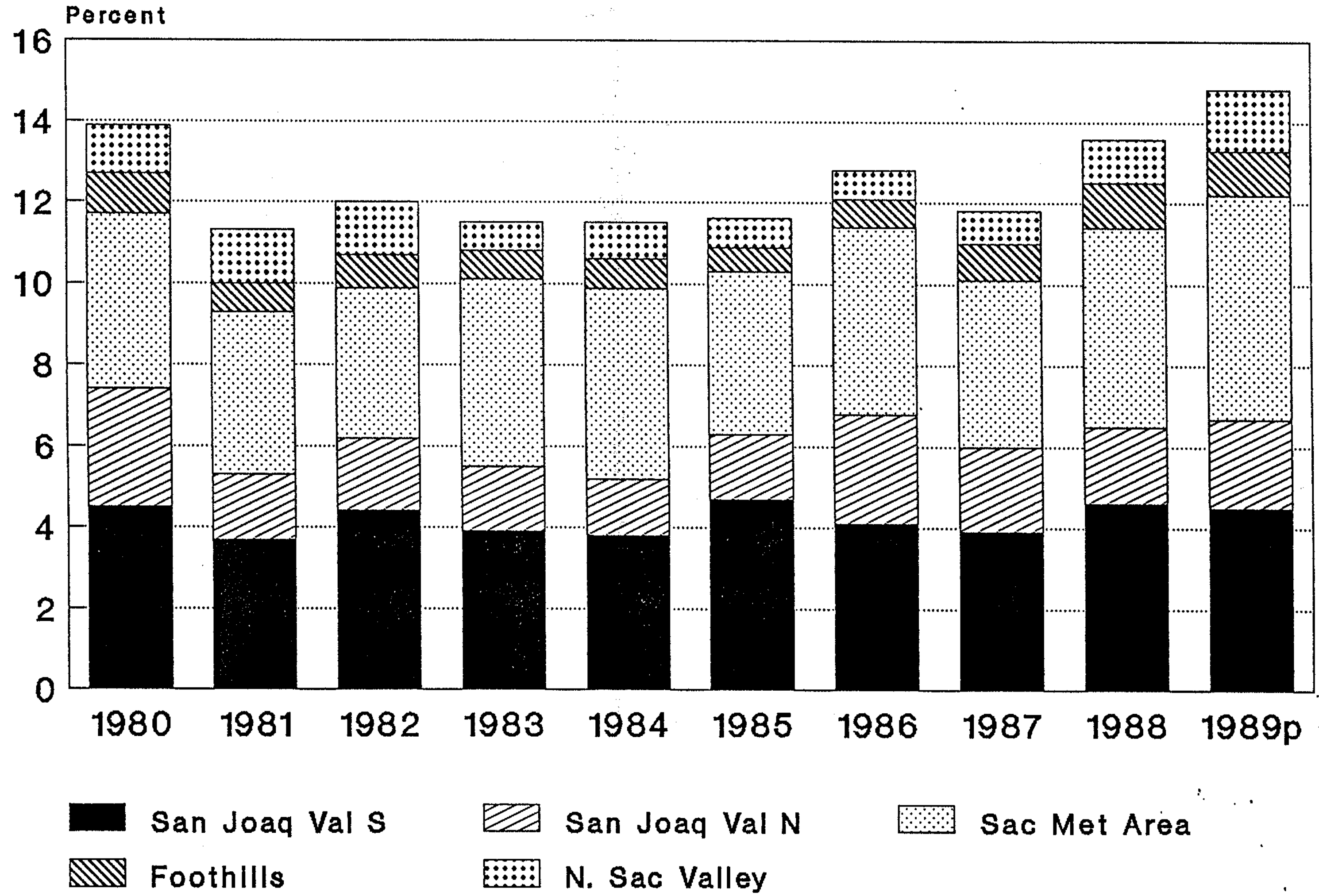
Source: CREUE from California Construction Trends industrial bases. In addition, most of these counties are too far from the state's larger metropolitan centers to experience housing demand pressures from commuter households. Nevertheless, southern San Joaquin counties are also experiencing dropping housing vacancy levels, suggesting that these areas are not immune to higher housing price increases in the future.

B. Nonresidential Construction Activity

While the Central Valley has far outpaced the state in household growth and housing construction, nonresidential building activity has expanded more slowly than statewide trends. Nonresidential building activity in the Central Valley accounted on average for about 12.5 percent of statewide nonresidential building permit activity in the 1980s (Figure 18), while the region accounted for 14.5 percent of employment and 14.7 percent of employment growth. The only area showing a consistently strong gain in share in recent years is the Sacramento metropolitan area, which also has had among the strongest employment growth regionwide.

With the exception of Sacramento, office markets in the Central Valley are relatively small and have not been carefully tracked historically. The Central Valley accounts for less than 10 percent of California's office stock, and 60 percent of Central Valley stock is found in the Sacramento metropolitan area (largely in Sacramento city and county). Vacancy rates averaged 17.8 percent in December 1988 for the major Central Valley markets, about a percentage point above the statewide average. Highest vacancy rates, at 27 percent, are found in Kern County, a result of expansionary building in the early 1980s when oil

FIGURE 18
CENTRAL VALLEY SHARES OF STATE NONRESIDENTIAL PERMIT VALUE



Source: California Construction Trends

prices were high.

Overall, office rents and industrial land prices are substantially lower in Central Valley places as compared to coastal markets. Prices also indicate significant differentials among places within the Central Valley. As shown in Figure 19, office rents in the Bakersfield and Fresno areas fall well within the lower end of office rent ranges in the San Francisco Bay Area and below the office rent range in the Los Angeles area. Office rents in Sacramento are significantly higher than in the San Joaquin Valley places, but top rents remain well below upper rent ranges in the coastal metropolitan areas.

Industrial lease rate information is available only for the Central Valley cities of Sacramento and Fresno. Price ranges in these two cities are quite close. They are significantly below prices in Bay Area counties and substantially below prices in the large Southern California markets (see Figure 20).

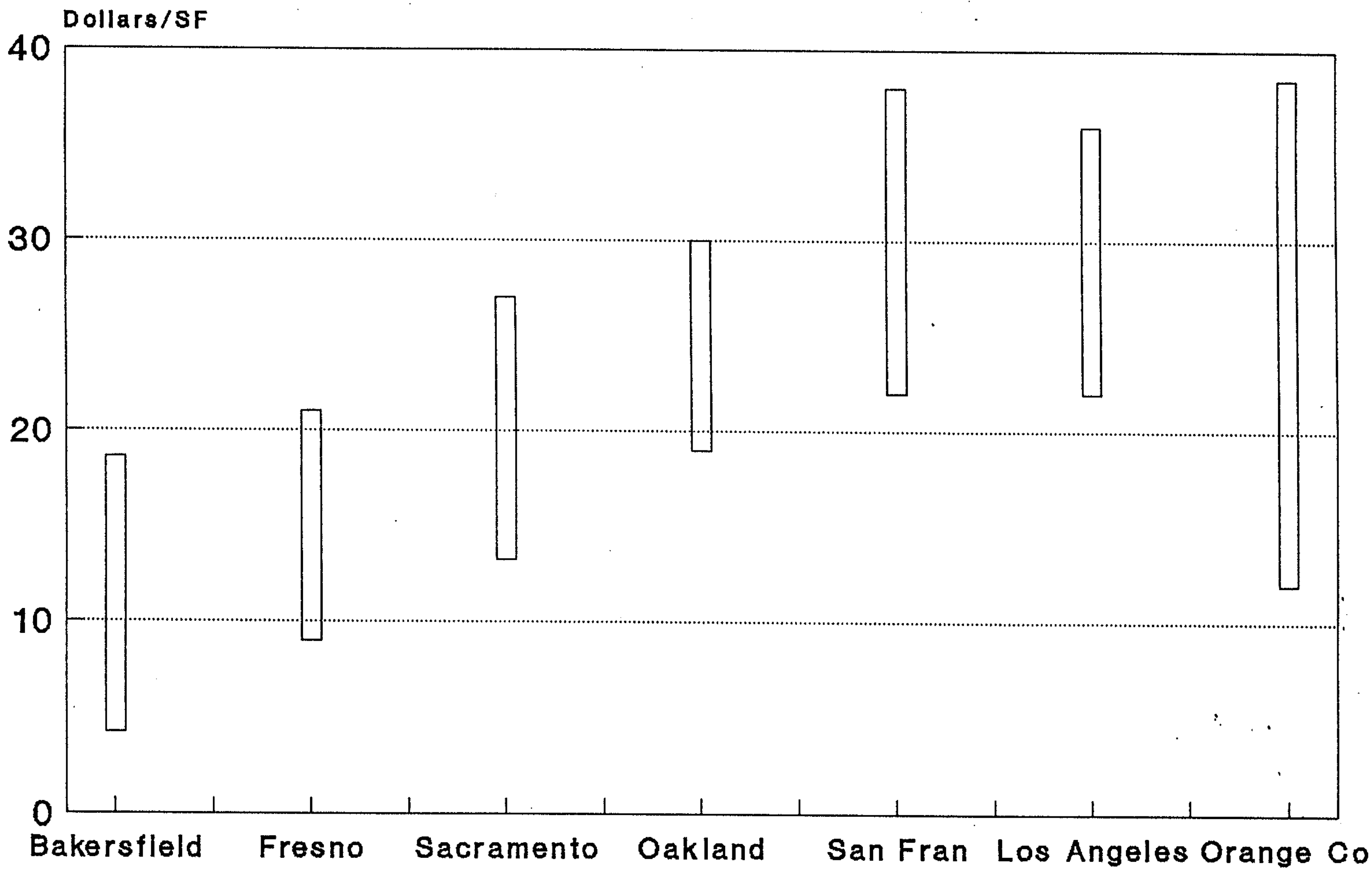
C. Directions in Residential Versus Nonresidential Building

Central Valley real estate prices are significantly below prices in the San Francisco Bay Area and Southern California. In addition, most Central Valley places are experiencing slower price rises than their coastal counterparts. Nevertheless, the experience of selected communities within the Central Valley illustrate the vulnerability of individual places to price increases as a result of growth pressures.

Presently, the growth pressures within the Central Valley appear uneven, both in terms of where pressures occur geographically and the types of pressure felt. The central and southern San Joaquin Valley is the area experiencing the least

FIGURE 19

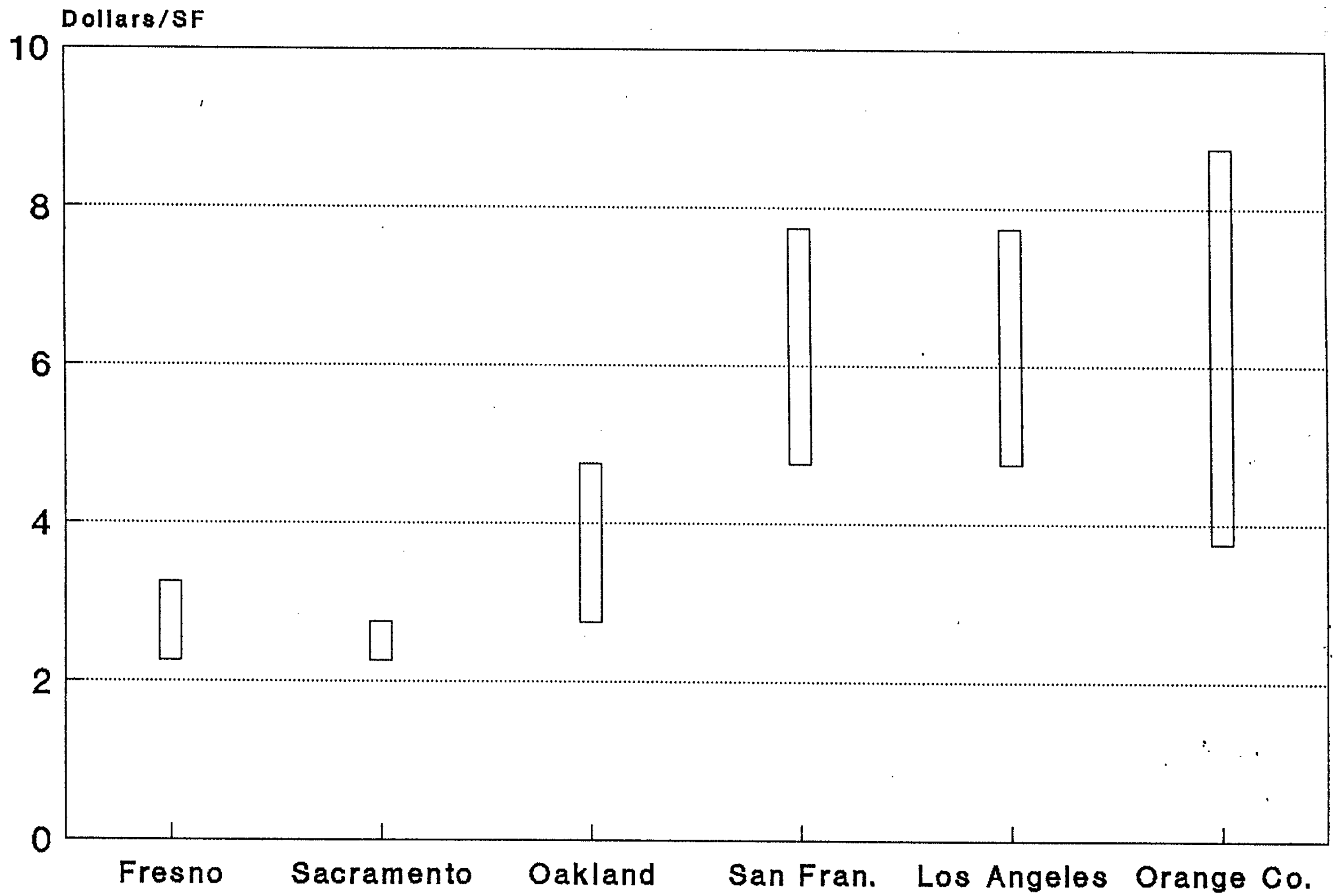
1989 YEARLY OFFICE RENT RANGES
CENTRAL VALLEY & COASTAL OFFICE MARKETS



Source: Grubb & Ellis, Tingey & Assoc.

FIGURE 20

INDUSTRIAL LEASE RATES (WHOLESALE/MANUFACTURING SPACE)
CENTRAL VALLEY AND COASTAL AREAS, 1989



Source: Grubb & Ellis, Market Trends, November 1989 amount of pressure on its real estate market. Housing prices have grown quite slowly, compared to other parts of the state, and industrial and office space prices are lower than in other parts of the state and are growing more slowly.

The northern San Joaquin Valley counties, in contrast, are experiencing strong pressures on their housing markets. At the same time, industrial land prices and office rents are not under strong market pressures. Businesses appear to be moving into the area at a much more modest pace than new home buyers.

The Sacramento metropolitan area, broadly defined, is experiencing both housing pressures and more active nonresidential markets, but still in different geographic locations. Housing pressures appear to be arising most strongly in Placer County, within the commute shed to Sacramento, while the stronger office and industrial markets are within Sacramento County.

VI. New and Expanding Firms in the Central Valley

Many of the changes that have occurred in the Central Valley are quite recent. Because of this, statistical data is not available to measure the degree of influence that various cost factors may be having on the economies of Central Valley counties. To further illustrate the effect that Central Valley labor and real estate characteristics may be having on firm expansion within and into the Central Valley, we conducted telephone interviews of economic development officials and representatives of firms recently locating in the region, to determine the factors most responsible for influencing their location decision. We chose economic development organizations and firms from only a portion of the Central Valley region, focussing particularly on counties that still have a significant employment base in agriculture. In addition, we excluded San Joaquin County, where extensive interviewing of firm owners, covering similar questions, had already been done quite recently.[10]

A. The Perspective of Economic Development Officials

We spoke with economic development officials from Butte, Colusa, Fresno, Glenn, Kern, Kings, Madera, Merced, Stanislaus, Sutter, Tulare, Yolo and Yuba counties. From these officials, five general types of factors emerged that appeared to be drawing new types of firms to the Central Valley.

1) **The cost and availability of labor** were frequently cited, with particular emphasis on unskilled and semi-skilled workers.

2) **Lower land cost and lease rates** were particularly important to distributors seeking to control costs while maintaining access to coastal markets.

3) The word **congestion** was used by a number of people to include a host of problems: high traffic levels, higher housing costs, longer commutes for employees, and higher turnover among employees (attributed to employees seeking work closer to home or in less congested areas).

4) Firms were also seeking **accessiblity to transportation networks**, and particularly to interstate highways, for distribution purposes.

5) The **political environment** was also seen as a factor.

Despite the presence of growth controls in a number of communities, the Central Valley is still perceived as lacking the activist growth control sentiments found in coastal areas. Firms locating or expanding in the Central Valley were seen as facing far fewer problems in land and labor force availability and in government requirements than arose in coastal areas.

Economic development officials reported new growth from several different sources. Some coastal firms have moved entire facilities to the Central Valley from other locations. Other coastal firms have established new branches in the Central Valley. Firms from outside of California have bypassed coastal areas to establish branches in the Central Valley.

Firms relocating or expanding from coastal areas were responding to one of two types of pressures. Many companies were prompted to move by the need to expand. Firms located in coastal areas are often unable to find space near their current facilities, leading them to consolidate operations or to establish additional facilities in the Central Valley. The need to cut costs prompted other firms to move. This was particularly a concern of smaller companies with lower profit margins. Of the firms moving in from out of state, these tended to be entering California seeking access to the statewide market or beyond.

Economic development officials see the Central Valley as drawing distributors and light industrial manufacturers primarily. Light industry included a wide range of producers from a rice cake manufacturer, to a company that handles school photos, to a number of printing companies. Retail companies were also mentioned as moving into the area, to serve the growing population base. The types of jobs being added by these new firms were primarily in the unskilled and semi-skilled areas. Some development officials expressed concern about pay rates and opportunities for advancement offered by firms moving to the area.

B. The Perspective of New Businesses

The economic development officials interviewed provided names of businesses that had recently located establishements in the Central Valley. Telephone interviews were completed with forty firms (out of an initial list of sixty). The firms interviewed were largely manufacturing firms (55 percent) and distribution firms (23 percent), as shown in Table 15. Of the firms interviewed, 16 were in the Sacramento Valley counties of Butte, Colusa, Glenn, Sutter, Yuba and Yolo, 7 were in the north and central San Joaquin Valley counties of Stanislaus, Merced and Madera, while 17 were in Fresno, Kern, Kings and Tulare counties. The great majority of firms were branch facilities (83 percent). Of the single location facilities, most were in the Sacramento Valley, while the largest firms were in the southern half of the San Joaquin Valley. About two-thirds of the labor force in the firms interviewed were low skilled or semi-skilled workers.

While this was not a random sample of firms, the firms chosen are representative of new firms in these counties. Characteristics of the firms interviewed differ substantially by area. The Sacramento Valley firms were smaller and were less likely to be tied to an outside headquarters. The north San Joaquin Valley firms had on average one fourth of their labor

TABLE 15: Characteristics of Firms Surveyed Regarding Their Move to the Central Valley

	REGION			TOTAL
	North	Central	South	For All Regions
INDUSTRY TYPE:				
Transportation	14%	29%	24%	23%
Food Processing	13%	14%	29%	20%
Manufacturing	31%	43%	35%	35%
Retail	6%	0%	0%	3%
FIRE	6%	14%	6%	8%
Other	25%	0%	6%	13%
STRUCTURE OF FIRM:				
Single Location	25%	14%	6%	15%
Branch	69%	86%	94%	83%
Headquarters	6%	0%	0%	3%
SKILL LEVEL OF EMPLOYEES:				
Non-skilled/Semi-skilled	53%	53%	54%	54%
Skilled Crafts	16%	8%	18%	15%
Clerical	6%	23%	11%	12%
Sales	11%	3%	4%	6%
Professional/Technical	4%	3%	1%	2%
Management	9%	10%	11%	10%

Source: Survey conducted by CREUE.

force in clerical occupations, compared to 12 percent for the full sample of firms. Southern San Joaquin Valley firms had twice the proportion of food processing firms compared to the other two areas, and these firms served the widest market area.

Most of the firms interviewed had come from coastal cities in California, but more than one fifth had come from out of state. The transportation and distribution firms were most likely to have located from out of state, while the manufacturing facilities other than food processing were most likely to have relocated from coastal California cities.

Cost factors feature prominently in the reasons firms were attracted to the Central Valley. Firms were drawn to the Central Valley because of its lower wages and lower land costs. The stability of the workforce and a receptive business climate were also mentioned as major advantages of the area.

Half of all firms mentioned lower wages as an important factor drawing them to the Central Valley (see Table 16), and almost forty percent mentioned the availability of labor. Land costs were important to more than one third of firms interviewed. In the northern San Joaquin Valley, the availability of labor and land costs were important to a larger number of firms than were labor costs, although most came from expensive coastal areas. In drawing further comments from firms who mentioned the availability or quality of labor as significant, the stability of the workforce and low turnover rates emerged as a benefit perceived by firms moving to the Central Valley.

California's growing market area was also a major draw for firms moving to the Central Valley. It was mentioned as

TABLE 16: Reasons for Move to the Central Valley Among Firms Surveyed

LABOR AND REAL ESTATE FACTORS:

	Lower Wages	Avail. of Labor	Type of Labor	Qual. of Labor	Land Costs	Land Avail.
REGION:						
North	44%	19%	0%	0%	13%	13%
Central	29%	43%	14%	29%	43%	14%
South	65%	53%	18%	35%	53%	12%
INDUSTRY:						
Transportation	44%	33%	11%	22%	22%	11%
Food Processing	25%	38%	13%	38%	38%	25%
Manufacturing	71%	43%	7%	7%	43%	7%
Retail, FIRE, & Other	44%	33%	11%	22%	33%	11%
SIZE:						
<50 Employees	45%	25%	10%	5%	25%	10%
50+ Employees	55%	50%	10%	35%	45%	15%
TOTAL FOR ALL FIRMS SURVEYED	50%	38%	10%	20%	35%	13%

OTHER FACTORS:

	Operating Costs	Transport. Routes	Less Congested	Housing Costs	Proximity Supplies	Proximity Markets	Govt. Assist.	Local Assist.	Other
REGION:									
North	13%	19%	6%	0%	13%	38%	25%	19%	19%
Central	29%	29%	0%	0%	14%	14%	0%	14%	57%
South	12%	35%	0%	6%	29%	47%	24%	35%	29%
INDUSTRY:									
Transportation	11%	67%	0%	11%	0%	56%	11%	22%	33%
Food Processing	38%	25%	0%	0%	75%	25%	38%	50%	13%
Manufacturing	14%	14%	0%	0%	7%	36%	14%	29%	29%
Retail, FIRE, & Other	0%	11%	11%	0%	11%	33%	22%	0%	44%
SIZE:									
<50 Employees	5%	20%	5%	5%	10%	40%	10%	20%	25%
50+ Employees	25%	35%	0%	0%	30%	35%	30%	30%	35%
TOTAL FOR ALL FIRMS SURVEYED	15%	28%	3%	3%	20%	38%	20%	25%	30%

Source: Survey conducted by CREUE.

important by more than half of all transportation and distribution firms and by half of all nonagricultural manufacturing firms.

While government financial assistance was mentioned by only one fifth of firms and other local assistance by one fourth of firms, the overall comparative ease of siting a facility in the Central Valley came through in the interviews. Lower costs--including land, labor and operating costs--drew many employers to consider the Central Valley in the first place. The comparative ease of establishing and running a business there contributed to the final location choice.

The interviews with development officials and firms indicate that a variety of forces are encouraging new firms to move to the Central Valley. "Push" factors lead some coastal firms to seek alternative sites for relocation or expansion. "Pull" factors, in the form of available land, a low cost or quality labor force, housing availability, and lower congestion draw firms to Central Valley sites. The expanding California and West Coast markets draw outside firms to the state, who find Central Valley sites a competitive alternative to the state's larger metropolitan areas.

VII. The Economic Future of the Central Valley

The future of the Central Valley will be shaped by two important and somewhat contradictory factors. First, agriculture remains a major base of the economy for much of the region and a major user of land. Even with rapid growth of other sectors, it will be decades, if ever, before agriculture is eclipsed as the major economic force in many Central Valley counties. Second, however, it is equally evident that there is substantial pressure for growth throughout the Central Valley, and that this pressure does not come from agriculture, but from other economic activities, ranging from manufacturing and service activities locating within the Central Valley to population spillover from larger nonagricultural metropolitan areas. These two very different elements will be manifested in different ways in each of the Central Valley subregions.

The two areas most heavily dependent on agriculture are the Northern Sacramento Valley and the Southern San Joaquin Valley. Their futures for the next decade or two are likely to be quite different, because of their difference in location and size. The Northern Sacramento Valley is likely to see the slowest transition away from agriculture and other primary production activities (mining, lumber) towards other types of economic activity. Population centers in the Northern Sacramento Valley are small enough that they are unlikely to attract major moves of firms from coastal California or out of state, although a few small relocations have occurred in the subregion, especially among owner-operated firms.

The Southern San Joaquin Valley, because it has a larger population base, will evolve quite differently than its counterpart in the Northern Sacramento Valley. The subregion's growth over the past decade has been slower than in the parts of the Central Valley that are less dependent on agriculture. Much of the growth that has occurred in the Southern San Joaquin Valley has been in businesses indirectly linked to agriculture or mining. Nevertheless, this area has also attracted a number of coastal firms, especially from Southern California. Agriculture is likely to continue to dominate the economy of this area for the rest of the 20th century, but in the long term, further nonagricultural metropolitan expansion seems likely for this part of the state.

The Northern San Joaquin Valley is the area most in transition at present. While still showing significant agricultural activity, San Joaquin and Stanislaus counties are clearly shifting gear, as they are drawn into the commute shed of the San Francisco Bay Area. It is in this part of the Central Valley that pressure for new construction activity will be strongest and that agricultural and nonagricultural uses are most likely to come into conflict.

The Foothills area is also in transition, although of a very different type. Historically largely a lumber and recreation-based economy, the area's recent growth has been from early retirement migration, from expansion of the Sacramento commute shed, and from the movement of Bay Area and Sacramento businesses. Because of the quality of life of the local communities and proximity to Sierra recreation areas, this portion of the Central Valley may attract the highest value-added (and highest wage) activities.

The Sacramento area has already made the transition away from agriculture to a much more diversified economic base. As a government center, this portion of the Central Valley has had the related business services to support an expanding mix of nonagricultural economic activities. It is likely to play an increasingly important role in coming decades as the business center for much of Central California.

While growth will offer economic opportunities for all segments of the Central Valley, it will not occur without conflict. Land use, water and transportation issues are likely to accompany any transitions from agriculture to other economic activities in the region. Competitition for water between agricultural and metropolitan consumers may be a particularly serious issue for the San Joaquin Valley, where much of the water going to agriculture is subsidized. Transportation issues are arising most sharply in the Sacramento and Northern San Joaquin areas, where the demands on road use have increased sharply over the past decade. Throughout the Central Valley, the question of the conversion of agriculture land to nonagricultural uses continues to arise and will be a major matter of policy debate as the region undergoes further changes.

Footnotes

1. This paper was produced as part of a larger effort funded by the Agricultural Issues Center at the University of California at Davis. The study covers 21 counties, including those in the north Sacramento Valley (Butte, Colusa, Glenn, Shasta, Sutter, Tehama and Yuba), a few Foothill counties (El Dorado, Nevada and Placer), Sacramento area counties (Sacramento, Solano and Yolo), North San Joaquin Valley counties (San Joaquin and Stanislas), and Central and South San Joaquin counties (Fresno, Kern, Kings, Madera, Merced, and Tulare). A few of these counties are economically linked more closely with other areas (especially Solano County with the San Francisco Bay Area). However, because they remain tied to the Central Valley with respect to agricultural land uses, they are included in this discussion.

2. An industry is part of a county's export base if a portion of its output is produced for export to other areas rather than for local consumption.

3. The equation for computing a location quotient for a county or region relative to the state of California is as follows:

$$\text{LQ (County j, Industry i)} = \frac{\text{Employment (j, i)}}{\text{Total Employment (j)}} \bigg/ \frac{\text{California Employment (i)}}{\text{Total California Employment}}$$

4. We used a California based location quotient to examine the major economic sectors because a consistent set of employment data was available through 1988 at this level of detail. We use 1986 U.S. based location quotients to look at the more detailed level within manufacturing employment because this level of detail is not available for more recent years from the California data base used.

5. This trend is described in Denis Dunham, <u>Food Cost Review, 1988</u>, U.S. Department of Agriculture, Economic Research Service, Agricultural Economic Report No. 615.

6. See, for example, Cynthia A. Kroll and Elizabeth W. Morris, "Economic Conditions and Forces of Change in San Joaquin County," Working Paper 88-147, Center for Real Estate and Urban Economics, University of California at Berkeley, September 1988.

7. A sudden shift in ranking, such as that shown for Los Angeles janitorial wages, of course raises questions about the comparability of data from one area to the next. For this

reason, we also sought other data sources, such as the California Industrial Labor Relations Board.

8. DAMAR is an on-line real estate information network which supplies data on a local, regional and national level. Its major sources of information are public records of county offices, data submitted by customers, data collected by DAMAR field staff, and information from published sources.

9. For a more detailed discussion of California home price changes and the affordability effect on Central Valley markets see Cynthia Kroll and Kenneth Rosen, "California's Housing Market: Which Direction in 1990?" Quarterly Report, Center for Real Estate and Urban Economics, University of California, Berkeley, 1990:1.

10. See Kroll and Morris, <u>op. cit.</u>

APPENDIX A

AGRICULTURAL ACREAGE IN CENTRAL VALLEY COUNTIES, BY TYPE OF CROP

1970-1989

TABLE A-1: CENTRAL VALLEY COUNTIES--AGRICULTURAL ACREAGE, 1970-1989

SUBREGION; COUNTY Commodity Group	HARVESTED/BEARING ACREAGE 1970	1975	1980	1985	1989 [*1988]	Percent Change 70-89
NORTHERN SACRAMENTO VALLEY SUBREGION						
SHASTA COUNTY						
Field Crops	24,360	42,863	44,200	42,520	34,940	43.4
Vegetable Crops	595	NA	NA	NA	NA	NA
Fruit & Nut Crops	1,876	1,638	2,292	2,900	2,545	35.7
Seed Crops	NA	NA	NA	NA	NA	NA
Nursery Products	477	648	862	668	480	0.6
Pasture & Range *	438,304	460,000	460,000	458,000	460,000	4.9
Totals	465,612	505,149	507,354	504,088	497,965	6.9
TEHAMA COUNTY						
Field Crops	28,785	36,970	45,760	29,640	19,680	-31.6
Vegetable Crops	135	300	455	470	22	-83.7
Fruit & Nut Crops	17,894	23,909	29,682	27,985	30,940	72.9
Seed Crops	2,830	4,765	4,440	2,020	1,405	-50.4
Nursery Products	151	179	NA	NA	NA	NA
Pasture & Range *	1,038,200	1,021,000	1,012,900	966,600	959,200	-7.6
Totals	1,087,995	1,087,123	1,093,237	1,026,715	1,011,247	-7.1
BUTTE COUNTY						
Field Crops	131,910	169,530	176,400	121,300	117,630	-10.8
Vegetable Crops	1,856	1,965	1,100	1,084	1,202	-35.2
Fruit & Nut Crops	42,915	51,586	60,630	65,621	69,292	61.5
Seed Crops	15,180	14,465	17,500	11,017	9,120	-39.9
Nursery Products	24	34	49	77	52	116.7
Pasture & Range *	350,000	348,800	314,800	309,700	290,200	-17.1
Totals	541,885	586,380	570,479	508,799	487,496	-10
GLENN COUNTY						
Field Crops	141,420	153,311	189,609	153,900	151,776	7.3
Vegetable Crops	225	1,000	NA	NA	NA	NA
Fruit & Nut Crops	15,167	19,571	22,253	26,222	31,997	111
Seed Crops	5,460	4,947	10,241	18,676	15,832	190
Nursery Products	130	178	NA	NA	398	206.2
Pasture & Range	311,000	312,000	262,600	259,500	256,575	-17.5
Totals	473,402	491,007	484,703	458,298	456,578	-3.6
COLUSA COUNTY [*1988]						
Field Crops	198,250	230,200	247,400	180,970	176,500	-11
Vegetable Crops	3,300	9,530	6,060	12,100	13,915	321.7
Fruit & Nut Crops	17,600	22,300	25,750	26,400	27,320	55.2
Seed Crops	2,780	9,800	12,400	13,285	23,987	762.8
Nursery Products	NA	NA	NA	NA	NA	NA
Pasture & Range *	212,000	212,000	204,000	203,000	202,600	-4.4
Totals	433,930	483,830	495,610	435,755	444,322	2.4
SUTTER COUNTY						
Field Crops	186,500	233,008	246,575	220,930	144,880	-22.3
Vegetable Crops	9,305	28,272	25,438	21,944	22,313	139.8
Fruit & Nut Crops	46,495	45,814	46,144	46,606	46,955	1
Seed Crops	9,334	21,707	20,636	22,810	14,636	56.8
Nursery Products	110	185	211	215	209	90
Pasture & Range *	92,000	74,000	74,000	71,500	71,500	-22.3
Totals	343,744	402,986	413,004	384,005	300,493	-12.6

TABLE A-1: CENTRAL VALLEY COUNTIES--AGRICULTURAL ACREAGE, 1970-1989

SUBREGION; COUNTY Commodity Group	HARVESTED/BEARING ACREAGE 1970	1975	1980	1985	1989 [*1988]	Percent Change 70-89
YUBA COUNTY [*1988]						
Field Crops	26,842	43,582	50,339	37,500	34,146	27.2
Vegetable Crops	1,004	887	1,158	1,625	1,646	63.9
Fruit & Nut Crops	19,011	21,450	20,829	24,373	24,377	28.2
Seed Crops	1,282	2,805	384	NA	175	-86.3
Nursery Products	NA	NA	NA	NA	NA	NA
Pasture & Range *	221,000	221,000	211,000	210,000	209,512	-5.2
Totals	269,139	289,724	283,710	273,498	269,856	0.3
FOOTHILL COUNTIES SUBREGION						
NEVADA COUNTY						
Field Crops	0	0	0	0	0	0
Vegetable Crops	NA	NA	NA	NA	NA	NA
Fruit & Nut Crops	208	101	83	83	73	-64.9
Seed Crops	0	0	0	0	0	0
Nursery Products	NA	NA	NA	NA	NA	NA
Pasture & Range *	138,000	138,540	128,300	124,500	102,180	-26
Totals	138,208	138,641	128,383	124,583	102,253	-26
PLACER COUNTY						
Field Crops	26,274	39,685	37,645	21,700	21,000	-20.1
Vegetable Crops	0	NA	NA	NA	0	0
Fruit & Nut Crops	4,766	3,196	2,851	2,002	2,216	-53.5
Seed Crops	1,636	NA	NA	NA	NA	NA
Nursery Products	278	NA	NA	NA	NA	NA
Pasture & Range *	263,900	259,400	246,800	244,800	231,900	-12.1
Totals	296,854	302,281	287,296	268,502	255,116	-14.1
EL DORADO COUNTY						
Field Crops	5,500	4,000	2,000	1,300	650	-88.2
Vegetable Crops	16	24	33	33	95	493.8
Fruit & Nut Crops	3,246	3,373	2,959	3,021	2,839	-12.5
Seed Crops	NA	NA	NA	NA	NA	NA
Nursery Products	26	36	31	42	66	153.8
Pasture & Range *	505,240	255,700	254,500	254,750	249,300	-50.7
Totals	514,028	263,133	259,523	259,146	252,950	-50.8
SACRAMENTO METROPOLITAN AREA SUBREGION						
YOLO COUNTY [*1988]						
Field Crops	316,680	283,275	264,948	247,749	211,757	-33.1
Vegetable Crops	36,270	56,575	52,785	48,917	48,333	33.3
Fruit & Nut Crops	19,290	21,570	19,837	18,990	18,979	-1.6
Seed Crops	NA	NA	13,964	12,374	15,653	NA
Nursery Products	NA	NA	263	275	358	NA
Pasture & Range *	255,000	268,000	197,000	153,000	149,000	-41.6
Totals	627,240	629,420	548,797	481,305	444,080	-29.2
SACRAMENTO COUNTY						
Field Crops	170,600	145,570	182,530	123,710	93,580	-45.1
Vegetable Crops	10,512	10,070	9,727	7,170	10,770	2.5
Fruit & Nut Crops	6,919	8,205	10,800	11,205	11,780	70.3
Seed Crops	12,225	10,910	10,130	8,350	10,310	-15.7
Nursery Products	118	317	670	640	1,115	844.9
Pasture & Range *	214,600	209,000	161,000	128,000	125,000	-41.8
Totals	414,974	384,072	374,857	279,075	252,555	-39.1

TABLE A-1: CENTRAL VALLEY COUNTIES--AGRICULTURAL ACREAGE, 1970-1989

SUBREGION; COUNTY Commodity Group	1970	HARVESTED/BEARING ACREAGE 1975	1980	1985	1989 [*1988]	Percent Change 70-89
SOLANO COUNTY						
Field Crops	127,930	120,976	151,461	170,405	167,070	30.6
Vegetable Crops	13,907	22,991	19,419	21,050	20,485	47.3
Fruit & Nut Crops	18,624	16,304	13,609	13,342	11,858	-36.3
Seed Crops	3,110	2,162	9,428	7,564	12,405	298.9
Nursery Products	NA	NA	NA	NA	NA	NA
Pasture & Range *	174,900	174,700	172,200	167,000	164,300	-6.1
Totals	338,471	337,133	366,117	379,361	376,118	11.1
NORTHERN SAN JOAQUIN VALLEY SUBREGION						
SAN JOAQUIN COUNTY						
Field Crops	300,353	351,243	319,000	313,000	311,000	3.5
Vegetable Crops	76,904	76,798	57,097	63,600	68,000	-11.6
Fruit & Nut Crops	106,431	114,541	125,648	132,000	126,000	18.4
Seed Crops	14,272	13,269	9,427	8,510	6,170	-56.8
Nursery Products	63	NA	NA	NA	NA	NA
Pasture & Range *	340,150	342,000	237,000	169,000	166,000	-51.2
Totals	838,173	897,851	748,172	686,110	677,170	-19.2
STANISLAUS COUNTY [*1988]						
Field Crops	169,240	156,740	175,450	166,390	159,473	-5.8
Vegetable Crops	38,293	40,680	34,210	43,603	45,284	18.3
Fruit & Nut Crops	83,200	102,848	114,007	121,899	129,351	55.5
Seed Crops	4,057	1,390	5,600	5,025	2,361	-41.8
Nursery Products	550	483	777	734	887	61.3
Pasture & Range *	484,060	448,500	445,500	444,500	444,500	-8.2
Totals	779,400	750,641	775,544	782,151	781,856	0.3
CENTRAL/SOUTHERN SAN JOAQUIN VALLEY SUBREGION						
MERCED COUNTY						
Field Crops	301,068	245,248	286,037	273,483	293,208	-2.6
Vegetable Crops	26,500	28,777	29,088	34,954	38,346	44.7
Fruit & Nut Crops	58,407	76,560	81,078	95,831	107,033	83.3
Seed Crops	2,318	5,244	5,555	4,218	4,564	96.9
Nursery Products	445	686	676	461	631	41.8
Pasture & Range *	873,525	834,700	665,000	641,000	640,000	-26.7
Totals	1,262,263	1,191,215	1,067,434	1,049,947	1,083,782	-14.1
MADERA COUNTY						
Field Crops	176,150	186,000	212,000	164,200	156,990	-10.9
Vegetable Crops	3,260	1,670	4,100	843	1,523	-53.3
Fruit & Nut Crops	49,397	67,578	97,713	138,090	151,658	207
Seed Crops	1,800	955	500	1,400	950	-47.2
Nursery Products	150	80	275	215	170	13.3
Pasture & Range *	525,600	515,000	438,000	427,500	414,000	-21.2
Totals	756,357	771,283	752,588	732,248	725,291	-4.1
FRESNO COUNTY						
Field Crops	763,398	798,000	825,470	808,497	580,400	-24
Vegetable Crops	52,183	122,000	93,944	154,950	188,235	260.7
Fruit & Nut Crops	227,540	247,094	280,271	322,153	315,986	38.9
Seed Crops	115,213	52,600	66,359	60,550	73,310	-36.4
Nursery Products	34	349	261	274	456	1241.2
Pasture & Range *	1,385,000	1,340,000	1,040,000	950,000	950,000	-31.4
Totals	2,543,368	2,560,043	2,306,305	2,296,424	2,108,387	-17.1

TABLE A-1: CENTRAL VALLEY COUNTIES--AGRICULTURAL ACREAGE, 1970-1989

SUBREGION; COUNTY Commodity Group	HARVESTED/BEARING ACREAGE 1970	1975	1980	1985	1989 [*1988]	Percent Change 70-89
TULARE COUNTY						
Field Crops	401,845	461,455	489,003	423,251	411,500	2.4
Vegetable Crops	6,598	7,186	9,111	8,346	8,156	23.6
Fruit & Nut Crops	183,690	265,316	229,031	249,709	230,213	25.3
Seed Crops	559	1,109	4,116	10,497	7,932	1319
Nursery Products	NA	NA	NA	NA	NA	NA
Pasture & Range *	927,400	918,720	920,500	843,000	709,500	-23.5
Totals	1,520,092	1,653,786	1,651,761	1,534,803	1,367,301	-10.1
KINGS COUNTY						
Field Crops	399,285	538,900	533,836	420,189	421,468	5.6
Vegetable Crops	3,898	7,248	8,186	10,373	10,439	167.8
Fruit & Nut Crops	9,570	14,676	20,669	24,227	24,410	155.1
Seed Crops	11,845	31,382	31,990	41,831	39,867	236.6
Nursery Products	NA	NA	NA	NA	NA	NA
Pasture & Range *	388,000	305,100	275,000	227,000	211,500	-45.5
Totals	812,598	897,306	869,687	723,670	707,684	-12.9
KERN COUNTY						
Field Crops	558,068	614,285	639,030	515,560	509,834	-8.6
Vegetable Crops	68,856	85,238	68,591	69,784	95,422	38.6
Fruit & Nut Crops	51,976	121,528	187,525	213,171	211,980	307.8
Seed Crops	13,940	5,678	4,359	15,750	22,199	59.2
Nursery Products	1,741	1,620	2,309	2,509	3,487	100.3
Pasture & Range *	2,748,000	2,573,000	2,012,100	2,299,200	2,299,135	-16.3
Totals	3,442,581	3,401,349	2,913,914	3,115,974	3,142,057	-8.7

* May include minor amounts of crop stubble acreage, thereby duplicating some field crop acreage.

Source: California County Agricultural Commissioners' Annual Reports, 1970-1989.