

# UC Berkeley

## Fisher Center Working Papers

**Title**

Metropolitan Spillover and California's Central Valley

**Permalink**

<https://escholarship.org/uc/item/16z688t9>

**Author**

Kroll, Cynthia A.

**Publication Date**

1985-12-01

Peer reviewed



Institute of  
Business and  
Economic Research

University of  
California,  
Berkeley

---

**CENTER FOR REAL ESTATE  
AND URBAN ECONOMICS  
WORKING PAPER SERIES**

WORKING PAPER 85-106

METROPOLITAN SPILLOVER AND  
CALIFORNIA'S CENTRAL VALLEY

BY

CYNTHIA A. KROLL

These papers are preliminary  
in nature; their purpose is  
to stimulate discussion and  
comment. Therefore, they  
are not to be cited or quoted  
in any publication without  
the express permission of  
the author.

---

GRADUATE SCHOOL OF BUSINESS ADMINISTRATION

**CENTER FOR REAL ESTATE AND URBAN ECONOMICS  
UNIVERSITY OF CALIFORNIA, BERKELEY**

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

**INSTITUTE OF BUSINESS AND ECONOMIC RESEARCH  
J. W. Garbarino, Director**

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

METROPOLITAN SPILLOVER AND CALIFORNIA'S CENTRAL VALLEY

By

Cynthia A. Kroll  
Regional Economist  
Center for Real Estate and Urban Economics  
University of California, Berkeley

Working Paper 85-106

December 1985

Carlos Villalva, research assistant at the Center for Real Estate and Urban Economics in Spring and Fall 1984, gathered and aggregated much of the data presented in this study. He also participated in the early stages of data analysis and provided helpful comments on drafts of this paper.

# METROPOLITAN SPILLOVER AND CALIFORNIA'S CENTRAL VALLEY

## ABSTRACT

This paper examines economic trends in California's Central Valley in the context of statewide economic growth. The study examines the hypothesis that the spillover of manufacturing and office-based activity from coastal metropolitan regions is leading to a transformation in the economies of many Central Valley cities, leading to greater diversification and less reliance on agriculture.

Detailed analysis of employment, income and building trends indicates that metropolitan spillover has widely varying effects among subregions of the Central Valley. The northern half, the Sacramento Valley, historically has been much less reliant on agriculture than the San Joaquin Valley to the south, and shows evidence of a continuing shift away from an agricultural base. The San Joaquin Valley remains heavily reliant on agriculture, and even diversifying industries, such as new banking activities, are closely linked to agriculture.

Building activity in the Central Valley further emphasizes the differences between the northern and southern parts of the region. The region's share of statewide housing unit permits has not changed significantly over the past decade, despite having a somewhat faster growing population. The San Joaquin Valley has had a decreasing share of California's commercial and industrial building permits, while the Sacramento Valley's share of commercial permits has remained stable and its share of industrial permits has been rising since 1977.

The study concludes that coastal metropolitan spillover plays a quite limited role in the changing economy of the Central Valley. The research instead suggests that diversified industries already in the valley and the strength of California agriculture are major elements contributing to the region's growth. Where coastal growth does appear to affect pockets of the Central Valley, this has occurred because of the particular area's proximity to the state's largest metropolitan areas.

## METROPOLITAN SPILLOVER AND CALIFORNIA'S CENTRAL VALLEY

### Introduction

Recent growth issues in California have focused new attention on California's Central Valley as a site for expanding economic activity and new real estate opportunities. In the 1970s, development opportunities tightened considerably in California's coastal metropolitan areas -- from San Diego to the San Francisco Bay Area. Environmental concerns and land use controls made the development process a lengthy one in many coastal locations. In addition, severe limitations on property tax increases in conjunction with local growth control measures and an economic recession in the early 1980s led to a slower rate of housing construction at higher costs.

As a result of these trends, a commonly held concern is that companies will be unable to expand in their present locations and individuals will be unable to afford homes in Southern California or the San Francisco Bay Area, forcing relocations away from California's large metropolises. One possible site for the overflow from these areas is the Central Valley. The expectation of such an overflow has led to predictions that the Central Valley economy may transform from an economy based on agriculture, minerals and government activity, to a broader based economy with a growing nonagricultural manufacturing base and increasing numbers of backroom service operations, such as data processing.

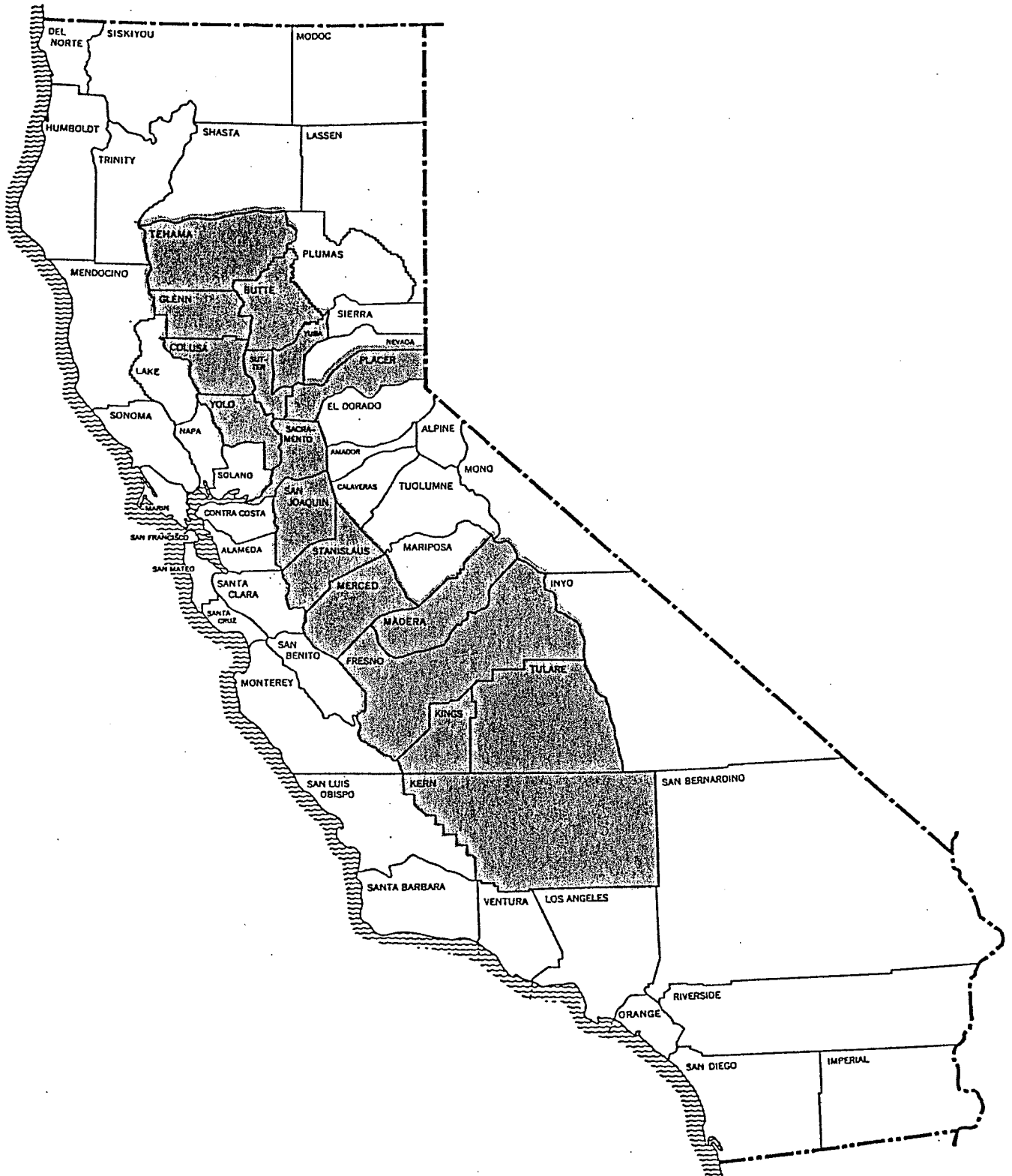
This paper examines recent trends in Central Valley counties to determine whether evidence exists of such a transformation, and, if so, what activities dominate new growth, what is the source of the transforming economy, and what are the implications for future development in the Central Valley.

## I. A Definition of the Central Valley

The portion of California commonly referred to as the Central Valley is a stretch of prime agricultural land running through the center of the state for half its length. It is bordered on the west by the coastal range, on the east by the Sierra foothills, to the south by Los Angeles and Ventura Counties, and by timber-based counties to the north. As referred to in this paper, the "Central Valley" consists of 17 of California's 58 counties, a region with one-fourth of the state's land area and about 15 percent of its population. This definition of the Central Valley does not include the northernmost counties whose primary economic base is timber production, and some foothill counties with primarily timber and recreation bases.

The study divides the Central Valley geographically into two subregions. The Sacramento Valley includes Butte, Colusa, Glenn, Placer, Sacramento, Sutter, Tehama, Yolo and Yuba counties. The San Joaquin Valley includes Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare counties (see Figure 1).

FIGURE 1: COUNTIES IN CALIFORNIA'S CENTRAL VALLEY





## II. A Context for Change: Transformations in California's Economy

The introduction briefly touches on some of the factors that may be pushing new types of growth into the Central Valley. At least four important trends have occurred in California's economy over the past decade that impact the state differentially, but significantly, from Southern California and San Francisco to the Central Valley. These include the pressure for growth from high technology companies, deindustrialization in other manufacturing sectors, reverse migration out of urban areas, and the spatial division of the production process.

### 1) High Tech Growth

Despite a recent downturn, the electronics sector and other high technology activities (e.g. optics) have led the way in manufacturing growth in California in the past decade. Although originally viewed as a "clean" industry, these activities have come to place severe development pressures on many parts of the coastal region. While much of the regional research on this activity has focused on the impacts to specific geographic areas,<sup>1</sup> the popular press has also focused on the impacts this activity has on the growth options of high tech companies. Firms expanding in this sector face the question of where they can locate new branches or subdivisions of their operations. The Central Valley offers some advantages over coastal sites, including developable land (with geologic and ease of assembly advantages over many coastal areas) and lower cost housing.

## 2) Deindustrialization

Although California is characterized as a sunbelt state, it has experienced "deindustrialization," or more generally a problem of lagging employment growth, in many of its older heavy industries.<sup>2</sup> The changing structure of manufacturing activity in California affects both coastal and central metropolitan regions. A State of California study identifying slow growing and declining industries indicated that industries dominant in the Central Valley, in particular lumber and food processing, were expected to lag behind average employment growth for manufacturers for the state as a whole.<sup>3</sup>

## 3) Urban to Rural Migration

A third transformation affecting California and other parts of the United States is reverse migration, movement from urban to rural parts of the state. Population in most Central Valley counties grew more rapidly than California's coastal metropolitan areas in the 1970s, and neighboring foothill counties, primarily rural, were among the most rapidly growing parts of the state.<sup>4</sup> Research on characteristics of this movement indicate that the incoming population consists of highly educated, professionally trained people, perhaps changing the character of the region's labor force.

## 4) Changing Corporate Structure and Specialization of Cities

Work by Noyelle and Stanback describes how the increasing concentration of economic activity in a smaller number of corporations and technological changes in transportation, communications, and the production process, are allowing the

division of economic activities among places. Corporate administrative activities are concentrating in the largest urban areas, and manufacturing production and routine tasks in service activities are shifting to off-centered locations.<sup>5</sup> Within the typologies these authors develop, Central Valley SMSAs have a range of non-headquarters specializations.

These nationwide and statewide transformations raise questions about the future direction of growth in California's Central Valley. One frequently mentioned vision is that the region will become increasingly urbanized, developing into a multi-centered metropolitan region of major importance. The region would diversify from an economy based primarily on agriculture and mining to one offering alternative locations to firms facing barriers to expansion in the coastal metropolitan areas. The major force behind this growth would be the spillover of both manufacturing and nonmanufacturing activities from the "overburdened" coastal metropolitan areas, such as San Francisco, Oakland, San Jose, Los Angeles, and Orange County.

### III. Urban Theory, Filtering, and the Central Valley

The vision described above of what may happen to the Central Valley most closely resembles earlier theories of filtering and innovation.<sup>6</sup> The "stage of life" of a firm or an industry determines where it is likely to be located within the urban hierarchy. The theory postulates that innovative activities first emerge in large urban centers. As an industry matures and goes into more routine production, the agglomeration economies

offered by the major metropolitan area (e.g. Los Angeles, San Jose) become less important, and competition makes cost considerations more important. Smaller metropolitan areas and even rural areas may then become attractive sites for a company or for a branch operation. Central Valley counties in general fit the profile of places well situated to receive this type of filtering.

However, more recent work in a number of different contexts indicates that filtering may occur quite differentially, and that many seemingly appropriate sites may be skipped in a leapfrogging process, where firms select new sites based on a limited set of selection factors. Companies expanding outside of their original growth area try to replicate as far as possible the good conditions offered by their incubation spaces (e.g. for high tech--university setting, good climate, schools and cultural opportunities) while avoiding the major problems (high housing prices, high wages for production staff, traffic congestion). In addition, they may try to diversify their locational settings, looking beyond California, and "leapfrogging" opportunities within the state.<sup>7</sup>

A second variation on filtering may occur where transportation and communications linkages are of great importance to the coastal industries looking for new sites. In such a case, filtering to a major region such as the Central Valley is likely to vary depending on ease of access to major activity centers (e.g. driving distance to San Jose or Los Angeles) as well as on the internal characteristics of the communities.

In the course of this research, several specific hypotheses were investigated to determine the extent to which the Central Valley economy has been affected by filtering and by the specific transformations described above:

- a) The impact of urban transformation on Central Valley agriculture: If urbanization is spreading from metropolitan California to the Central Valley, agriculture would show a decline in importance in Central Valley county economies. Measures of the importance of agriculture would include the growth rate of agricultural employment, the level of agricultural income, and the share of the manufacturing base related to agriculture.
- b) Filtering high tech employment: The Central Valley's share of growing manufacturing sectors should be increasing. In particular, the Central Valley can be expected to have gained an increasing share of California's electronics manufacturing activity between 1974 and 1984.
- c) Routinized nonmanufacturing activity: New employer moves into the Central Valley would be expected to include large "back office" clerical and data processing activities.
- d) Building activity: As the Central Valley becomes the "preferred" location for expanding firms, building permit activity should increase in the region relative to other parts of the state.

- e) Income effects: Urbanization of an agriculturally based region often brings an increase in income levels relative to statewide averages.

The following discussion of the Central Valley is organized to focus on these five major changes. After a description of recent population growth, to set the context for examining economic change in the region, discussion focuses on changes to agriculture, manufacturing employment, trade and services, and building activity. The consequences for income levels are then addressed. In conclusion, evidence provided by these changes is evaluated to refine our understanding of how filtering occurs from major metropolitan centers to smaller centers with a stronger agricultural focus.

#### IV. Central California Boom in the 1970s and 1980s

Metropolitanization of the Central Valley was first hypothesized because of the region's rate of population growth in the 1970s. Over the past decade (from 1974 through 1984) population in the Central Valley grew by close to 30 percent, while California's population grew by only 20 percent. Even the largest counties had relatively strong growth (Sacramento - 25.7 percent, Fresno - 27 percent, Kern - 30 percent, San Joaquin - 31 percent), while some of the smaller counties grew by close to 50 percent (Madera - 52.8 percent, Placer - 46.7 percent). Nevertheless, the shift in the Central Valley's share of California population has been small, from 13.6 percent in 1974 to 14.6 percent in 1984.

Inmigration accounted for much of this increase. Census data and interviews with local development officials indicate that a range of population categories were represented by this increase. The region has a relatively high share of Hispanic immigrants but also has attracted a new retirement aged population. In addition, in many smaller towns, a typical immigrant is a person between 30 and 50 years old, who left a salaried position in Los Angeles or Santa Clara county and used the capital from a home sale in the late 1970s to invest in a business serving the local area.<sup>8</sup>

This population boom has been a major factor in predictions of a changing Central Valley economy. However, despite a rapidly growing population, labor force growth had varied less dramatically from statewide trends, and employment growth has occurred at close to the statewide rate.

Since 1970, the labor force has grown more quickly than population throughout the United States. However, the difference in the rate of growth was less dramatic in the Central Valley than in the state as a whole. California's labor force grew by 34.2 percent in the past decade (one and three-fourths times the population growth rate), while the labor force in the Central Valley grew by 37.0 percent (only one and one-fourth times the population growth rate).

The Central Valley's relative employment change was even slower during this period, compared to California's employment growth rate and statewide and regional population growth. From 1974 to 1984, California employment grew by 34.1 percent, and Central Valley employment grew by 34.7 percent. Thus, while

population in the Central Valley grew almost half again as quickly as California population, Central Valley employment grew at virtually the same rate as jobs statewide (see Table 1).

On an aggregate level, then, the boom that was experienced in Central Valley counties does not appear to be generated by an economic transformation of the region (although the population growth may contribute future economic changes in the region). These summary figures do not indicate strong filtering of firms into the region. However, more detailed examination of trends indicate that some selective filtering and employment change is occurring.

#### V. Agriculture in the Central Valley

To characterize the Central Valley economy only in terms of its agricultural base is a serious distortion. The urban areas within this region vary dramatically. Sacramento is primarily the home of state government. Stockton (San Joaquin County) has a major port; Fresno is strongly agricultural but also has the IRS western office; and Kern County income is heavily dependent on its mineral base as well as agriculture. These variations clearly influence the growth potential of different parts of the Central Valley.

Although it has a strong agricultural component, the region is highly urbanized as well. Almost two-thirds of the region's counties are in Standard Metropolitan Statistical Areas (i.e. they are either large enough to be counted on their own or are close enough to be included in the sphere of influence of a large central city). The region's urban population (percent in urban



TABLE 1: CENTRAL VALLEY GROWTH INDICATORS, 1974 - 1984

		POPULATION	TOTAL EMPLOYMENT	PERSONAL INCOME* CURRENT \$S	1983 \$S
SAN JOAQUIN VALLEY					
	1974	1,751,100	660,275	\$9,416	\$19,050
	1979	2,001,100	805,625	\$17,051	\$23,457
	1984	2,268,973	868,200	\$23,353	\$23,353
% INCREASE	1974-79	14.3%	22.0%	81.1%	23.1%
	1979-84	13.4%	7.8%	37.0%	-0.4%
	1974-84	29.6%	31.5%	148.0%	22.6%
SACRAMENTO VALLEY					
	1974	1,141,800	399,950	\$6,592	\$13,335
	1979	1,302,400	504,875	\$11,726	\$16,132
	1984	1,454,074	560,275	\$16,232	\$16,232
% INCREASE	1974-79	14.1%	26.2%	77.9%	21.0%
	1979-84	11.6%	11.0%	38.4%	0.6%
	1974-84	27.3%	40.1%	146.2%	21.7%
CENTRAL VALLEY					
	1974	2,892,900	1,060,225	\$16,008	\$32,385
	1979	3,303,500	1,310,500	\$28,777	\$39,586
	1984	3,723,047	1,428,475	\$39,585	\$39,585
% INCREASE	1974-79	14.2%	23.6%	79.8%	22.2%
	1979-84	12.7%	9.0%	37.6%	.0%
	1974-84	28.7%	34.7%	147.3%	22.2%
CALIFORNIA					
	1974	21,173,000	8,142,400	\$128,142	\$259,250
	1979	23,255,000	10,003,200	\$231,416	\$318,342
	1984	25,415,251	10,917,100	\$333,706	\$333,706
% INCREASE	1974-79	9.8%	22.9%	80.6%	22.8%
	1979-84	9.3%	9.1%	44.2%	4.8%
	1974-84	20.0%	34.1%	160.4%	28.7%

\* Personal income figures are for 1983 instead of 1984, as this is the most current year available.

Source: Compiled by the Center for Real Estate and Urban Economics from data provided by the California Employment Development Department and the California Department of Finance.

places) ranges from 32 percent in Colusa County to 96 percent in Sacramento County (see Table 2).

Nevertheless, agriculture is a major link among counties in this fertile valley. The Central Valley has almost half of the State's agricultural land and almost 60 percent of total agricultural sales and employment.

While the Central Valley is more urban than many agricultural places in the United States, it shares a number of typical characteristics of rural areas when compared with the state as a whole:

- 1) Unemployment has radical seasonal shifts, and on average is far higher than for the state as a whole. In April 1984, for example, statewide unemployment was 7.7%, the lowest unemployment rate in the Central Valley was Sacramento County, at just over 8 percent; heartland agricultural counties such as Madera and Fresno had rates about 14 percent, while some counties had unemployment levels of over 20 percent (see Table 3).

- 2) Income is substantially below that of the more urban parts of the state. In 1983, all but one small Central Valley county had per capita incomes at least 10 percent below the state average, while some counties had incomes as far as 30 percent below the state average.

- 3) Housing is of lower value than equivalent homes in the coastal metropolises. The median sales price of home in the Central Valley was \$73,500 in 1984, 63.5 percent of the median California price, and only about 55 percent of the median prices in the San Francisco Bay Area and Orange County.<sup>9</sup> Vacancy rates are up to twice as high as in the coastal areas, but are not particularly high compared to other parts of the United States.

TABLE 2: PERCENT OF POPULATION IN URBAN PLACES  
CALIFORNIA'S CENTRAL VALLEY COUNTIES

=====	
BUTTE	70.9%
COLUSA	31.9%
FRESNO	78.3%
GLENN	41.3%
KERN	82.0%
KINGS	66.3%
MADERA	47.7%
MERCED	62.3%
PLACER	50.4%
SACRAMENTO	96.0%
SAN JOAQUIN	82.3%
STANISLAUS	80.9%
SUTTER	67.0%
TEHAMA	36.6%
TULARE	62.4%
YOLO	81.9%
YUBA	71.4%
-----	
CALIFORNIA	91.3%
-----	

Source: U.S. Census of Population, 1980.

TABLE 3: UNEMPLOYMENT RATES, CENTRAL VALLEY COUNTIES  
APRIL 1984

=====		
COUNTY	PERCENT UNEMPLOYED	INDEX: COUNTY RATE/ CALIFORNIA RATE
-----		
BUTTE	12.2	1.6
COLUSA	12.8	1.7
FRESNO	13.9	1.8
GLENN	12.3	1.6
KERN	12.7	1.6
KINGS	14.6	1.9
MADERA	14.3	1.9
MERCED	15.2	2.0
PLACER	8.5	1.1
SACRAMENTO	8.1	1.1
SAN JOAQUIN	14.2	1.8
STANISLAUS	18.7	2.4
SUTTER	23.1	3.0
TEHAMA	14.1	1.8
TULARE	12.3	1.6
YOLO	10.3	1.3
YUBA	18.3	2.4
-----		
CALIFORNIA	7.7	
-----		

Source: Calculated from Employment Development  
Department data.

4) Migrant labor is an important part of the workforce. The 1980 census showed that the Central Valley had relatively more people moving in and out than the state as a whole, although net immigration, relative to base population size, was only slightly higher than in other parts of the state. This is a pattern one would expect from an area with a large share of migrant labor, and may also reflect, to a much smaller degree, the urban to rural reverse migration trend.

While the region continues to bear signs of an agricultural base, there are clear signs of agricultural displacement in the Sacramento Valley and in San Joaquin County. The rest of the San Joaquin Valley shows a continuing strong use of land and labor for agricultural production, and continuing importance of agriculture in the region's income.

Agricultural employment is declining in some parts of the Central Valley and is lagging behind total employment growth in other Central Valley counties. For the region as a whole, agricultural jobs grew by 19 percent between 1974 and 1984, close to the statewide agricultural job increase of 18 percent. These aggregate figures mask extreme variations among subregions and counties within the Central Valley. Agricultural employment grew by 23 percent in the San Joaquin Valley and dropped by 2 percent in the Sacramento Valley. Within the San Joaquin Valley in 1984, agricultural jobs in San Joaquin were only 4 percent above their 1974 level, while in Fresno and Kern counties jobs had grown by close to 45 percent. Agriculture has fared poorly in 1985, which may moderate the relatively high rates of growth even in these two counties.

Apart from employment levels, agriculture continues to play a major role in the region's economy. Total agricultural acreage has dropped steadily in California since the mid-1960s. In the Central Valley, agricultural acreage has remained stable overall between 1974 to 1982, with continuing drops in acreage in the Sacramento Valley, but a rise in acreage since 1974 in the San Joaquin Valley (see Table 4). Central Valley acreage has increased in the more productive uses (as measured by income per acre)--crop acreage is close to its 1964 level (an 8 percent drop in the Sacramento Valley but a 6 percent rise in the San Joaquin Valley). Harvested acreage rose by 20 percent in the Central Valley from 1964 to 1982 (3 percent in the Sacramento Valley and 26 percent in the San Joaquin Valley). The number of farms dropped from 1964 to 1974, but again reached or exceeded its 1964 level by 1982, in both parts of the Central Valley.

The level of production, as measured by agricultural sales, has also been increasing in the Central Valley. From 1974 to 1982, total sales increased by 36 percent in the Central Valley (adjusted for inflation using the Producer Price Index), compared to 31 percent statewide. This can be compared to a growth in total personal income of 24 percent in the Central Valley and 26 percent statewide. However, using the Consumer Price Index instead of the Producer Price Index, the value of agricultural sales dropped by 14 percent statewide and 10 percent in the Central Valley. This indicates that, while the level of production is remaining stable or is increasing, income to farmers is dropping relative to other sectors of the economy (although this effect is less severe in the Central Valley than in other parts of the state).

TABLE 4: AGRICULTURAL ACTIVITY IN THE CENTRAL VALLEY

	SAN JOAQUIN VALLEY	SACRAMENTO VALLEY	CENTRAL VALLEY	CALIFORNIA	CENTRAL VALLEY SHARE
EMPLOYMENT					
1974	144925	24500	169425	308100	55.0%
1978	153325	22525	175850	323900	54.3%
1984	177750	24100	201850	363900	55.5%
% CHANGE 1974-84	22.6%	-1.6%	19.1%	18.1%	
TOTAL AGRICULTURAL ACREAGE					
1974	10659136	4555840	15214976	33385619	45.6%
1978	11054728	4417727	15472455	33130362	46.7%
1982	10868080	4311449	15179529	32138799	47.2%
% CHANGE 1974-82	2.0%	-5.4%	-0.2%	-3.7%	
CROP ACREAGE					
1974	4913299	2087898	7001197	10629829	65.9%
1978	5393843	2102562	7496405	11721056	64.0%
1982	5434593	2021996	7456589	11257374	66.2%
% CHANGE 1974-82	10.6%	-3.2%	6.5%	5.9%	
HARVESTED ACREAGE					
1974	4254157	1618325	5872482	8307246	70.7%
1978	4674771	1650537	6325308	8899360	71.1%
1982	4729132	1556831	6285963	8765373	71.7%
% CHANGE 1974-82	11.2%	-3.8%	7.0%	5.5%	
VALUE OF PRODUCTS SOLD (THOUSANDS)					
CURRENT DOLLARS					
1974	\$3,284,376	\$828,588	\$4,112,964	\$7,399,623	55.6%
1978	\$4,203,272	\$925,577	\$5,128,849	\$9,274,495	55.3%
1982	\$6,091,916	\$1,106,020	\$7,197,936	\$12,491,442	57.6%
% CHANGE 1974-82	85.5%	33.5%	75.0%	68.8%	
1967 DOLLARS (CPI)					
1974	\$2,223,680	\$560,994	\$2,784,674	\$5,009,900	55.6%
1978	\$2,152,213	\$473,926	\$2,626,139	\$4,748,845	55.3%
1982	\$2,110,851	\$383,236	\$2,494,289	\$4,328,289	57.6%
% CHANGE 1974-82	-5.1%	-31.7%	-10.4%	-13.6%	
1967 DOLLARS (PPI)					
1974	\$1,749,801	\$441,443	\$2,191,243	\$3,942,261	55.6%
1978	\$1,978,010	\$435,566	\$2,413,576	\$4,364,468	55.3%
1982	\$2,513,167	\$456,279	\$2,969,446	\$5,153,235	57.6%
% CHANGE 1974-82	43.6%	3.4%	35.5%	30.7%	

Source: California Employment Development Department, Census of Agriculture, 1974, 1978, and 1982, and CREUE.

In sum, evidence on agriculture in the region indicates that some displacement is occurring in the northern half of the valley, while employment and production remain strong in the southern half of the valley. However, in terms of income change, even in the southern part of the Central Valley, agricultural income is dropping relative to other sources of earnings.

#### VI. Central Valley Manufacturing Employment<sup>10</sup>

Historically, manufacturing has played a relatively small role in the Central Valley economy. Manufacturing accounts for 10 percent of Central Valley employment, as compared to 19 percent of employment statewide. The share of total employment in manufacturing has dropped both statewide and in the Central Valley over the past decade.

Lumber and food processing have dominated manufacturing employment in the Central Valley. These two industries accounted for half of all Central Valley manufacturing employment in 1974. Although employment has dropped in both of these sectors in the past decade, their share of manufacturing employment in the region remained 41 percent in 1984.

As with agriculture, changes in total growth rates of manufacturing activity and in the composition of employment within manufacturing vary within the region. Total employment in manufacturing grew by 21 percent in California from 1974 to 1984, by 33 percent in the Sacramento Valley, and by only 16 percent in the San Joaquin Valley.

The Sacramento Valley shows strong signs of a shifting economy. Sacramento and neighboring counties gained 11,000



manufacturing jobs in the past decade. These job gains did not come in the traditional, agriculturally linked manufacturing sectors. Data from California's Employment Development Department indicates that employment in food processing dropped by 9 percent over the decade (a loss of 1000 jobs) and employment in lumber in 1984 was only 10 percent above the 1974 level (a gain of 300 jobs). For the Sacramento Valley, the total share of manufacturing employment in these two sectors dropped from 52.5 percent in 1974 to 38 percent in 1984. According to data from County Business Patterns, the strongest manufacturing growth has occurred not in high tech sectors, such as electronics, but in sectors related to government activity and business services, such as printing (see Table 5).

The San Joaquin Valley shows much weaker diversification tendencies within manufacturing, and wide variation in trends among counties. Two key counties, San Joaquin and Fresno, had less than a 10 percent increase in manufacturing jobs between 1974 and 1984. San Joaquin County lost 11 percent of its food processing jobs from a 1979 peak of 9000, but manufacturing employment overall grew by 8 percent. Fresno had less than a 1 percent increase in manufacturing jobs in the past decade, with a slight increase in food processing employment offset by fewer jobs in lumber.

A detailed look at manufacturing employment in San Joaquin County shows some evidence of coastal area spillover in manufacturing. Electrical and electronic equipment has grown from San Joaquin County's thirteenth largest to fifth largest manufacturing employment sector over the past decade, with a

TABLE 5: MAJOR MANUFACTURING EMPLOYERS, SELECTED CENTRAL VALLEY COUNTIES\*

TOP FIVE MANUFACTURING EMPLOYERS IN SELECTED COUNTIES								
YEAR/RANK	FRESNO		KERN		SACRAMENTO		SAN JOAQUIN	
	INDUSTRY	JOBS	INDUSTRY	JOBS	INDUSTRY	JOBS	INDUSTRY	JOBS
1974								
1	food proces	5367	food proces	1304	food proces	4295	food proces	6204
2	machinery	2258	chemicals	1293	printing	1793	stone,cl,gl	2153
3	fabr metal	2125	petroleum	859	transport	1750	lumber	1927
4	transport	2115	stone,cl,gl	791	lumber	1568	paper	1750
5	printing	1134	machinery	697	fabr metal	1401	transport	1151
% tot mfg		65.8%		59.6%		70.2%		71.0%
1982								
1	food proces	6062	food proces	1708	food proces	6112	food proces	6881
2	machinery	4087	petroleum	1609	printing	3906	lumber	1843
3	printing	1409	machinery	853	transport	3750	stone,cl,gl	1783
4	fabr metal	1374	stone,cl,gl	784	fabr metal	2164	fabr metal	1682
5	stone,cl,gl	1198	fabr metal	760	lumber	1523	electronics	1199
% tot mfg		70.4%		61.2%		75.9%		70.2%
ELECTRONICS EMPLOYMENT								
	FRESNO		KERN		SACRAMENTO		SAN JOAQUIN	
1974								
total	194		189		400		278	
% mfg	1.0%		2.3%		2.6%		1.5%	
1982								
total	340		115		781		1199	
% mfg	1.7%		1.2%		3.4%		6.3%	

\* Food processing jobs are undercounted for 1974, compared to Employment Development Department data reported earlier, because of a change in unemployment insurance coverage for seasonal workers. This undercounting does not affect the ranking by industry, but erroneously indicates that this sector has grown in each of these counties, while EDD data indicates a job loss.

Source: Computed from data provided in US. Department of Commerce, Bureau of the Census, County Business Patterns, for 1974 and 1982.

four-fold increase in employment, and many of the county's new manufacturing firms are linked to the electronics sector (see Table 6). This contrasts with Fresno's manufacturing sector, which remains closely tied to agriculture. Table 7 shows the strong agricultural orientation of new manufacturing firms in Fresno in the past decade.

In sum, the intensified manufacturing activity that would accompany high tech spillover from coastal areas is apparent only in selective pockets of the Central Valley. The significant expansion of manufacturing in the Sacramento Valley appears to be resulting more from expansion of major nonmanufacturing activity, such as the contracting out of government production, than from in-migration of Silicon Valley firms (although a few towns in foothill counties have been transformed by new high tech firms). In the San Joaquin Valley, only the Stockton area shows signs of receiving significant high tech growth. A detailed examination of industrial directories and new firm startups in Fresno and Kern counties shows no significant high tech presence in either place.<sup>11</sup>

## VII. Trade, Services and Back Office Activities

It is perhaps the growth of retail, finance, insurance and service sector jobs that have led to predictions of major changes for the Central Valley in coming years. These are among the most rapidly growing employment sectors statewide, but are particularly strong relative to other factors in the Central Valley. In the 1974-1984 period, retail trade grew by 45 percent statewide and by 52 percent in the Central Valley, service

TABLE 6: NEW BUSINESSES LOCATING IN THE STOCKTON SMSA SINCE 1975\*

INDUSTRY CATEGORY	JOBS ADDED 1975-1984	SQUARE FEET BUILT OR LEASED	PERCENT OF TOTAL	
			NEW JOBS	SQUARE FEET
FOOD AND KINDRED PRODUCTS	1,240	1,616,000	11.5%	18.2%
LUMBER AND WOOD PRODUCTS	330	295,000	3.1%	3.3%
FURNITURE	150	50,000	1.4%	0.6%
PAPER AND ALLIED PRODUCTS	250	342,000	2.3%	3.9%
PRINTING	50	30,000	0.5%	0.3%
CHEMICALS AND ALLIED PRODUCTS	150	110,000	1.4%	1.2%
PETROLEUM AND RELATED PRODUCTS	55	94,000	0.5%	1.1%
RUBBER AND PLASTICS	530	650,000	4.9%	7.3%
STONE, CLAY, GLASS, CONCRETE	250	100,000	2.3%	1.1%
PRIMARY METALS	590	360,000	5.5%	4.1%
FABRICATED METALS	795	799,000	7.4%	9.0%
MACHINERY	1,350	270,000	12.6%	3.0%
ELECTIRICAL/ELECTRONIC EQUIPT.	3,450	618,000	32.1%	7.0%
INSTRUMENTS	100	25,000	0.9%	0.3%
TRANSPORTATION/UTILITIES	270	405,000	2.5%	4.6%
WHOLESALE TRADE	1,100	3,034,000	10.2%	34.3%
BUSINESS SERVICES	90	60,000	0.8%	0.7%
TOTAL	10,750	8,858,000		

\* Includes totals in new nonretail firms that have moved to the Stockton area between 1975 and 1984.

Source: Compiled from information published by the San Joaquin County Economic Development Association.

TABLE 7: MAJOR MANUFACTURERS LOCATING IN FRESNO, 1973-1984

FIRM NAME	DESCRIPTION	YEAR	NUMBER OF EMPLOYEES
Allied Vegetable Oils	food processing	1983	40
American Forest Products*	lumber and construction	1981	400
Chihuahua*	food products	1984	260
Fruehauf Corporation*	liquid and bulk tank	1981	350
General Flex Corporation	flexible ducts	1983	150
Grundfos Pumps Corporation	stainless steel pumps	1974	165
Irridelco Corporation	irrigation equipment	1975	60-150
Kingsburg Apple Prtners	packinghouse	1984	80
Moore Business Forms	paper products	1982	79
Pelco Sales Incorporated	surveillance equipment	1982	95
Vendo Company	vending machines	1982	1000
Zacky Farms	food processing	1979	700

\* Annexations or expansions of existing firms.

Source: Fresno Chamber of Commerce

employment grew by 65 percent statewide and by 68 percent in the Central Valley, and finance, insurance and real estate grew by 56 percent statewide but by almost 80 percent in the Central Valley (see Table 8). These growth rates are most striking compared to a comparatively sluggish total employment growth rate, but are consistent with the rate of expansion of the population.

The rapid pace of job increase in these sectors reflects not only a proportional response to population growth but also the expansion of firms taking advantage of new economies of scale in growing urban centers. The Central Valley was well positioned to profit from the decentralization of many service activities that has occurred in the past decade. As its urban places become larger, they have been able to take on service, retail and finance activities that were previously done elsewhere. Distribution activities have located in Stockton, specialized financial services for agricultural firms have located in Fresno, services for mining activities cluster in Bakersfield, and regional shopping centers have been built in many Central Valley cities.

One indicator of the growth of significant "back-room" office activity is the growth of large employers (with 100 employees or greater) in employment categories such as finance, insurance and real estate (FIRE), and business services. The number of large business service employers (over 100 employees) doubled in California between 1974 and 1982, and the number of large FIRE employers increased by about 60 percent. In the Central Valley, large FIRE employers increased by almost 75 percent, and the number of large business service employers

TABLE 8: CENTRAL VALLEY EMPLOYMENT GROWTH IN TRADE AND SERVICES

NONMANUFACTURING SECTOR	SAN JOAQUIN VALLEY	SACRAMENTO VALLEY	CENTRAL VALLEY	CALIFORNIA	CENTRAL VALLEY SHARE OF CALIFORNIA
RETAIL TRADE					
1974	92,500	66,825	159,325	1,291,400	12.3%
1984	136,800	106,025	242,825	1,867,800	13.0%
% CHANGE 74-84	47.9%	58.7%	52.4%	44.6%	
WHOLESALE TRADE					
1974	33,250	16,800	50,050	460,600	10.9%
1984	38,225	26,000	64,225	644,300	10.0%
% CHANGE 74-84	15.0%	54.8%	28.3%	39.9%	
FINANCE, INSURANCE AND REAL ESTATE					
1974	20,225	15,775	36,000	444,800	8.1%
1984	34,625	29,100	63,725	695,000	9.2%
% CHANGE 74-84	71.2%	84.5%	77.0%	56.3%	
SERVICES					
1974	85,275	60,300	145,575	1,536,300	9.5%
1984	136,550	107,425	243,975	2,527,900	9.7%
% CHANGE 74-84	60.1%	78.2%	67.6%	64.5%	
TOTAL EMPLOYMENT					
1974	660,275	399,950	1,060,225	8,142,400	13.0%
1984	868,200	560,275	1,428,475	10,917,100	13.1%
% CHANGE 74-84	31.5%	40.1%	34.7%	34.1%	

Source: Calculated from California Employment Development Department data.

tripled (see Table 9).

This translates into a relatively small number of firms -- 19 additional FIRE firms with more than 100 employees, and 33 additional business service firms. Some of this growth certainly resulted from the expansion of local firms rather than from the migration of firms into the area. In addition, only 7.5 percent of California's increased number of large business service firms and 6.2 percent of the state's increase in large FIRE firms occurred in the Central Valley.

Two counties, Sacramento and Fresno, account for 84 percent of the increase in large FIRE firms in the Central Valley since 1974. Almost half of the increase in large business service firms also occurred in Sacramento, with the remainder spread mainly among Fresno, Kern and San Joaquin. Thus, only Sacramento and Fresno counties show strong signs of the type of growth that would indicate back room offices. In Sacramento, much of this growth appears to be related to increasing agglomeration economies related to population growth, while in Fresno, agriculture dominates even this area of nonmanufacturing growth, along with general population trends. New employers include, for example, a division of Wells Fargo specializing in agricultural financing, the Bank of Fresno, and a merger involving the Fresno Bank of Commerce. The regional office of Northwestern Mutual, an insurance firm, is also located in Fresno.

The increasing capabilities of the Central Valley to support nonmanufacturing basic and support activities has offered opportunities for new business development and may be one of the major attractants of the area to the new "professional" migrant.



TABLE 9: LARGE EMPLOYERS IN FINANCE, INSURANCE AND REAL ESTATE AND  
BUSINESS SERVICE CATEGORIES

EMPLOYMENT CATEGORY	TOTAL NUMBER OF FIRMS		TOTAL FIRMS WITH > 100 EMPLOYEES		% WITH MORE THAN 100 EMPLOYEES	
	1974	1982	1974	1982	1974	1982
<b>FINANCE, INSURANCE &amp; REAL ESTATE</b>						
BUTTE	190	256	0	2	0.0%	0.8%
COLUSA	18	6	0	0	0.0%	0.0%
FRESNO	731	1058	7	14	1.0%	1.3%
GLENN	17	24	0	0	0.0%	0.0%
KERN	467	635	1	2	0.2%	0.3%
KINGS	56	85	0	0	0.0%	0.0%
MADERA	53	78	0	0	0.0%	0.0%
MERCED	140	168	1	1	0.7%	0.6%
PLACER	128	244	1	0	0.8%	0.0%
SACRAMENTO	1199	1664	11	20	0.9%	1.2%
SAN JOAQUIN	464	597	4	4	0.9%	0.7%
STANISLAUS	279	419	0	0	0.0%	0.0%
SUTTER	62	98	0	0	0.0%	0.0%
TEHAMA	41	61	0	0	0.0%	0.0%
TULARE	221	291	0	0	0.0%	0.0%
YOLO	122	190	1	1	0.8%	0.5%
YUBA	57	59	0	1	0.0%	1.7%
CENTRAL VALLEY	4245	5933	26	45	0.6%	0.8%
CALIFORNIA	39026	51894	492	797	1.3%	1.5%
<b>BUSINESS SERVICES</b>						
BUTTE	57	105	0	1	0.0%	1.0%
COLUSA	NA	8	0	0	NA	0.0%
FRESNO	282	457	2	7	0.7%	1.5%
GLENN	5	13	0	0	0.0%	0.0%
KERN	194	340	4	8	2.1%	2.4%
KINGS	21	20	0	0	0.0%	0.0%
MADERA	NA	14	0	0	NA	0.0%
MERCED	29	54	0	0	0.0%	0.0%
PLACER	42	88	1	0	2.4%	0.0%
SACRAMENTO	488	887	6	21	1.2%	2.4%
SAN JOAQUIN	153	243	2	7	1.3%	2.9%
STANISLAUS	114	171	2	3	1.8%	1.8%
SUTTER	21	31	0	0	0.0%	0.0%
TEHAMA	NA	21	0	0	NA	0.0%
TULARE	85	120	0	2	0.0%	1.7%
YOLO	40	81	0	1	0.0%	1.2%
YUBA	9	18	0	0	0.0%	0.0%
CENTRAL VALLEY	1540	2671	17	50	1.1%	1.9%
CALIFORNIA	16986	28264	421	859	2.5%	3.0%

Source: U.S. Bureau of the Census, County Business Patterns, 1974 & 1982.

However, much of the new trade and service growth has been highly unstable. Central Valley cities are "middle market" places (urban centers serving a market area of up to a few hundred thousand people). Such locations are often viewed as good places to expand when the economy is strong, but also may be the first places to experience retail or service shutdowns as the general economy or local income declines. For example, two major retailers shut down in Fresno in January 1985, laying off several hundred employees.

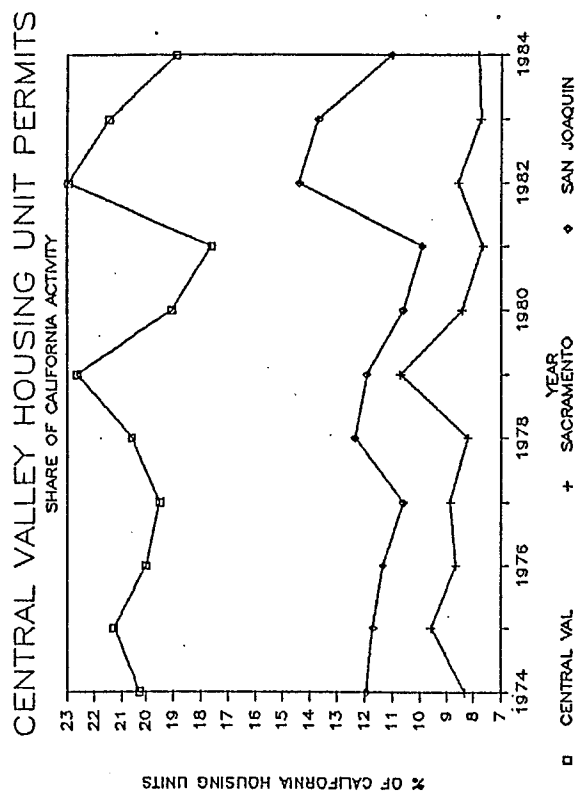
#### VIII. Building Activity

Central Valley building activity since 1974 reflects the directions of demographic and economic growth described above. Over the past decade, about 20 percent of housing unit permits filed in California, and 15 percent of housing permit value, were in the Central Valley (see Figures 2a and 2b). Housing represented about 62 percent of the value of building permit activity in the Central Valley in 1984. The share of residential building activity captured by this region of California is consistent with the rate of growth of population in Central Valley counties.

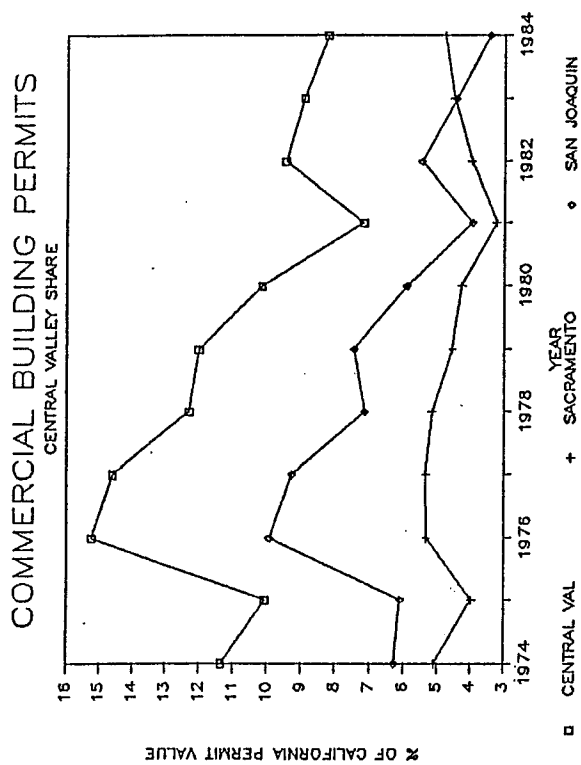
The region's share of commercial and industrial activity has fluctuated much more than residential building permits, and on average has been far lower than the residential share (see Figures 2c and 2d). Commercial building permit value in the Central Valley accounted for over 15 percent of statewide commercial permit values in 1976, but the region's share of building activity has dropped sharply since that time. The

FIGURE 2: SHARE OF CALIFORNIA BUILDING PERMITS IN THE CENTRAL VALLEY

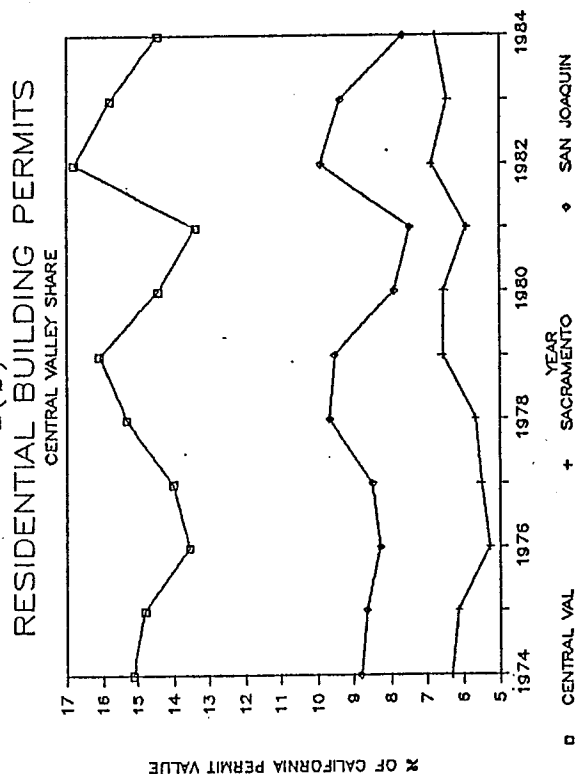
2(a)



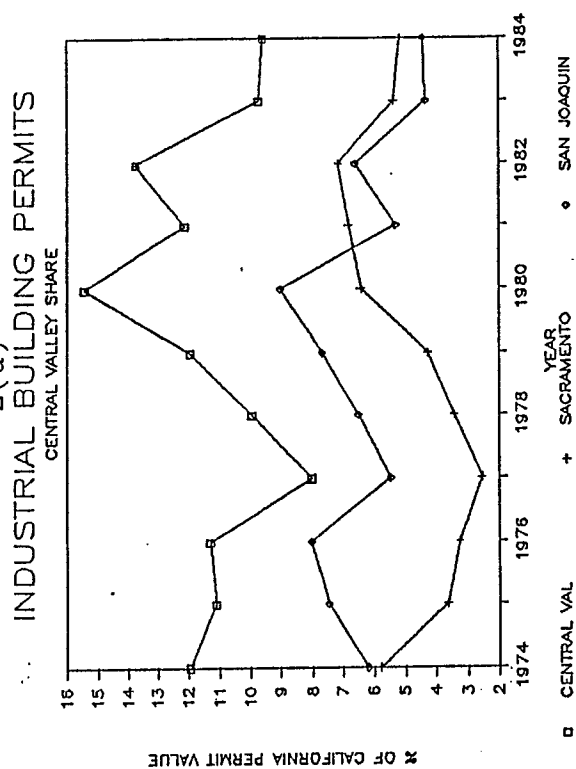
2(c)



2(b)



2(d)



Central Valley share of commercial building activity has averaged only 8.5 percent since 1980. This decline reflects the decreasing importance of commercial building activity in the San Joaquin Valley.

The 1970s saw an increase in the region's share of industrial building permit values, rising from 12 percent in 1974 to a peak of 15.4 percent in 1980. However, the region's share of industrial permit activity dropped to 9.6 percent in 1984.

These aggregate figures for the Central Valley indicate that building has followed strong population growth, but that changing economic conditions have not generated a major shift of nonresidential building towards the Central Valley. Separating out trends by the Sacramento and San Joaquin Valleys supports the findings from the preceding economic analysis that the Sacramento Valley economy has changed more strongly in the directions initially hypothesized than the San Joaquin Valley. Figure 2 indicates the Sacramento Valley share of residential, industrial and commercial building permit value has been increasing in the 1980s, while the San Joaquin Valley share of nonresidential permits has been decreasing.

#### IX. Income Effects

With the wide variation apparent among Central Valley counties in the extent to which they have diversified and/or captured metropolitan spillovers, it is possible to look for income effects in the most rapidly changing counties. Much of the literature on growth indicates that when the manufacturing base of the economy increases and the agricultural base

decreases, income levels should rise, converging on the statewide or national average. An examination of the trends in the Central Valley indicates that for the major counties followed in this study, incomes have diverged from the state average, rather than converged, and that income growth is less stable in the Central Valley than in the state as a whole.

Total personal income has grown more slowly in the Central Valley than in the state as a whole despite faster population growth. Between 1974 and 1983, for example, statewide personal income increased by 29 percent, while income in the Central Valley grew by 22 percent. The ratio of county per capita income to state per capita income is dropping for the region's largest counties (see Table 10). Even Sacramento, with a strong government base and extensive diversification, has dropped from a per capita income level at close to the state average (96 percent of the state level) to less than 90 percent of the state level.

The rates of growth of income have been particularly irregular in the Central Valley. Between 1970 and 1975, per capita income grew more quickly in Central Valley counties than in California as a whole. From 1975 to 1980, per capita income growth rates were somewhat slower for the Central Valley than for the state, and in the recession from 1980 to 1982, per capita income dropped much more rapidly in Central Valley counties than in the state as a whole.

This is consistent with observed demographic and employment trends. The migration of a skilled, often self-employed, labor force to the Central Valley and the growth of industrial and commercial activities in the early 1970s boosted average income

TABLE 10: PER CAPITA INCOME IN CALIFORNIA AND CENTRAL VALLEY COUNTIES,  
1974 AND 1983

COUNTIES	PER CAPITA INCOME (CURRENT \$)		COUNTY PER CAPITA INCOME AS % OF STATEWIDE LEVEL	
	1974	1983	1974	1983
BUTTE	4925	9474	81.4%	71.5%
COLUSA	12785	13756	211.3%	103.8%
FRESNO	5476	10922	90.5%	82.4%
GLENN	7780	11762	128.6%	88.7%
KERN	5309	10848	87.7%	81.8%
KINGS	5043	9285	83.3%	70.0%
MADERA	5487	9814	90.7%	74.0%
MERCED	4960	9730	82.0%	73.4%
PLACER	5258	11839	86.9%	89.3%
SACRAMENTO	5791	11804	95.7%	89.0%
SAN JOAQUIN	5677	10906	93.8%	82.3%
STANISLAUS	5197	10687	85.9%	80.6%
SUTTER	6424	10940	106.1%	82.5%
TEHAMA	4675	9229	77.2%	69.6%
TULARE	5024	9451	83.0%	71.3%
YOLO	6204	11275	102.5%	85.1%
YUBA	4951	8777	81.8%	66.2%
CALIFORNIA	6052	13256		

Source: California Department of Finance and CREUE.

levels. As signs of spillover activity dropped, employment and income growth slowed, and with a recession, service and trade activity was cut back more precipitously in Central Valley towns than in the coastal metropolitan areas.

#### X. Coastal Spillover and Future Central Valley Growth

The analysis of growth patterns in the Central Valley indicates that the effects of coastal economy spillover on the Central Valley are quite limited, acting in a few restricted areas. Analysis of variations within the region suggests that a more complex set of factors interact in producing economic change in the Central Valley. Among the major elements affecting growth are existing diversification, proximity to major urban centers, and the strength of California agriculture:

##### 1) Diversification

Diversification appears to attract diversification. The portion of the Central Valley most successful in attracting nonagricultural, basic employment is the Sacramento Valley, with a strong government presence to stabilize employment and demand levels and to provide a trained labor force to attract a variety of new employers. Much of the diversified growth that is occurring in this portion of the Central Valley comes from expansion from the existing nonagricultural base, rather than from coastal spillovers.

##### 2) Proximity to Urban Centers

Proximity to a major urban center is a key factor where spillover is occurring. San Joaquin County, less than a one-hour commute from San Francisco's suburbs, shows much more evidence of changing employment composition within manufacturing and distribution than other

more isolated Central Valley SMSA counties.

### 3) Urbanization around Agriculture

The history of the San Joaquin Valley shows the continuing validity of a "central place" theory of urban development in strong agricultural economies. The southern half of the Central Valley is likely to remain highly dependent on agriculture even if limited spillovers occur from other parts of the region. The strength of agriculture within this part of the valley, as well as the relative isolation from larger urban centers, will limit the area's attraction to firms other than those closely linked to agriculture. Forces of change in an agriculturally based region such as this are likely to result from population shifts, changes in the production process for agriculture, and in the structure of services delivery.

More broadly, agricultural regions in urbanizing states will continue to face major changes in the 1980s and 1990s. This research indicates that urban spillover will not be the only cause of these changes, and much of the spillover that does occur will result from the movement of people for noneconomic reasons.

The Central Valley almost certainly faces another decade or more of changing economic structure. However, any movement to become a major metropolitan corridor at a competitive level with the San Francisco or Los Angeles areas will still be quite slow. The market size of the Central Valley, limited transportation access, and continued reliance on agriculture, will restrict the pace at which firms move into the region, although these characteristics may attract a few footloose industries seeking urban advantages outside of a major metropolis.



## Footnotes

1. One of the initial studies addressing the regional impacts of high technology growth is AnnaLee Saxenian, "Silicon Chips and Spatial Structure: The Industrial Basis of Urbanization in Santa Clara County, California," Institute of Urban and Regional Development, Working Paper 345, University of California, Berkeley, March 1981.
2. The evidence of deindustrialization in California is presented by Philip Shapira in, "The Crumbling of Smokestack California," Institute of Urban and Regional Development, Working Paper 400, University of California, Berkeley, November 1984.
3. See Early Warning: California's Lagging Industries and Threatened Counties, Office of Economic Policy, Planning and Research, California Department of Economic and Business Development, November 1982.
4. Ted K. Bradshaw and Edward J. Blakeley, Rural Communities in Advanced Industrial Society: Development and Developers, Praeger, New York, 1979.
5. Noyelle and Stanback, The Economic Transformation of American Cities, Rowman & Allenheld, Totowa, 1983.
6. See, for example, Wilbur Thompson, "The National System of Cities as an Object of Public Policy," Urban Studies, Volume 9, Number 1, February 1972, pp. 99-116 (a description of industrial filtering appears on pp. 110-111).
7. This type of location process was identified among high tech firms in Silicon Valley and Beyond: High Technology Growth for the San Francisco Bay Area, Association of Bay Area Governments, Berkeley, 1981.
8. The population growth experience of nonmetropolitan Madera County is described in Oakhurst Economic Profile, Office of Economic Policy, Planning and Research, California Department of Economic and Business Development, 1982.
9. California Association of Realtors.
10. Two different data sources are reported here as a compromise between detail and reliability. The California Employment Development Department (EDD) data is from the agency's benchmark series; it is updated yearly. The data comes from a sample survey, and is not affected by changes in how firms report employment locations or in changes in employment coverage. However, the EDD data often does not go beyond the major employment category (e.g. manufacturing) or will report employment for only the 2 or 3 largest employment sectors within each category (e.g. lumber and food processing only, for manufacturing). In contrast, County Business Patterns (CBP) reports data at the 2-digit SIC category for most large counties.

However, all CBP data comes from unemployment insurance tapes. As unemployment insurance and reporting requirements change, no adjustments are made to data from previous years. Thus some inconsistencies will appear between tables prepared from EDD data and tables prepared using CBP data.

11. The 1983-1984 Industrial Directory for Fresno County, Fresno County and City Chamber of Commerce, Fresno, 1984, Directory of Manufacturers, Kern County, Kern County Board of Trade and Economic Development, Bakersfield, 1983, and conversations with chamber of commerce, private industry council, and economic development organization representatives.