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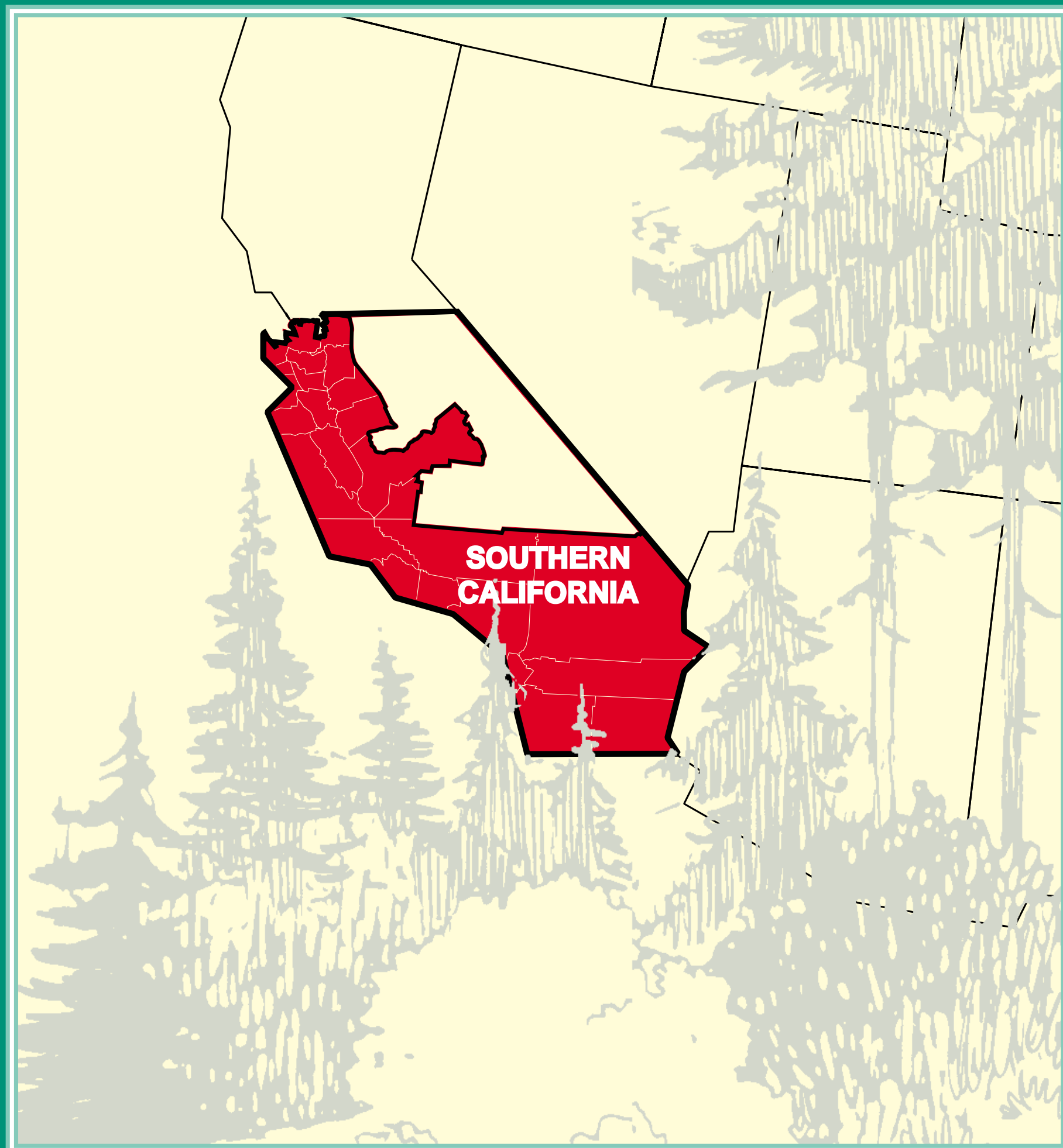
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Atlas of Social and Economic Conditions and Change in Southern California

Terry L. Raettig, Dawn M. Elmer, and Harriet H. Christensen



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Abstract

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This atlas illustrates the spatial and temporal dimensions of social and economic changes in the social-economic assessment region in the decade since 1987/1988. Maps, interpretive text, and accompanying tables and graphs portray conditions, trends, and changes in selected social, economic, and natural resource-related indicators for the 26 counties of the diverse region during a period of particularly rapid and intense demographic, social, and economic change. This information about the people, communities, and resources of the region serves as a tool for natural resource planners and managers, economic development practitioners, and citizens interested and involved in the future of the region. It also serves as a baseline for monitoring and evaluating potential impacts of ecosystem management strategies.

Keywords: Social-economic assessment, southern California, social and economic indicators, GIS, atlas, regional scale, county scale.

Executive Summary

The social-economic assessment (SEA) provides information to support an effort to address ecosystem management issues for the Angeles, Cleveland, Los Padres, and San Bernardino National Forests in southern California. The SEA is part of the management process to update the forest plans in the SEA region. The SEA region includes 26 southern and western California counties that have social and economic ties to the four national forests. The SEA region is diverse and includes a portion of the agriculturally important Central Valley and the Los Angeles, San Francisco, and San Diego metropolitan areas.

Rapid demographic, economic, and social change has been typical of California and the SEA region for many decades. Between 1960 and 1998, the rate of population increase for California was more than twice that of the Nation's as a whole. This continuing change in social and economic conditions has occurred during a period of both explosive growth and the recession of the early 1990s, which was particularly prolonged and severe in California. In 1998, 76 percent of the total population of California lived in the SEA region.

National forest management in southern California historically has focused on wildlife, recreation, and watershed management because of the large and mostly urban population in the surrounding counties. Market outputs from national forest lands in the SEA region are relatively unimportant compared with the private sector economy in the SEA region, but nonmarket outputs and services to people are important.

How This Atlas Will Contribute

The past 20 years have been a time of rapid and intense change in California and the SEA region. These changes have and will continue to directly affect the management of federal lands in general and specifically the four national forests in the SEA region.

The county-level illustrations in this atlas depict indicators of the social and economic functioning and changes in the SEA region. We show the location and magnitude of social and economic change in the SEA region through context and figures. The atlas is a tool that decisionmakers, planners, and economic development specialists can use to assess the social and economic dimensions of the SEA counties.

We have discussed some of the potential reasons for changes in specific indicators, but the atlas does not focus on the cause-and-effect relations that are implicit in the figures. The emphasis is on showing county-level changes in the region with the understanding that many of these changes are related to broader scale influences that occur at the state and national level.

Highlights

Four base maps, including a Mylar¹ overlay provide a geographic overview of the SEA region. The atlas addresses six questions with maps and accompanying text, tables, and graphs. The six questions are as follows:

1. How are the economies of the SEA region and counties performing, and how has the economic performance been changing?
2. What is the economic structure of the SEA region and counties, and how has the economic structure been changing?
3. What are the general characteristics of the population of the SEA region and counties, and what changes have been important?
4. How have social conditions in the SEA region and counties been changing?
5. What is the relative importance of payment from federal lands for SEA counties?
6. What has been the change in the acreage of lands used for agriculture in SEA counties?

Each map and accompanying material tries to answer the relevant question in the most direct manner possible given data accessibility and display limitations. A list of specific maps and highlights for each section follow:

¹ The use of trade or firm names in this publication is for reader information and does not imply endorsement by the U.S. Department of Agriculture of any product or service.

Section 1: Overlay and Base Maps

Map 1: *County Names*

- Boundaries and names of the 26 California counties included in the SEA region. (Map 1 has a corresponding Mylar overlay for use with all other maps in the atlas.)

Map 2: *Federal and Tribal Lands*

- Lands owned or managed by various federal agencies and tribes. The map is color coded to show each agency or class of owner. Location, shape, and size of each parcel of land is displayed to the limits of the map resolution.

Map 3: *Population Distribution: 1990 Census Places*

- All census designated places and incorporated regions in the SEA region by population size class.

Map 4: *Nonmetropolitan Counties*

- Only three of the 26 SEA counties are not classified as metropolitan counties. Map 4 highlights these three nonmetropolitan counties and shows interstate and U.S. highways.

Section 2: Change in Economic Conditions: Economic Performance

Map 5: *Unemployment Rate Compared to Region*

- Unemployment rates in California and the SEA region generally have followed national trends since 1980, but rates have been higher than the national rate since the early 1990s because of a national recession, which was prolonged and severe in California.
- Within the SEA region, unemployment rates have been highest in the central valley and central coast; lower in the San Francisco Bay area and southern California.

Map 6: *Change in Total Employment*

- Total employment growth in the SEA region between 1987 and 1997 reflects the effects of the severe recession. There are few patterns of employment change within the region. Two of the three nonmetropolitan counties had high rates of employment growth during the period and high unemployment rates.

Map 7: *Wage Trends*

- Wages are an important indicator of job quality and labor market conditions. The only consistent trend of increasing wages in the SEA region was in five of the San Francisco Bay area counties, but wages in California and the SEA region have been higher than the national average wage per job for more than 20 years.
- Wages in the three nonmetropolitan counties in the SEA region have consistently been lower than wages in metropolitan SEA counties, and the gap has been increasing steadily.

Map 8: *Wage Level*

- The average wage level per job has been highest in the San Francisco Bay Area, Sacramento County, and two counties in southern California.
- None of the counties with wage levels ranked in the lower one-third of SEA counties have a trend of increasing wages. Relative wage level rankings within the region are not likely to change much in the near future.

Section 3: Structural Economic Change

Map 9: *Economic Diversity*

- Economic diversity is measured by the presence and relative importance of different industries in an economy. In the SEA region, the economic diversity is highest in the counties along the Pacific coast from Santa Barbara County to San Diego County, two counties in the San Francisco Bay Area and Contra Costa County. Economic diversity increased throughout the 1980s in the SEA region but has been relatively stable since 1990.

Map 10: *Fastest Growing Nonfarm Industries*

- The United States and the SEA region have been experiencing a transformation from a manufacturing-based economy to a service and knowledge-based economy for several decades. The fastest growing industries in most of the SEA counties from 1987 to 1997 were services, finance and related sectors, and state and local government.

Map 11: *Slowest Growing Nonfarm Industries*

- The prolonged recession in California is reflected in the list of slowest growing industry. Construction was the slowest growing industry in almost one-half of the SEA counties (12 counties). Retail trade, durable goods manufacturing, and the military were sectors that each declined in three SEA counties.

Section 4: Characteristics of the Population

Map 12: *Change in County Population*

- Changes in social and economic conditions can lead to population changes, which can, in turn, lead to changes in social and economic conditions. The population of California and the SEA region historically have been growing much faster than that of the rest of the United States. Population growth has been slower since 1990, yet still at a rate faster than that of the United States as a whole.
- The slowest growth in the SEA region has been in six counties scattered along the Pacific coast, in contrast to higher rates of population growth between 1990 and 1998 for inland and Central Valley counties.

Map 13: *Change in Unincorporated and Incorporated Population*

- The SEA region is predominantly urban, and only two SEA counties have more than 50 percent of the population living in unincorporated areas.
- The percentage of growth in the population of unincorporated portions of the SEA region is greater than in the incorporated portion, and the proportion of the population of the SEA region living in unincorporated areas is increasing slowly. But the total number of people living in unincorporated areas in the region is so small relative to the number living in incorporated areas that large percentage changes in the unincorporated part of the region represent only a small increase in numbers of people.

Characteristics of the Population

Map 14: *Migration Status and Trends*

- California and the SEA region experienced high immigration from the early 1970s to the end of the 1980s. Net migration accounted for about one-half of the total population growth for the five-county Los Angeles area between 1970 and 1990 (Dear 1996). Net domestic migration in the SEA region was negative from 1988 through 1996. More than half of the SEA counties had both low immigration and low outmigration from 1988 through 1986.

Map 15: *Change in Race and Hispanic Origin*

- The racial and ethnic composition of a community is a strong determinant of self-identity, and changes in racial and ethnic composition of a community may indicate changing needs, interests, and values. The ethnic category of Hispanic or Latino experienced the greatest percentage of increase in its portion of the population for 21 of the SEA counties. The racial category of Asian or Pacific Islander experienced the greatest percentage of increase in population in four counties of the San Francisco Bay Area.

Map 16: *Educational Attainment*

- Educational attainment is an indicator of socioeconomic success of an individual and economic and social viability of a community. Kings, Imperial, and Merced Counties had the lowest percentage of population, 25 years or older, with postsecondary degrees and the highest percentage of population without high school diplomas. The counties with the highest percentage of population 25 years and older with postsecondary degrees are the San Francisco Bay area counties of Marin, San Francisco, and Santa Clara. The remaining counties had educational attainment levels between these two extremes.

Map 17: *Disability*

- Disabilities may represent difficulties in accomplishing tasks, greater social isolation, and diminished options and opportunities for an individual. Analyses of the data did not reveal much variability in the percentage of the noninstitutionalized, 16-years-and-older population that is with any disability among the 26 SEA counties.
- In all the SEA counties, about half of all individuals with a disability had either a severe disability or multiple disabilities requiring assistance to perform functional activities or the activities of daily living.

Section 5: Social Conditions

Map 18: *Change in Income Maintenance*

- Income maintenance includes funds and other assistance that allow a family to maintain a livable income during times of economic hardship. The level of income maintenance administered to members of a community may be used as a proxy for economic distress and poverty. Between 1987 and 1997, every SEA county experienced an average annual per capita increase in income maintenance. In general, the counties with the greatest need for income maintenance per capita experienced the greatest increases in income maintenance during the recession years of 1990-92. Since 1993, income maintenance payments in many SEA counties have been falling or increasing only slightly in response to recovery from the recession and changes in welfare policies.

Map 19: *Change in Poverty Rate*

- An individual living in poverty is considered to be in financial distress and may have few options and opportunities to improve his or her situation. All counties in the SEA region experienced an increase in poverty rate—except San Francisco County, which exhibited a 4.1-percent decline in poverty rate from 1989 through 1995.
- All but two of the SEA counties—San Francisco and Alameda—experienced a poverty rate higher than the national rate from 1989 to 1995. The southern counties of San Bernardino, Imperial, Riverside, San Diego, and Orange all had poverty rates well above twice the national rate during this time.

Map 20: *Change in Violent Crime Rates*

- Violent crime is considered an indicator of social and economic stress, and increases in the violent crime rate may indicate impeded human adaptation to changing circumstances. Fourteen SEA counties did not show a consistent trend in violent crime rates. Eleven counties experienced either clear or probable downward trends in violent crime rates, and only one county—Merced—experienced an upward trend in its violent crime rate.
- In 1997, the violent crime rate for the SEA region as a whole was higher than the Nation's but lower than the rate for the state of California as a whole.

Map 21: *Change in Property Crime Rates*

- Increases in property crime rates may reflect rising social and economic distress. No county in the SEA region exhibited an upward trend in property crime rates. Four counties displayed a probable downward trend, and 15 counties experienced a clear downward trend in property crime rates. No clear trend was evident in seven SEA counties.
- In 1997, both California and the SEA region had property crime rates substantially lower than that for the Nation as a whole.

Map 22: *Alcohol-Related Collisions*

- Alcohol-related collisions are reflective of the presence of substance abuse in a community, and changes in alcohol-related collisions may indicate changing levels of social stress. The percentage of collisions that was alcohol related ranged between 8.33 percent and 14.20 percent for the SEA counties. The more rural counties exhibited the greatest percentages of collisions as alcohol related, and the more densely populated, urban counties exhibited lower rates of alcohol related collisions.

Section 6: Federal Assistance

Map 23: *Federal Lands-Related Payments to Counties*

- Payments in Lieu of Taxes (PILT) and other federal lands-related revenue sharing payments are only a small portion of total county expenditures in the SEA region.
- Federal lands-related payments make up less than one-tenth of 1 percent of the county expenditures in the SEA region as a whole. Federal lands-related payments ranged from a high of nine-tenths of 1 percent of county expenditures in Imperial County to a low of zero percent in Santa Cruz County.

Section 7: Change in Agricultural Land

Map 24: *Change in Acreage of Farmland*

- The acreage of farmland has decreased by 9.5 percent in California and 9.9 percent in the SEA region between 1987 and 1997 (U.S. Department of Agriculture 1999). But the acreage of cropland decreased only slightly in California in the same period and increased slightly in the region. The acreage of cropland harvested increased by more than 10 percent in both the state as a whole and the region during the same period, and it is difficult to determine the impact of decreases in the acreage of land in farms on the agricultural sector.
- Unanswered questions are, Will the farmland acreage decreases ultimately cause decreases in cropland areas? and Are the increases in harvested cropland and the slight increases in cropland masking important losses in the best quality agricultural lands?

Summation

California and the SEA region have experienced profound social and economic changes in the past 20 years. Many of these changes directly impact the management of federal lands in the region. This atlas uses county, subregional, regional, and state-level data to provide a basis for interpreting the magnitude and location of some of the changes.²

The atlas is organized into these six subject matter sections that, together with a base map section, display and analyze 20 social and economic indicators for the SEA region:

1. Change in economic conditions—economic performance
2. Structural economic change
3. Characteristics of the population
4. Social conditions
5. Federal lands-related payments to counties
6. Change in agricultural land

This atlas serves as a baseline for key economic and social variables and is designed to allow for future analysis and the creation of new displays as new information becomes available. It provides the necessary context for monitoring social and economic changes that will impact management of federal lands.

² On some of the maps, the categories are assigned subjective terms such as **low**, **medium**, or **high**. In this context, the counties are labeled in reference to each other and not a state or national standard; therefore, what may be considered **high** in the SEA area may be considered **low** or **medium** in another region.

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Introduction

The social-economic assessment (SEA) is part of a process to update forest plans and address ecosystem management issues for the Angeles, Cleveland, Los Padres, and San Bernardino National Forests in southern California. The SEA region includes 26 California counties from the San Francisco Bay Area in the north to Imperial and San Diego Counties in the south that have social and economic ties to the four national forests. The region is geographically and socially diverse and includes one of the premier agricultural regions in the United States, the Central Valley, as well as the Los Angeles, San Francisco, and San Diego metropolitan areas, the 2nd, 5th and 17th largest metropolitan areas in the United States in 1998 (U.S. Census Bureau 2000a).

California and the SEA region have experienced change at a profound pace for many decades. Between 1960 and 1998, the population of California increased by 108 percent, a rate of population growth markedly faster than the 51-percent increase for the Nation as a whole. By 1963, California replaced New York as the most populous state in the Nation. This increase in population and coincidental changes in social and economic conditions took place during a period of both booming growth and the recession of the early 1990s, which was particularly prolonged and severe in California. The SEA region had 76 percent of the total population and a disproportionate share of the state's economic activity in 1998.

The large urban populations adjacent to the national forests in southern California as well as the vegetation patterns and commodity production potential have meant that national forest management historically has focused on wildlife, recreation, and watershed management rather than timber production, as was typical for national forests in other parts of California and the west coast (USDA 1986, n.d.a, n.d.b, n.d.c). Commodity resource outputs from national forest lands in the region are insignificant in economic terms when compared with the large private sector economy in the region. Noncommodity outputs and services to people are, in contrast, very important.

The maps, tables, graphics, and interpretations included in this atlas focus on the 26 counties that are included in the SEA region (map 1). Frequently, comparisons and contrasts are made between conditions and changes in the region and larger geographic areas, primarily the state of California and the United States as a whole. Within the region, the analysis addresses conditions and changes at the county level, but many of the discussions also use subregions within the region as a tool for interpreting changes and conditions at a multicounty intermediate level.

The subregion breakdown of the SEA region used in this atlas is the five subregions defined for other SEA assessment activities. The subregions include three groups of counties defined by local government associations and two groups of counties that are cohesive regions on the basis of social, economic, and geographic variables. These five subregions for the SEA region discussions and analysis are:

1. San Francisco Bay Area (Association of Bay Area Governments region): Alameda, Contra Costa, Marin, Santa Clara, San Francisco, San Mateo, and Solano Counties.
2. Central Valley: Fresno, Kern, Kings, Merced, Sacramento, San Benito, San Joaquin, and Stanislaus Counties.
3. Central Coast: Monterey, San Luis Obispo, Santa Barbara, and Santa Cruz Counties.
4. Southern California (Southern California Association of Governments region): Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura Counties.
5. San Diego (San Diego Association of Governments region): San Diego County.

Many of the counties in the region cover large geographic areas representing a diverse array of social and economic conditions spread in complex uneven patterns across the landscape. For example, Riverside and San Bernardino Counties in the southern California subregion both have a dense concentration of population and economic activity in the western portion of the county and large undeveloped areas in the eastern portion of the county. All the illustrations of social and economic variables in this atlas address changes at a county level, and there may be a tendency to associate patterns on the maps with homogenous conditions within a county. This may lead to invalid interpretations in many cases because of the heterogeneity inherent in SEA counties (and many other counties in the West).

Most of the variables in this atlas directly or indirectly relate to conditions and attributes of people. County geographic size does not imply intensity or relative importance of such variables. A relatively small county may have a large population and actually be more important in terms of the variable of interest than a large county that "seems" important on the map because of the large area of the defining display color or pattern.

Within-county and subcounty variation can be an important consideration but is difficult to address in illustrations that focus on annual changes or changes between noncensus years because the decennial census and related information is virtually the only consistent source of subcounty demographic, social, and economic data. Most secondary data series of annual or quarterly social and economic variables only provide information down to a county or metropolitan area level.

There are several research efforts that have produced excellent displays of subcounty information from the decennial census, information derived from the census, or specialized data sources for all or parts of the region. The most noteworthy is "The Digital Atlas of California" (Bowen, n.d.), which includes census tract level map displays of important social and demographic variables from the 1990 census. "The Digital Atlas of California" is part of a family of digital atlases that also has volumes focusing on major metropolitan areas including Los Angeles, Sacramento, San Diego, and San Francisco. Another useful source is the two-volume "Atlas of Southern California" (Dear 1996) that has analysis and maps showing various social, economic, environmental, and governmental variables for the five-county Los Angeles area. Both of these sources offer useful site-specific information that complements the map displays and analysis in this atlas.

This atlas is modeled on a similar atlas published for the Northwest Forest Plan region in Washington, Oregon, and northern California (Christensen and others 2000) and is intended to serve as a basic reference on the location, direction, and magnitude of social and economic change in the SEA region. We focused on the changes in key social and economic variables for the past decade (generally 1987 to 1998 with differences owing to specific data protocols) but also included displays for specific years or other comparison periods when necessary to help complete a comprehensive picture of the SEA region. We have developed a monitoring baseline of the social and economic dimensions of the region that can be updated as new information becomes available.

Telling the Story

Four base maps, including a Mylar overlay provide a geographic overview of the SEA region. The rest of the atlas addresses the following six questions:

1. How are the economies of the SEA region and counties performing, and how has the economic performance changed?
2. What is the economic structure of the SEA region and counties, and how has the economic structure been changing?
3. What are the general characteristics of the population of the SEA region and counties, and which changes have been important?
4. How have social conditions in the SEA region and counties been changing?
5. What is the relative importance of payment from federal lands for SEA counties?
6. What has been the change in the acreage of lands used for agriculture in the SEA counties?

The maps in this atlas represent end results of the complex forces and dynamic interactions in the social and economic functioning of the region. We have portrayed the location and magnitude of social and economic change, and, where appropriate, have included interpretations, supporting information, and graphics that more fully describe the nature of these changes and the social and economic background of the region. Where possible, we have discussed some of the potential reasons for changes in specific indicators, but the atlas does not attempt to examine or explain all the cause-and-effect relations that are implicit in the maps.

Organization of the Atlas

There are seven sections in the atlas:

1. Overlay and base maps
2. Change in economic conditions—economic performance
3. Structural economic change
4. Characteristics of the population
5. Social conditions
6. Federal lands-related payments to counties
7. Change in agricultural land

The Mylar overlay has the 26 SEA region counties and county names and can be used as an overlay for the other maps in this atlas.

Section 1:

Overlay and Base Maps

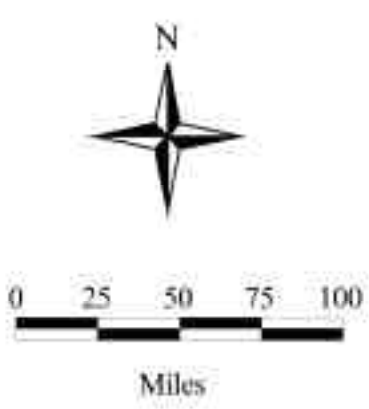
County Names

Federal and Tribal Lands

Population Distribution: 1990 Census Places

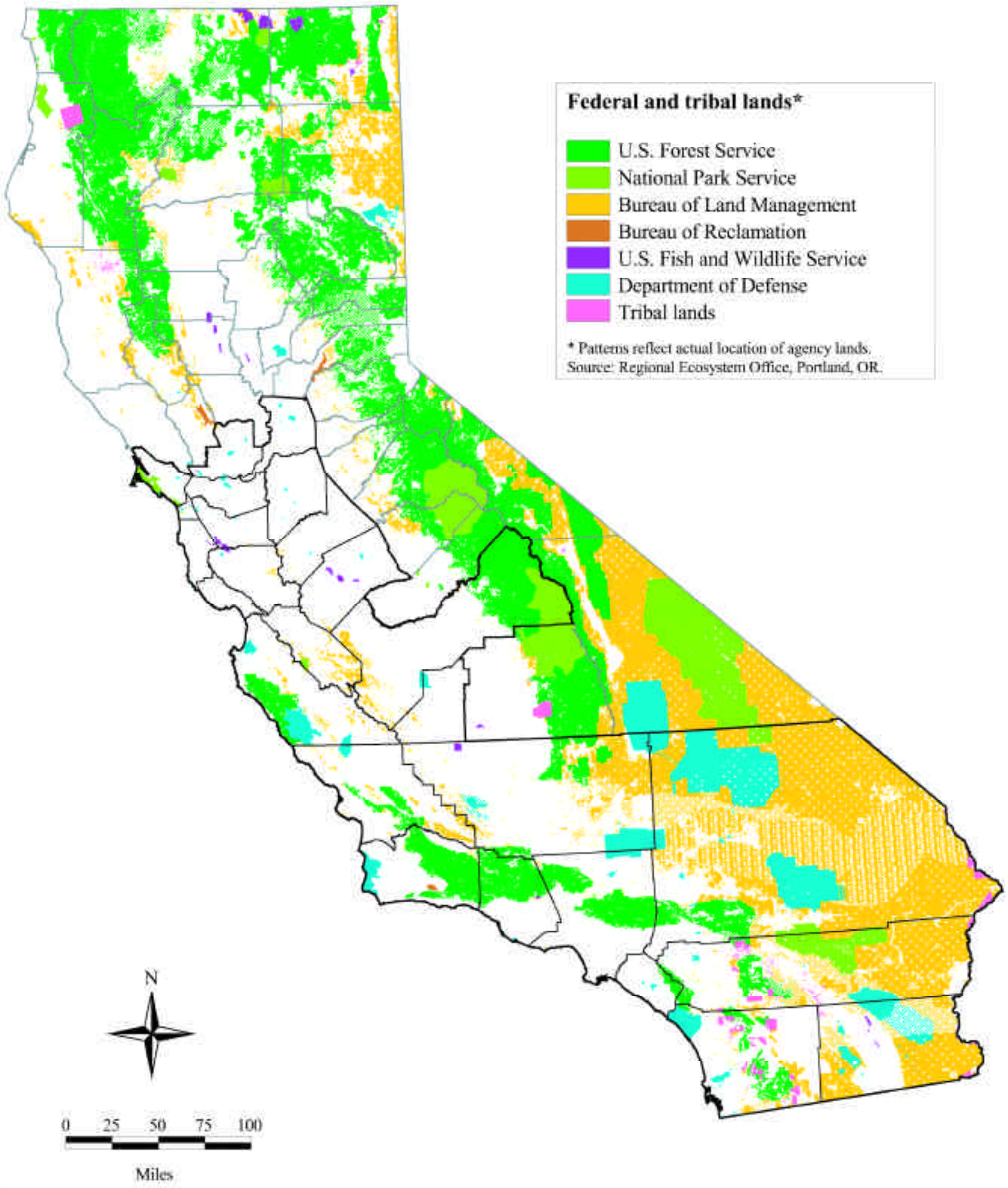
Nonmetropolitan Counties

Map 1-County Names



SEA region boundary County boundaries Counties outside SEA region

Map 2-Federal and Tribal Lands

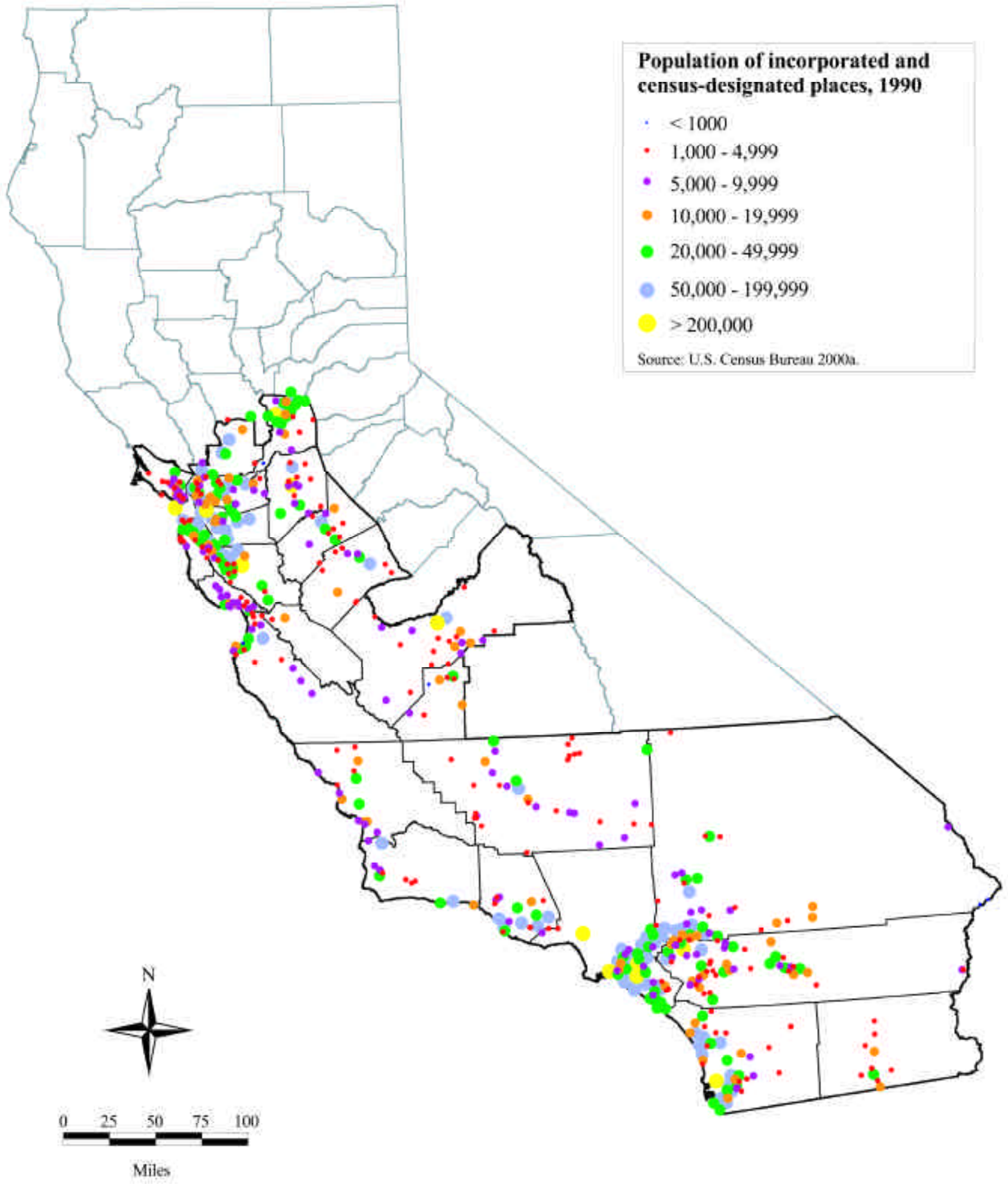


SEA region boundary

County boundaries

Counties outside SEA region

Map 3-Population Distribution: 1990 Census Places



SEA region boundary

County boundaries

Counties outside SEA region

Map 4-Nonmetropolitan Counties



SEA region boundary

County boundaries

Counties outside SEA region

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Section 2:

Change in Economic Conditions:

Economic Performance

Unemployment Rate Compared to Region

Change in Total Employment

Wage Trends

Wage Level

Unemployment Rate Compared to Region

The U.S. Department of Labor, Bureau of Labor Statistics collects basic labor force, employment, and unemployment statistics in the United States monthly as part of the current population survey. A cooperative program between the federal government and the individual states, in turn, develops estimates of employment and unemployment for local areas (including counties and metropolitan areas) across the Nation from the Current Population Survey data (Bureau of Labor Statistics 1999). The Bureau of Labor Statistics provides place of residence-based estimates of the size of the civilian labor force, the number of people unemployed, and the unemployment rate. The unemployment rate is the most commonly used measure of unemployment and is defined as the percentage of the labor force that is unemployed for the specified area and period. The basis for map 5 is the average annual unemployment rate for the SEA region and counties for 1987 through 1998.

The unemployment rate for California generally has followed the unemployment rate for the United States with a recession driving rates higher in the early 1990s followed by a sustained recovery that brought unemployment rates down (fig. 1). There are, however, important differences in the magnitude and timing of the changes. The national recession that occurred in 1990-91 coincided with reductions in defense spending, and consequently severely impacted the economy of California because of the importance of defense and defense-related manufacturing in California (California Trade and Commerce Agency 2000). Recovery from the recession in California trailed the national economy, and unemployment rates in California did not begin to fall until 1994. Unemployment rates in California continued to fall gradually through the rest of the decade, and by spring 2000, the rate was under 6 percent but still above national rates. The unemployment rate for both the state of California and for the region has been at least a full percentage point above the national rate every year since 1990.

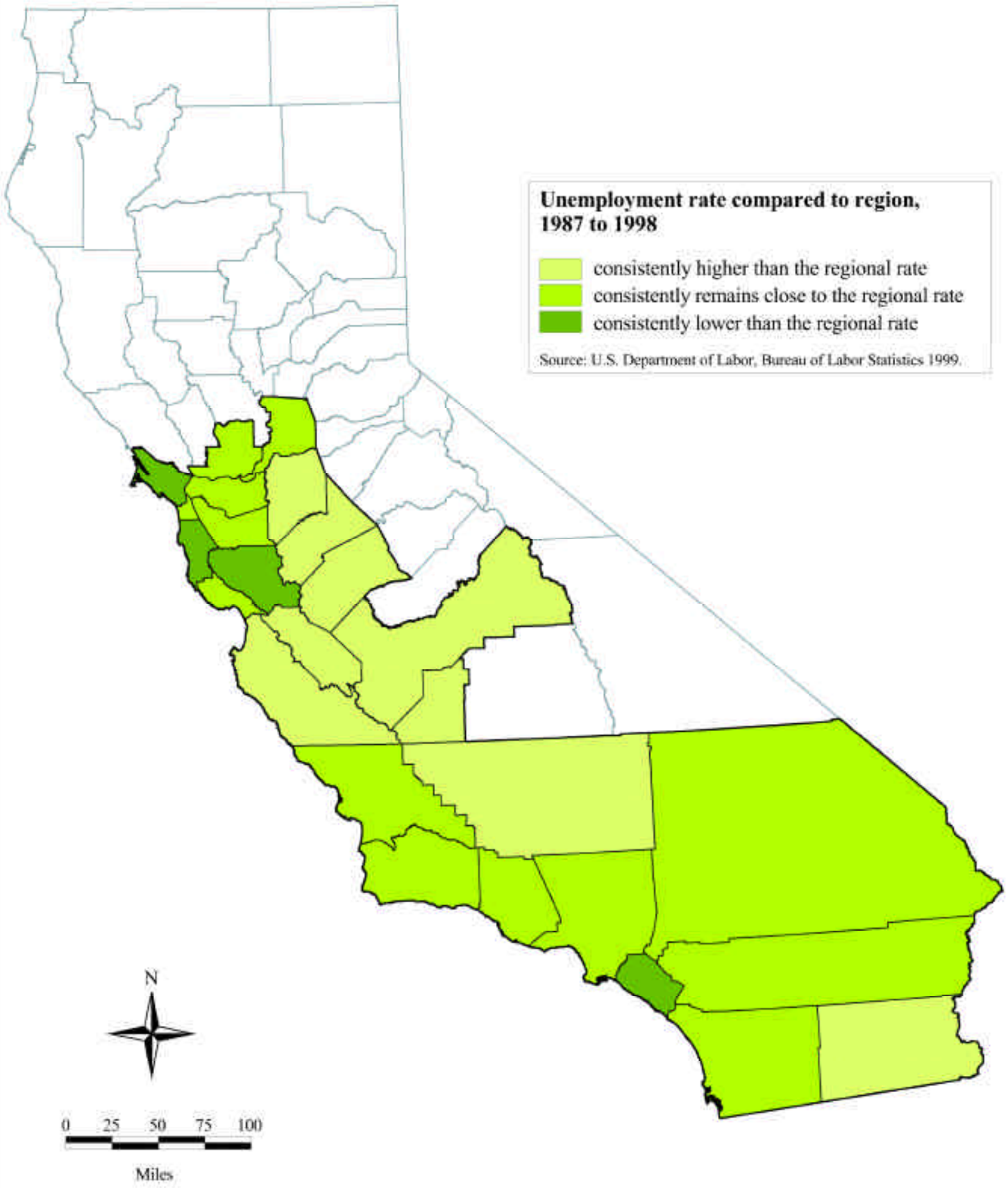
The pattern of changes in the unemployment rate in the SEA region follows that of the state of California (fig. 1). The lowest unemployment rates for 1987-98 in the SEA region occurred before the onset of the recession in 1991. By 1992, the average annual unemployment rate for the region was at 9.1 percent, well above the national rate of 7.5 percent. Unemployment rates in the SEA region peaked the following year at 9.2 percent and began a slow, steady decline coinciding with the economic recovery in the SEA region and California. By 1998, the rate for the SEA region was almost down to prerecession levels at 5.8 percent.

The pattern of recovery from the recession of the early 1990s has differed across the SEA region. Counties in the San Francisco Bay Area began to recover earlier than other counties because of strength in technology-related sectors. In contrast, counties in southern California were particularly hard hit by the recession because of the concentration of sectors dependent on defense spending. Recovery from the recession in southern California did not begin until late in the decade (California Trade and Commerce Agency 2000).

Map 5 shows three patterns of unemployment rates in the SEA region. Those counties that had consistently high unemployment rates during 1987-98 have been designated "Consistently higher than the regional rate." Counties were assigned this designation when they had an unemployment rate remaining at least one standard deviation (between 2.0 and 2.9 percent, depending on the year) above the regional rate 70 percent of the time. Those counties that had consistently low unemployment rates during 1987-98 have been designated "Consistently lower than the regional rate." This designation is defined as the rate remaining one standard deviation below the regional rate at least 70 percent of the time. Those counties that remained within one standard deviation of the regional rate at least 70 percent of the time are designated as "Consistently remains close to the regional rate."

Three counties in the San Francisco Bay Area, Marin, Santa Clara, and San Mateo, and one county in Southern California, Orange County, consistently show unemployment rates that are one standard deviation (2.3 to 2.9 percent or more) or more below the regional unemployment rate. The strength of high-technology sectors as well as specialized manufacturing, biotechnology, and export-related industries contribute to the economic health of these counties (California Trade and Commerce Agency 2000).

Map 5-Unemployment Rate Compared to Region



SEA region boundary

County boundaries

Counties outside SEA region

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In contrast, the unemployment rate in Imperial County has consistently been the highest in the region. The unemployment rate has been above 20 percent for every year of the 1987-98 period and was at 25.7 for 1998, more than five times the national rate. Imperial County's dependence on agriculture and lack of metropolitan areas as well as unique employment and labor force factors related to its location on the United States-Mexico border contribute to the persistent high unemployment rate.

Eight other counties in the region, Fresno, Kern, Kings, Merced, Monterey, San Benito, San Joaquin, and Stanislaus Counties, have consistently had unemployment rates one standard deviation or more above the regional rate. All the counties in this group are in the Central Valley and central coast subregions and had unemployment rates in excess of 10 percent in 1998, more than twice the rate for the United States (table 1). The Central Valley counties as well as the rural northern counties in California consistently have high unemployment rates (Christensen and others 2000). This is due, in part, to seasonal jobs in the agricultural, forestry, and tourism-related industries (California Trade and Commerce Agency 2000).

The Central Valley is a highly productive agricultural area on both a national and international scale. A large portion of the economy in these counties is in agriculture and related sectors such as food and kindred products processing, agricultural services, and transportation of agricultural products. Employment in agriculture and food processing is often highly seasonal and subject to variability owing to changes in markets and crops. The county unemployment rates in the Central Valley reflect the dependence on agriculture, and the unemployment rate for Central Valley counties is generally well above the rate for the rest of the area and for the state of California as a whole (Umbach 1998). By the fourth quarter of 1999, all counties in the Central Valley had unemployment rates below 10 percent.

Table 1—Unemployment rates for social-economic assessment counties with consistently high unemployment: 1987-98

County	Unemployment rates ^a											
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
	<i>Percent</i>											
Fresno	10.7	10.7	10.0	10.5	12.6	15.7	15.4	13.8	14.1	13.1	13.3	14.3
Imperial	20.1	22.1	22.3	20.0	21.3	29.4	28.5	26.2	29.3	29.5	26.6	25.7
Kern	9.9	9.9	10.5	10.5	11.8	15.5	15.8	14.7	13.7	12.7	12.2	12.1
Kings	10.0	10.0	10.1	10.8	12.8	15.3	15.3	13.7	14.6	13.0	13.0	13.7
Merced	10.9	10.9	11.0	12.2	14.6	16.5	17.0	15.5	17.1	16.3	15.4	15.1
Monterey	8.3	8.3	8.1	9.0	10.9	12.4	12.9	12.1	12.4	11.1	10.8	10.8
San Benito	12.9	12.9	12.4	12.8	17.2	16.9	15.6	13.7	13.7	11.7	11.0	10.4
San Joaquin	9.7	9.7	9.4	9.8	12.0	13.9	14.0	12.6	12.3	11.2	10.6	10.5
Stanislaus	12.0	12.0	11.3	11.5	14.3	16.5	16.7	15.7	15.5	14.1	13.0	12.2

^a Expressed as a percentage of the civilian labor force unemployed during the given period.

Source: U.S. Department of Labor, Bureau of Labor Statistics 1999.

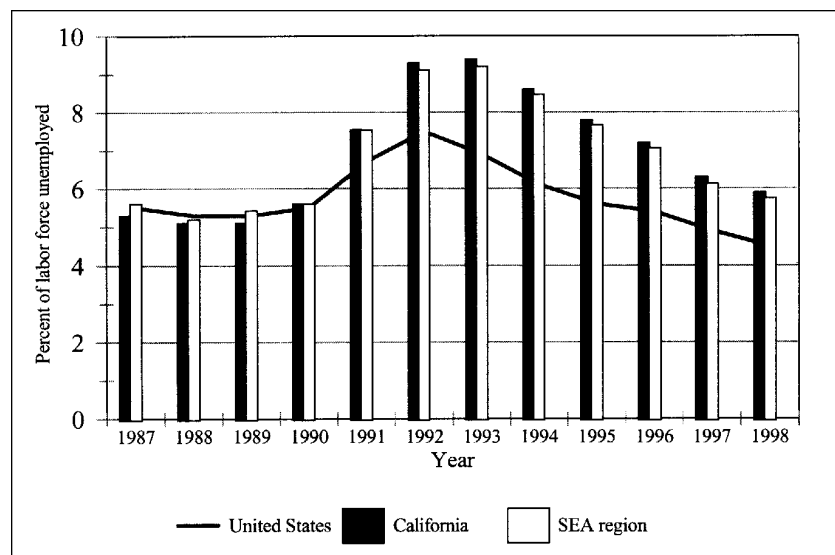


Figure 1—Social-economic assessment (SEA) region unemployment rate compared to the United States and California, 1987-98 (U.S. Department of Labor, Bureau of Labor Statistics 1999).

Change in Total Employment

Change in total employment for all sectors in an economy provides one indicator that can be used to monitor changes in the overall health of that economy. Change in total employment also can serve as an indirect indicator of the availability of potential opportunities for new entrants in the labor force as well as alternative opportunities for unemployed workers.

Map 6 shows the change in total employment for SEA counties between 1987 and 1997. The total employment data are from the 1969-97 Regional Economic Information System (REIS) (U.S. Department of Commerce, Bureau of Economic Analysis 1999). These employment estimates are on a "place-of-work" basis and are by industry at the Standard Industrial Classification (SIC) one-digit level of detail. Employment is defined as the average annual number of jobs, including full- and part-time jobs. The REIS employment estimates include both wage and salary workers and self-employed workers (U.S. Department of Commerce, Bureau of Economic Analysis 2000). Wage and salary employment estimates are derived from the Bureau of Labor Statistics (U.S. Department of Labor) ES-202 series. Monthly employment and quarterly payrolls for the ES-202 series are collected by the employment or employment security departments in each state at the individual firm level. Information is then summarized with guarantees on the confidentiality of firm level data (U.S. Department of Commerce, Bureau of Economic Analysis 2000, Washington State Employment Security Department 1997).

The 1990 recession halted the economic expansion of the 1980s and growth in employment the United States, but nationally the recession ultimately proved to be relatively mild and short lived (Council of Economic Advisors 1993). Economic expansion and growth in employment in California and the region also stopped with the onset of the national recession—a recession that proved to be far more severe and persistent in California and particularly the Los Angeles metropolitan area than for the Nation as a whole. Total employment in the region declined for 3 consecutive years between 1991 and 1993.

Recovery from the recession in California and the region was hampered by the cutbacks in important aerospace and defense-related industries as well as a large stock of residential and commercial buildings that lowered demand for new construction (Dear 1996). Growth in employment in California and the region resumed in 1994 as the recovery from the recession began, and by 1997, total employment for the region had increased almost 9 percent from the recession level. For the entire 10-year period, from 1987 to 1997, California has had a 17.1-percent increase in total employment, and the SEA region has had a 16-percent increase. The services sector continues to provide large increases in total employment in California with an increase of 346,500 jobs in the first 11 months of 1999 alone (California Trade and Commerce Agency 2000).

The SEA counties are divided into three classes of employment increases—small, moderate, and large—with each class representing about one-third of the SEA counties. The terms small, moderate, and large refer to employment increase relative to the SEA counties and are not meaningful in absolute terms or comparison with employment increases for other geographic areas.

Three counties in the region, Riverside, Imperial, and San Benito, had large increases (35.6 percent to 52 percent) in total employment during the 1987-97 period. Riverside and Imperial Counties rank in the top 10 for large increases of total employment every year during this period, and relatively large total employment increases in San Benito County began with the recovery from the recession. San Benito and Imperial Counties are non-metropolitan counties that have had high unemployment rates during this same period because the labor force is increasing even faster than total employment. The relatively large percentage of increase in total employment in these two counties has not had a corresponding impact on the relative increase in total employment for the region as a whole because the absolute number of employees in these nonmetropolitan counties is small.

Sixteen other counties dispersed across the region had moderate increases (20 to 35 percent) in total employment during this period. The remaining seven counties in the region, Orange, Alameda, Merced, Monterey, Santa Barbara, San Francisco, and Los Angeles Counties, had the smallest (3.0- to 19.6-percent) relative increase in total employment during the 10-year period. San Francisco, Monterey, and Los Angeles Counties show the smallest relative gains in total employment during this period and had an important impact on the percentage of gain for the region as a whole because Los Angeles County alone accounts for almost one-third of the total employment in the entire region (fig. 2). In all, 19 out of 26 SEA counties exceeded both the state increase in total employment of 17.1 percent and the SEA region increase of 16 percent for the years 1987-97.

Employment trends in the nonmetropolitan and metropolitan counties in the region show similar patterns of employment growth and decline in employment through cycles of recession and recovery (fig. 3). Recovery following both the early 1970s recession and the early 1980s recession was relatively rapid with total employment growing to prerecession levels within 2 to 2 1/2 years. Recovery from the 1990-91 recession was noticeably more prolonged in California with about 5 years needed for recovery to prerecession employment levels (Dardia and Luk 1999). By 1997, total employment in all the SEA counties was above 1987 levels.

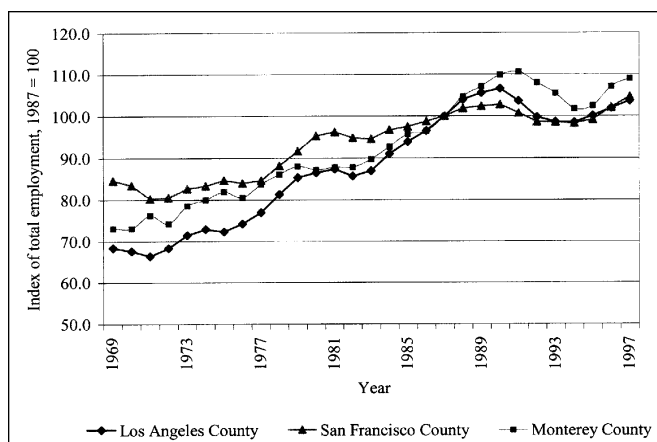


Figure 2—Index of total employment, social-economic assessment counties with the smallest increases in total employment, 1969-97 (U.S. Department of Commerce, Bureau of Economic Analysis 1999).

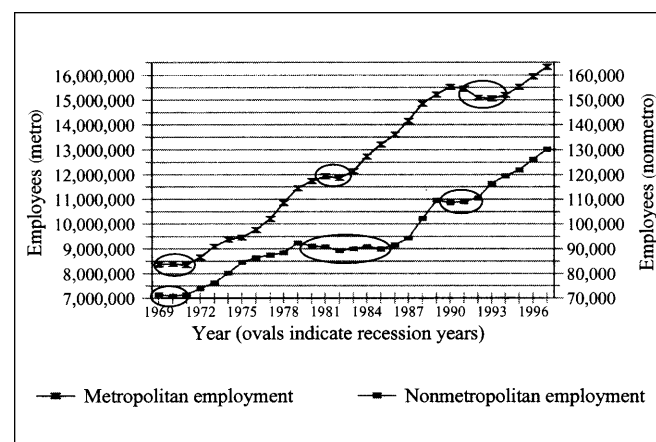
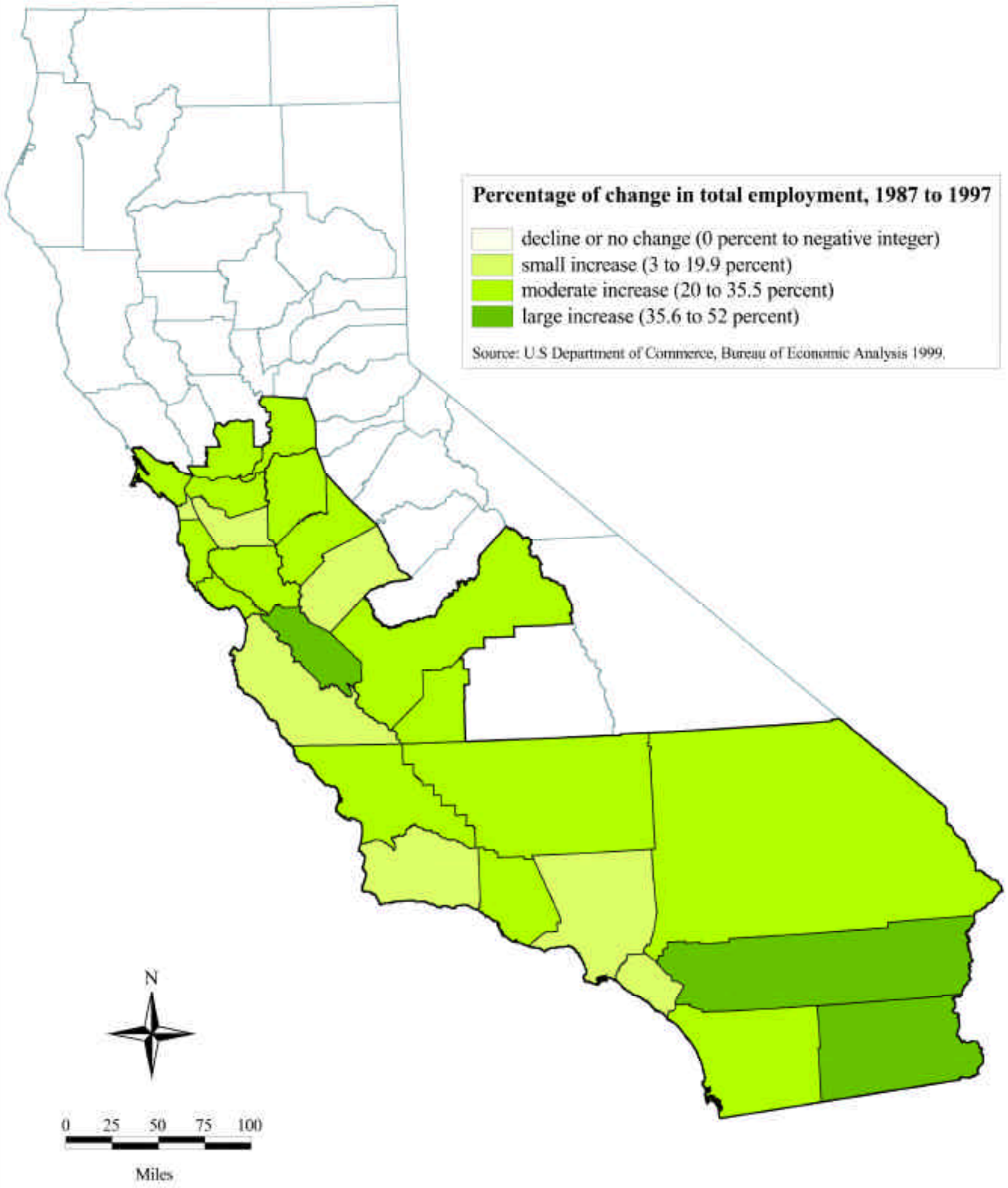


Figure 3—Social-economic assessment region metropolitan and nonmetropolitan county employment, 1969-97 (U.S. Department of Commerce, Bureau of Economic Analysis 1999).

Map 6-Change in Total Employment



SEA region boundary

County boundaries

Counties outside SEA region

Wage Trends

Wages are another indicator of economic well-being and also serve as an indicator of labor market conditions and relative job quality (Christensen and others 2000). Map 7 shows wage trends from 1987 through 1997 based on wages measured by average earnings per job. Wages were obtained for each SEA county, the United States, and the state of California from the Bureau of Economic Analysis 1969-97 REIS (U.S. Department of Commerce, Bureau of Economic Analysis 1999). Income data from REIS are a comprehensive source for estimates of personal income at state and county levels. Data from REIS are also useful for monitoring income sources and changes over time (Salant 1990). Only wage and salary income is included in this analysis. The wages were adjusted to account for inflation by adjusting all figures to constant 1992 dollars by using the chain-type price indices for gross domestic product, from the Council of Economic Advisors (1999).

Wage and salary income in California historically has been higher than that for the rest of the Nation. Wages for both the region and the state of California were above those of the Nation every year from 1980 through 1997 (fig. 4). Earnings per job for the region generally follow the wage trends for the state of California, but the variation over time has been greater in the region.

Four SEA counties, San Bernardino, Riverside, Imperial, and Kings Counties, show a “general downward trend” in earnings. A county is designated as having a downward trend in wages when 1997 average earnings are lower than 1987 earnings, and the earnings have been declining for at least 70 percent of the period. For San Bernardino County, the decline in annual earnings per year has been relatively small. Riverside County fluctuated more, with a large decline of \$1,252 in average annual earnings during the recession in 1990 to 1991. Imperial County had a large decline of \$2,222 in average annual earnings from 1988 to 1989 and another large decrease of \$3,135 in earnings from 1993 to 1994. There also have been large fluctuations in average annual earnings in Kings County, with a large decline in earnings of \$1,075 from 1996 to 1997, and a decrease of \$1,052 during the recession from 1990 to 1991.

Although there was a downward trend in average annual earnings in both Riverside and Imperial Counties, employment was increasing at a relatively rapid rate during the same period (map 6). These apparent contradictions are common in economic data and illustrate the need to consider many variables and trends when assessing the economic health of a region or county. In this case, an examination of the wages and relative mix of jobs in the economy by sector indicates that the divergence in these indicators is caused by a relative increase in the number of jobs in the lower wage trade and service sectors and labor market factors.

San Mateo, Santa Clara, Alameda, San Francisco, and Marin Counties in the San Francisco Bay Area and San Diego County had a “general upward trend” in earnings. A county is designated as having a “general upward trend” in wages when 1997 average earnings are higher than 1987 earnings, and the earnings have been increasing for at least 70 percent of this period.

Average annual earnings in the San Francisco Bay Area are high compared to the rest of California. Marin County is a suburban county adjacent to the San Francisco metropolitan area and was not as severely affected as the other SEA counties by the recession. Earnings declined in Marin County during the 1990s recession, but subsequently increased and were over \$1,000 per year above the 1987 annual average by 1997. Alameda County has had an expanding construction industry and an increase of \$2,600 in average annual earnings since 1987. Other counties with an upward trend in earning located in the San Francisco Bay area include San Francisco County with an increase of \$5,335 in earnings since 1987, San Mateo County with a \$5,207 increase, and Santa Clara County with an increase of \$8,804 in average annual earnings since 1987, the highest in the region.

Most of the counties (16), located in the interior and western parts of the region, show “no clear trend” in average earnings per job. “No clear trend” is defined as counties that do not meet either of the 1987 and 1997 annual average earnings comparisons, and earnings trend screens (increasing or decreasing) defined for “clear upward trend” or “clear downward trend.”

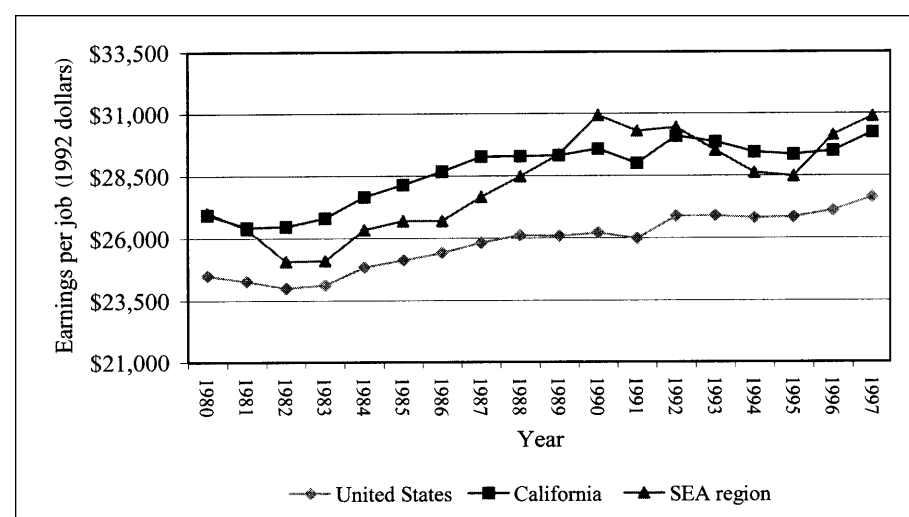
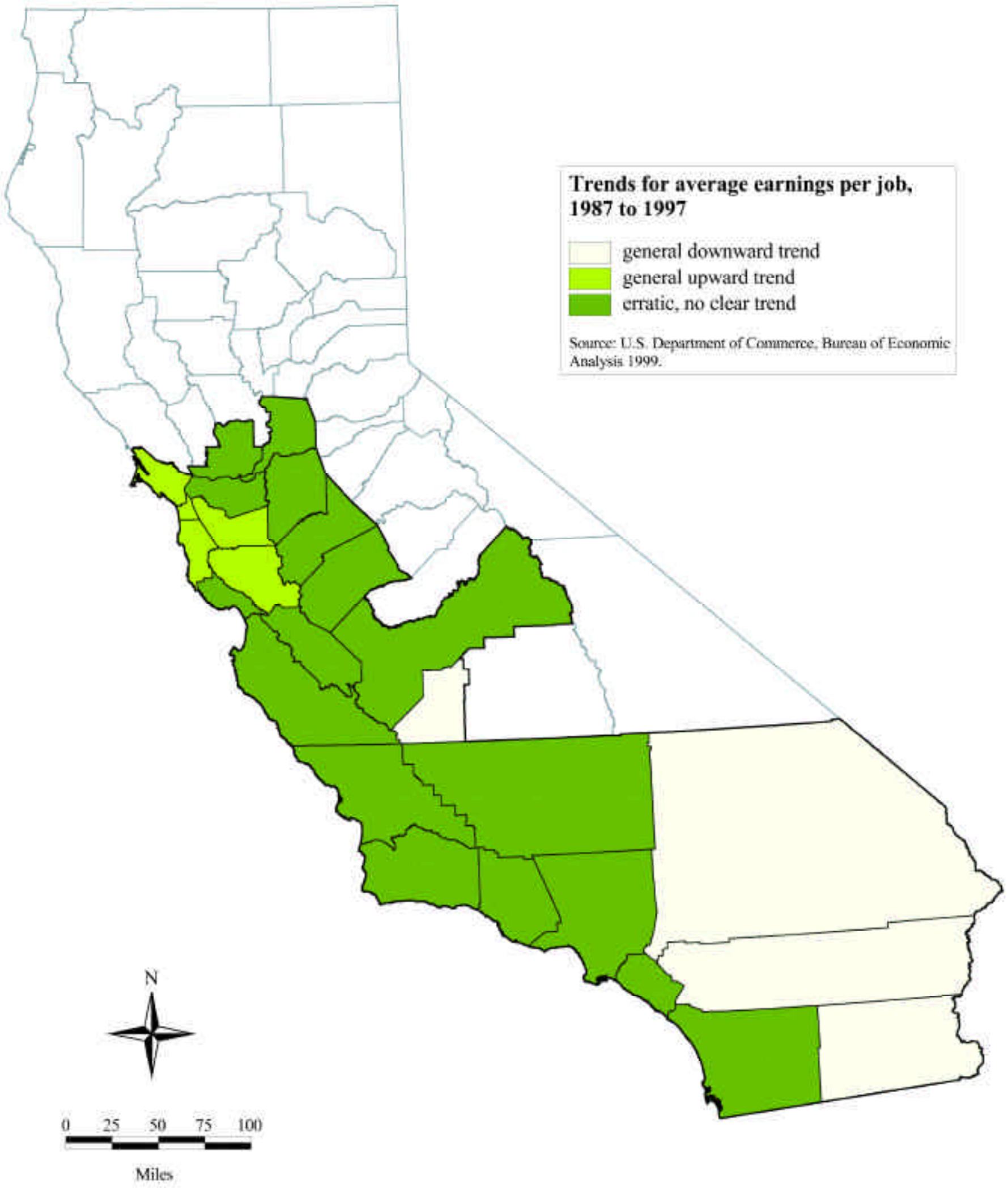


Figure 4—Wage trends across the United States, California, and the social-economic assessment (SEA) region, 1980-97, in 1992 dollars (U.S. Department of Commerce, Bureau of Economic Analysis 1999).

Map 7-Wage Trends



SEA region boundary

County boundaries

Counties outside SEA region

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When metropolitan and nonmetropolitan areas are compared, average earnings for metropolitan areas in the region exceeded average annual earnings for the United States and were at or slightly above the average annual earnings for the state of California from 1969 through 1997 (fig. 5). Average annual earnings in nonmetropolitan areas have been below the average for the United States and have also been below the average for the state of California (fig. 6). The difference between metropolitan area average annual earnings and nonmetropolitan area average annual earnings in the region generally has been increasing since 1980 (fig. 7).

Average annual earnings in the three nonmetropolitan counties in the SEA region (Imperial, Kings, and San Benito Counties) have been declining relative to earnings in metropolitan areas in the region, the state of California, and the United States as a whole. These same counties also have relatively high unemployment and a large proportion of jobs that are seasonal jobs in agriculture. This indicates that these counties are losing ground in economic terms compared to other parts of the region.

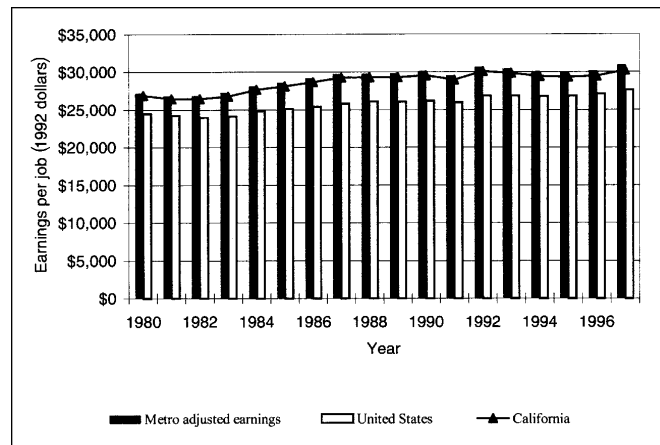


Figure 5—Average social-economic assessment region metropolitan earnings compared to the United States and California, 1992 dollars, 1980-97 (U.S. Department of Commerce, Bureau of Economic Analysis 1999).

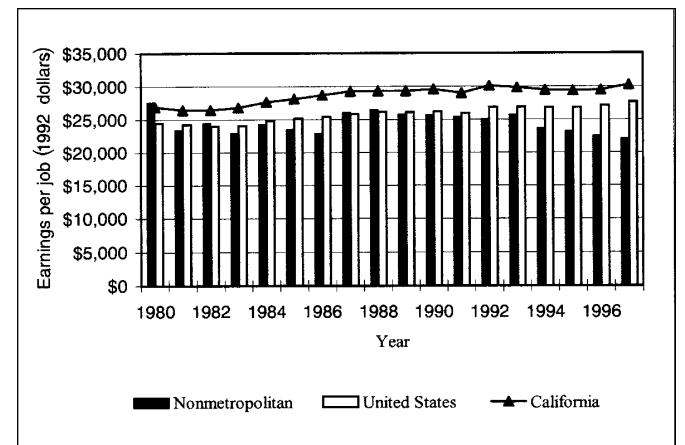


Figure 6—Average social-economic assessment region nonmetropolitan earnings compared to the United States and California, 1992 dollars, 1980-97 (U.S. Department of Commerce, Bureau of Economic Analysis 1999).

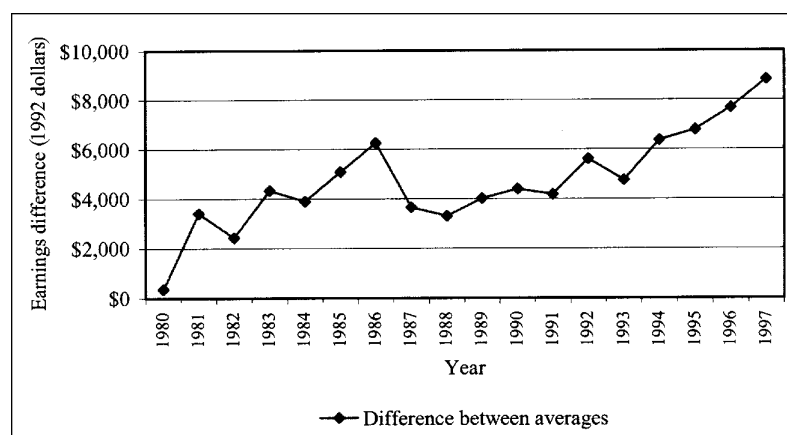


Figure 7—Difference between the average metropolitan and nonmetropolitan earnings of the social-economic assessment region in 1992, 1980-97 (U.S. Department of Commerce, Bureau of Economic Analysis 1999).

Wage Level

Map 8 shows the wage level by using 1997 adjusted annual average earnings per job. The earnings were adjusted for inflation to constant 1992 dollars by using the chain-type price indices for gross domestic product (Council of Economic Advisors 1999). The counties have been divided into thirds, based on a ranking of 1997 earnings per job, with nine counties in the lowest third, eight counties in the middle third, and eight counties in the highest third. Average annual earnings per job for SEA counties are on a place-of-employment basis from the REIS (U.S. Department of Commerce, Bureau of Economic analysis 1999).

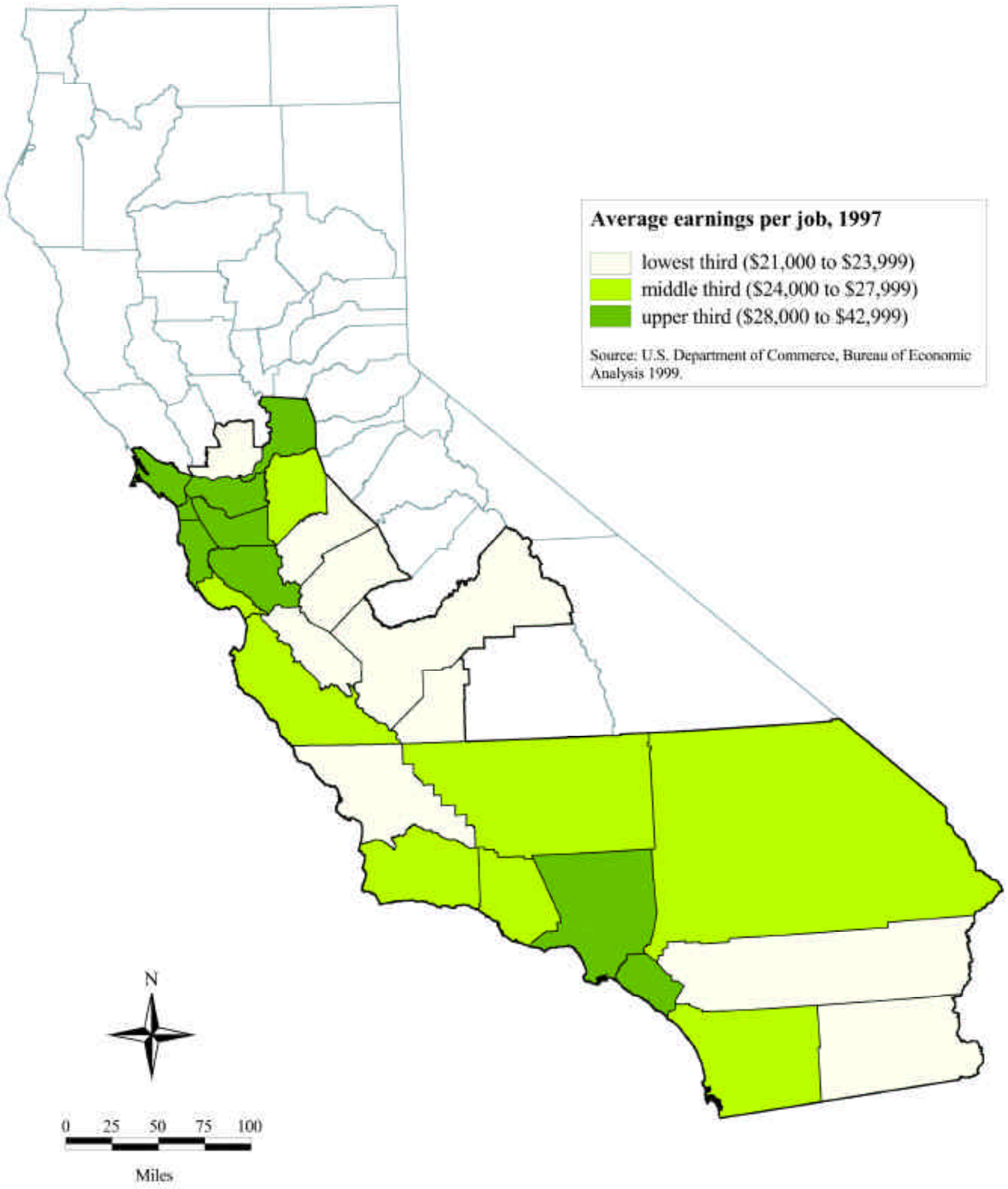
In 1997, the average wage level for the nonmetropolitan counties in the region was well below the wage level for the metropolitan SEA counties, the state of California, and the Nation as a whole. Adjusted annual average earnings in 1997 for the three nonmetropolitan SEA counties were almost \$9,000 (in 1992 dollars), or 29 percent less than the average for metropolitan SEA counties. This difference in wage levels between nonmetropolitan and metropolitan counties has increased markedly since the 1970s.

Six of the highest wage level counties in 1997 (average earnings per job of \$28,000 to \$42,900) were the metropolitan counties of Alameda, Contra Costa, Marin, Santa Clara, San Francisco, and San Mateo in the San Francisco Bay Area. The high wage level in these counties is due, in part, to the high-technology industries with earnings exceeding \$60,000 per year for many high-tech positions in the computer industry. Both Los Angeles and Orange Counties were also in the upper third of average earnings per job for 1997. The high wages in the California entertainment industry, with statewide average earnings of \$67,700 per job, also contribute to the high wage level in this part of the region (California Trade and Commerce Agency, n.d.). Sacramento County was the final SEA county in the top nine counties for 1997 wage levels, a reflection of the large numbers of state government employees with wage levels above the average for nonfarm jobs.

Counties in the middle third are scattered throughout the region, with the 1997 wage level ranging from \$24,000 to \$27,999. Counties in the lower third (average annual income in 1997 of \$21,000 to \$23,999) are scattered across the region with a concentration of five counties in the Central Valley. The Central Valley accounts for 1.8 million jobs and is the major agricultural region in California. Wage levels in the agricultural industries are generally low. For example, the eight counties in the San Joaquin Valley, extending from San Joaquin County to Kern County in the Central Valley, would rank 40th in the Nation compared to other states on the basis of median household income (Umbach 1998). The manufacturing and service sectors of the Central Valley have expanded recently, as people have migrated out of the heavily populated coastal regions of northern and southern California and wage levels have begun to increase (California State Legislative Analysts Office 2000).

When the 1997 wage level map (map 8) is compared to the wage trend map (map 7), none of the counties with the lowest 1997 wage levels showed an upward trend in average annual earnings per job between 1987 and 1997. In contrast, five of the six SEA counties with an upward trend in wage levels are also counties that are in the upper one-third of SEA counties for wage levels. This indicates that recent trends in wage levels are not likely to lead to widespread changes in the wage level ranking of the SEA counties. Wage levels in a county are an end result of a complex array of economic factors including the mix of industries present in the local economy, labor markets, the seasonality of local industries, and external market factors.

Map 8-Wage Level



SEA region boundary

County boundaries

Counties outside SEA region

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Section 3:

Structural Economic Change

Economic Diversity

Fastest Growing Nonfarm Industries

Slowest Growing Nonfarm Industries

Economic Diversity

Economic diversity is one way to assess the structure of an economy. The presence and relative importance of different industries in an economy determine the economic diversity. An economy with economic activity well distributed across an array of industrial sectors has a higher economic diversity than an economy with economic activity concentrated in a few closely related sectors. Generally, a highly diverse economy is more resilient and resistant to adverse changes caused by outside market forces than a less diverse economy, but other factors also need to be considered. Economic resiliency is not enhanced in a local economy if the economic diversity is based on sectors that respond similarly to outside market forces (Christensen and others 2000).

We use the Shannon-Weaver entropy function in map 9 as a way to examine economic diversity, by using a normalized value on a scale of zero (no diversity) to one (perfect diversity). The Shannon-Weaver entropy indices have been computed by using two-digit SIC level IMPLAN data for 70 sectors by the USDA Institute for Inventory and Monitoring. IMPLAN is an input-output system for regional economic impact analysis and is based on a proprietary database that is updated as new data become available (Minnesota IMPLAN Group, Inc. 1997). If a county has no economic diversity, all employment is in one industry. Perfect diversity means employment is equally distributed across all 70 industries.

The SEA counties are grouped on map 9 according to the 1996 diversity indices. The SEA counties are divided into thirds, with diversity indices for counties in the “low-diversity” category ranging from 0.6855 to 0.7474; from 0.7495 to 0.7828 for “moderate diversity” counties; and from 0.7840 to 0.8261 for “high diversity” counties on the diversity scale of zero to one. The diversity classes are relevant only in comparison with SEA counties. The diversity indices are not “high” or “low” in an absolute sense and not as compared to counties or areas outside the SEA region. The total spread of diversity indices for the SEA region is not very large.

Overall, the SEA region and California as a whole have relatively high economic diversity indices. The region currently is slightly higher than the state as a whole in diversity and has had a higher diversity throughout the 1982-96 period (fig. 8). Diversity indices for both the region and the state of California increased throughout the recovery and expansion from the recession of the early 1980s but stopped increasing with the 1990s recession. There was a small decline in the diversity indices between 1993 and 1996.

All three nonmetropolitan counties (Imperial, San Benito, and Kings Counties) are classified as having “low diversity,” and Imperial and Kings Counties are the two least diverse counties in the region. The low-diversity counties are generally those with more rural, agriculturally based economies or those with a predominant single industry such as state government in Sacramento County. The other six counties with low-diversity economies are scattered across the region. Five counties along the Pacific coast, San Diego, Orange, Los Angeles, Ventura, and Santa Barbara Counties; two counties in the San Francisco Bay Area, San Francisco and Alameda Counties; and San Joaquin County in the Central Valley have economies with high diversity.

The average diversity indices for each group of counties on the map (low, moderate, and high diversity) was calculated for all the years IMPLAN data were available. The change in the average diversity index during specific periods for each group was then displayed (fig. 9). In the first half of the 1980s, those counties in the lowest diversity group had the largest increase in diversity indices. From 1985 to 1996, all three groups had similar patterns of change in the average diversity index.

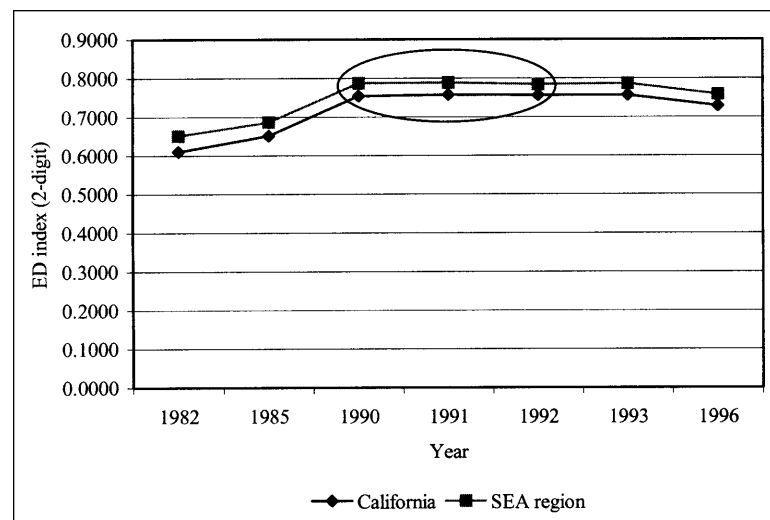


Figure 8—Average economic diversity indices for California and the social-economic assessment (SEA) region, 1982 to 1996. Circle indicates recession period (U.S. Department of Agriculture, Forest Service 2000b).

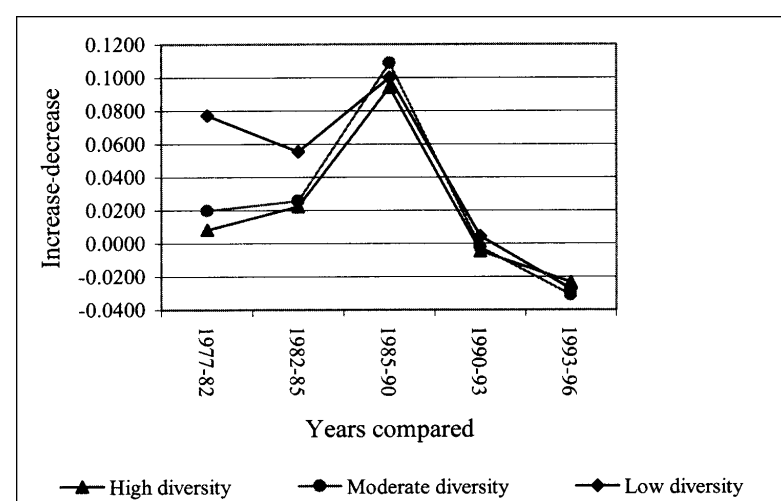
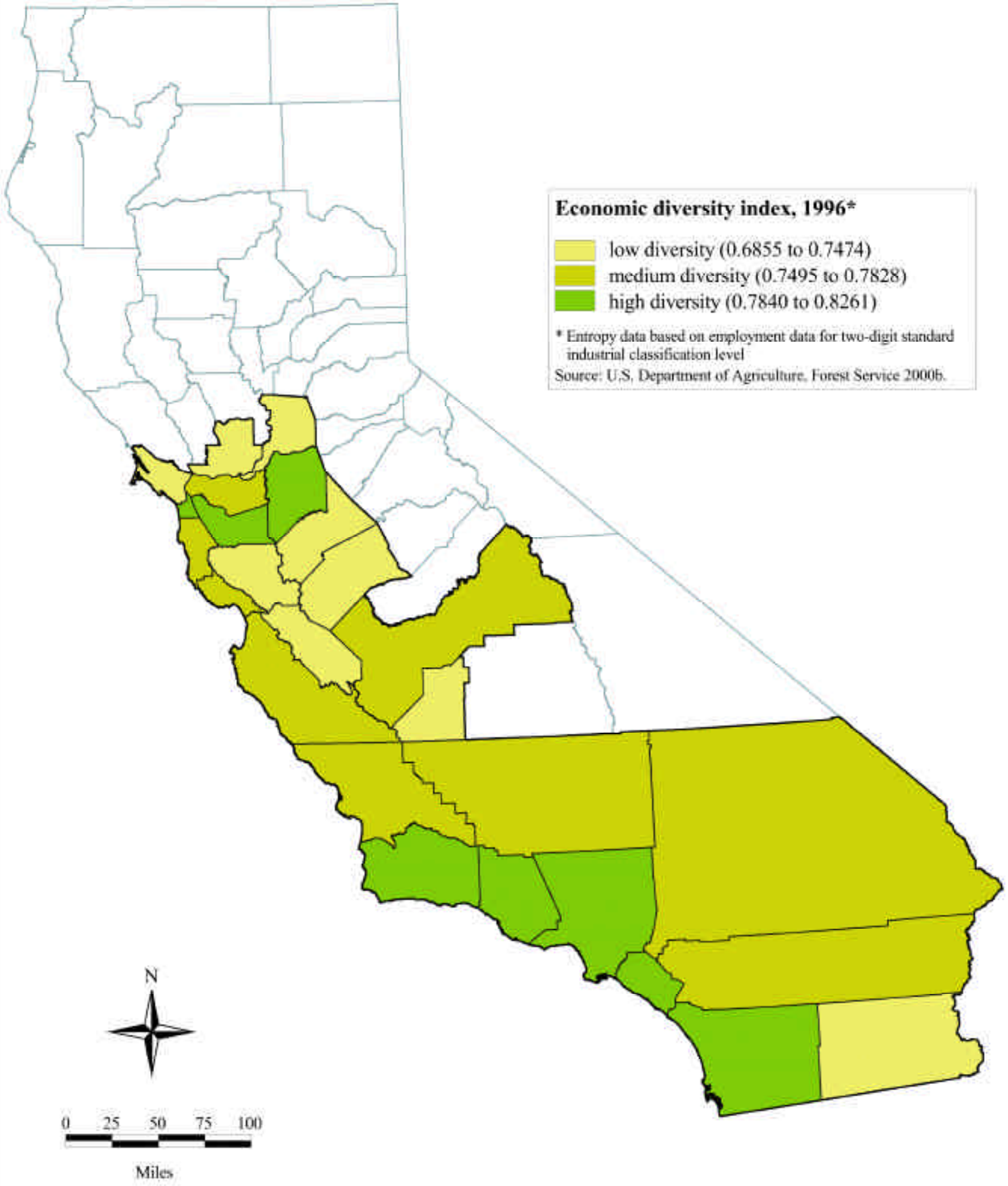


Figure 9—Amount of change in average economic indices in the social-economic assessment region during specific periods (U.S. Department of Agriculture, Forest Service 2000b).

Map 9-Economic Diversity



SEA region boundary

County boundaries

Counties outside SEA region

Fastest Growing Nonfarm Industries

Map 10 is based on county-level industry earnings information at the one- and two-digit SIC level for 1987 and 1997 from the REIS (U.S. Department of Commerce, Bureau of Economic Analysis 1999). Earnings for the SEA counties were summarized for these industry sectors and sector groups:

- Agricultural services, forestry, fishing, and other
- Mining
- Construction
- Manufacturing:
 - Durable goods
 - Nondurable goods
- Transportation and public utilities
- Wholesale trade
- Retail trade
- Finance, insurance, and real estate
- Services
- Government:
 - Federal, civilian
 - Military
 - State and local government

Industry earnings are expressed in 1992 dollars by using the chain-type price indices for gross domestic product (Council of Economic Advisors 1999).

Only those industry sectors that accounted for 5 percent or more of the total nonfarm earnings of a specific county in both 1987 and 1997 were included as part of the analysis. The growth in nonfarm earnings was then determined by calculating the compound rate of change in industry earnings between 1987 and 1997 for each sector. Those industries with the highest compound growth rate in earnings were considered the “fastest growing nonfarm industries” for a given county, and those industries with the lowest compound growth rate in earnings were considered the “slowest growing nonfarm industries” for that county.

Economic growth in the United States during the first half of the 20th century was led by rapid growth in manufacturing sectors (Council of Economic Advisors 1991). Subsequent economic growth for the Nation as well as the region and California has centered on expanding service, financial, and knowledge-based industries (Council of Economic Advisors 1991, U.S. Department of Commerce, Bureau of Economic Analysis 1999). This trend is evident in the region with 16 out of the 26 counties in the region having services as the fastest growing industry sector between 1987 and 1997.

The fastest growing sectors in other counties were state and local government (Kern, Kings, Monterey, and Santa Barbara Counties) and finance, insurance, and real estate (Sacramento, San Francisco, and San Joaquin Counties). Three sectors fell under the “other” category with one county each (table 2). Because the industries for map 10 are at the one- and two-digit level of detail, many specific industry sectors are included in the aggregates. The services sector, for instance, includes a wide array of specific industries, and changes in economic activity in a specific county may be concentrated in certain portions of the services sector. Finance sectors include such diverse industries as real estate, insurance, and the traditional financial industries such as banking.

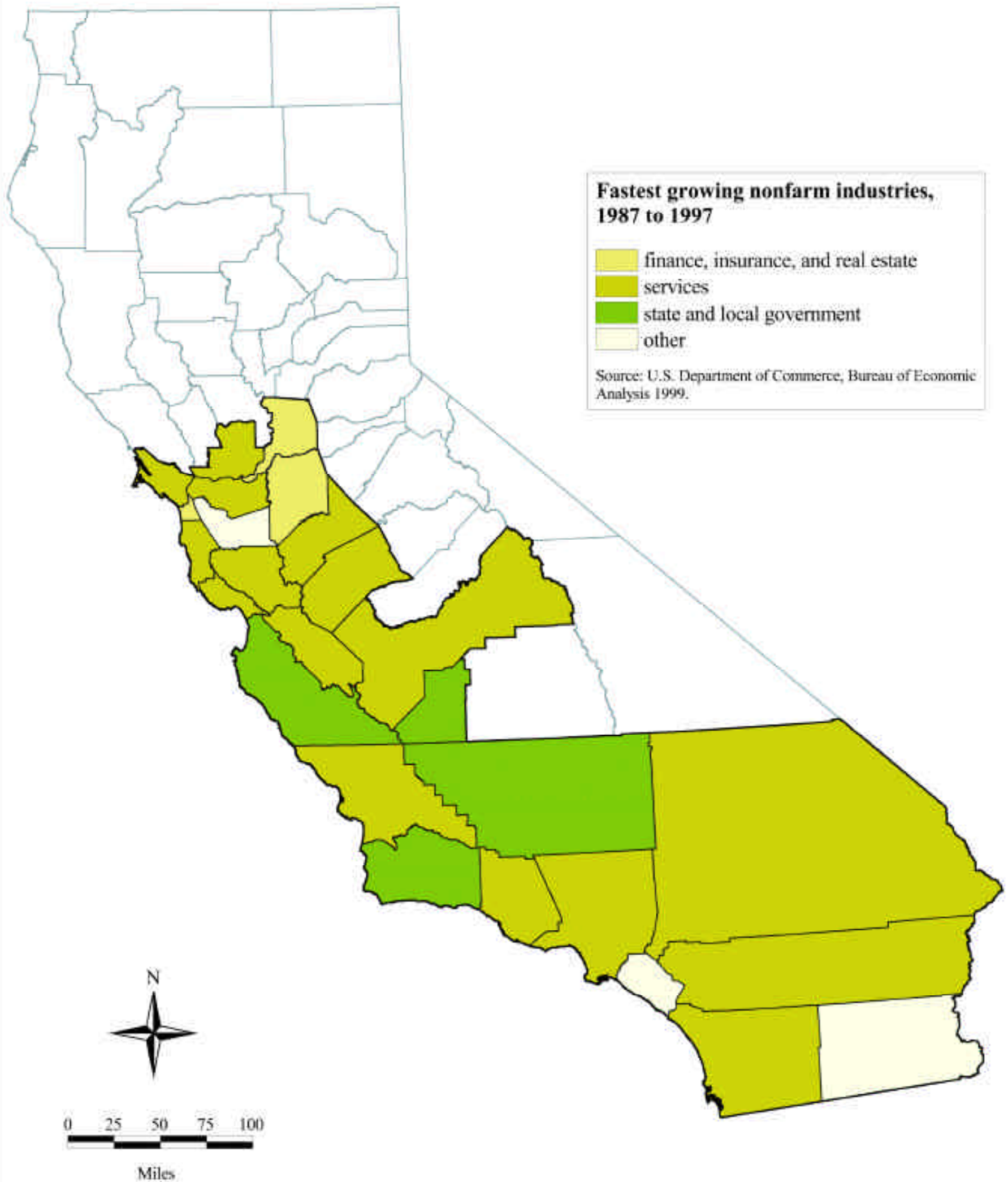
Table 2—Fastest growing industry for counties designated “other”

County	Fastest growing industry ^a
Alameda	Durable goods
Imperial	Transportation and public utilities
Orange	Wholesale trade

^a Designated as “other” on map.

Source: U.S. Department of Commerce, Bureau of Economic Analysis 1999.

Map 10-Fastest Growing Nonfarm Industries



SEA region boundary

County boundaries

Counties outside SEA region

Slowest Growing Nonfarm Industries

Map 11 displays the slowest growing nonfarm industries for the SEA counties by using the same data set as was used for the fastest growing nonfarm industries map. The industries that had the lowest percentage of growth in earnings between 1987 and 1997 are identified on the map. In some counties, the slowest growing sectors were sectors that had a negative growth rate in earnings—a decrease in total earnings over the period. As was true for map 10, only those industrial sectors with 5 percent or more of the total nonfarm earnings of a county in 1987 and 1997 were included in the analysis.

Construction was the slowest growing sector in 12 of the 26 SEA counties between 1987 and 1997. These counties were scattered across the entire region. Construction sector activity is closely linked to business cycles, and the slow growth reflects the prolonged 1990s recession in California and the SEA region. The retail trade sector was the slowest growing sector in three SEA counties; durable goods manufacturing was the slowest growing sector in three other SEA counties; and the military (a federal government sector) sector was the slowest growing sector in three additional counties. This distribution of sectors is a reflection of the prolonged recession and the cutbacks in military spending. These counties are not concentrated in any one of the SEA subregions.

Transportation, another sector closely linked to business cycles and the overall level of economic activity, was the slowest growing industry in San Francisco and Stanislaus Counties. Three counties, designated as “other” on map 11 had unique sectors as the slowest growing industry (table 3).

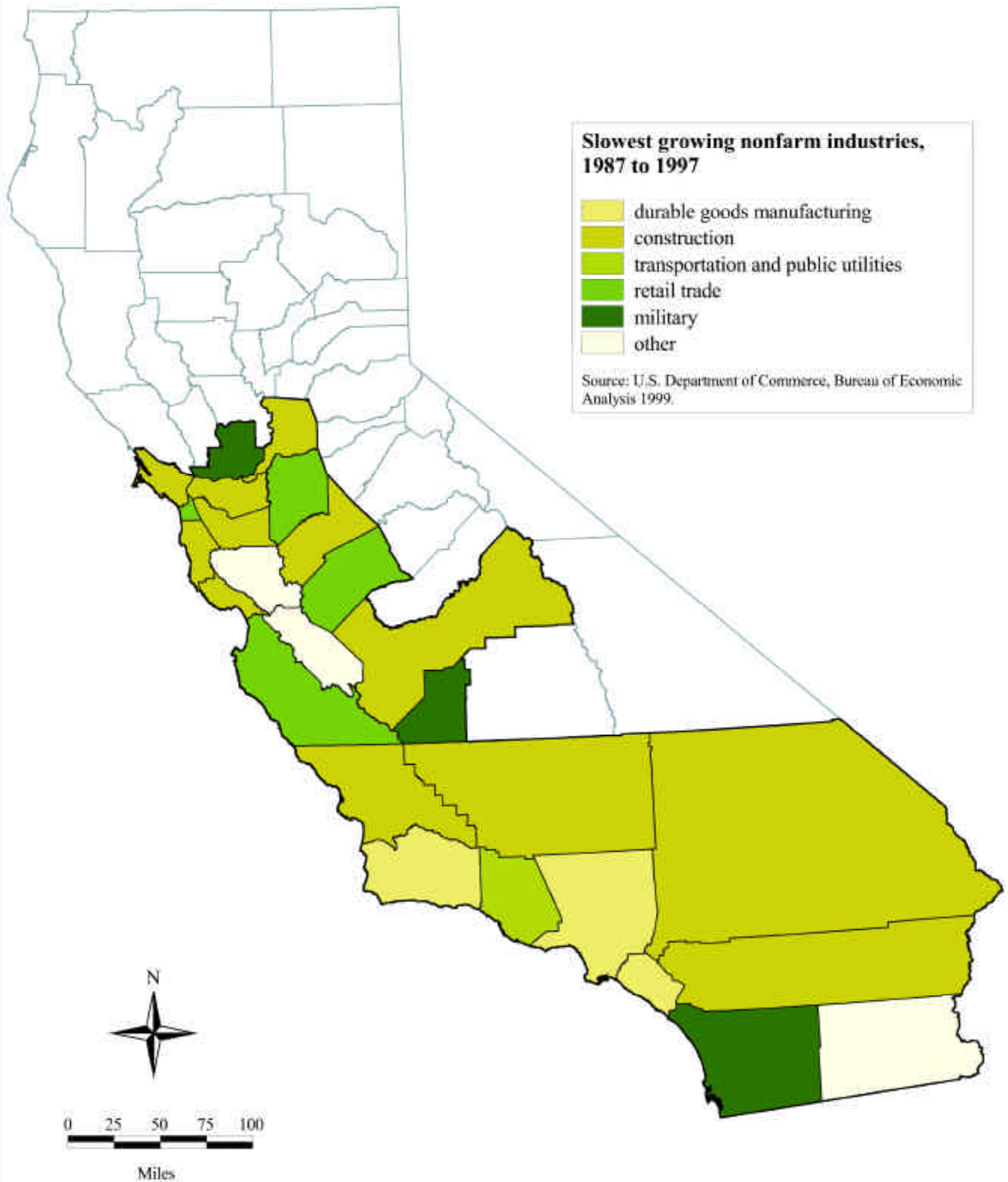
Table 3—Slowest growing industry for counties designated “other”

County	Slowest growing industry ^a
Imperial	Agricultural services, forestry, fishing, and other
San Benito	Nondurable goods manufacturing
Santa Clara	State and local government

^a Designated as “other” on map.

Source: U.S. Department of Commerce, Bureau of Economic Analysis 1999.

Map 11-Slowest Growing Nonfarm Industries



SEA region boundary

County boundaries

Counties outside SEA region

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