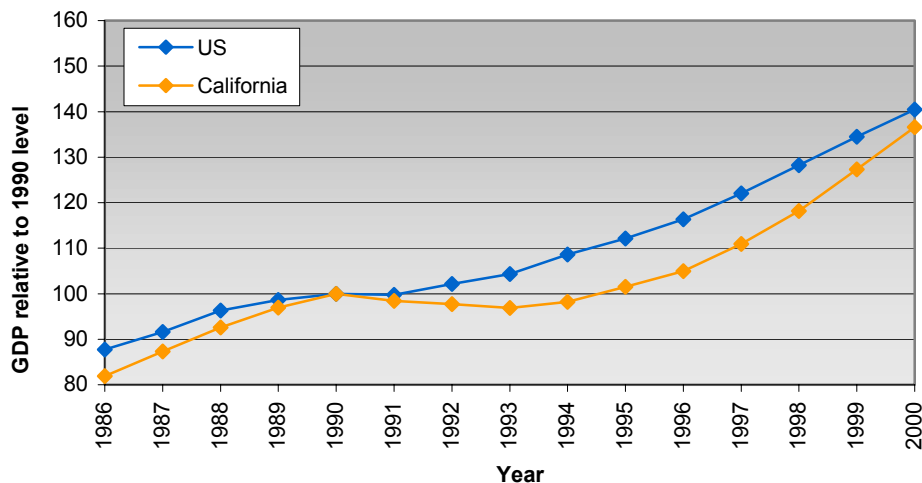




Economic Conditions and Structures

California's economy is now similar in size to those of Italy and France. Like these two nations, California's economy includes a large metropolitan-based economy, a vibrant export-oriented agricultural economy, as well as a smaller, but geographically extensive, wildland-based economy centered on forests and grazing lands. It is not surprising that the California metropolitan and export-oriented agricultural sectors both have international impact and are dominant forces on smaller regional economies within the State that are quite different from the major metropolitan economies. California was growing faster than the nation as a whole in the late 1980s but experienced a much deeper recession from 1990 to 1994 (Figure 1). From 1994 to 2000, California was one of the fastest growing economies in the nation. However, since 2000, the United States has experienced a significant economic slowdown with few clear indications whether the recovery will be quick or bumpy. At the time of this review, comprehensive economic data for many themes specific to California were not available beyond 2000. It is therefore prudent to consider trend data during the 1990s as possibly an overestimation of patterns to be expected in the early part of the current decade. A key point is that most of the structural changes in regional economies noted in the 1990s show little sign of being reversed.

Figure 1. U.S. and California gross domestic/state products trends, 1986 to 2000 (GDP relative to 1990 level)



Source: U.S. Bureau of Economic Analysis (BEA), 2001; U.S. Bureau of Economic Analysis (BEA) 2002b

The four economic themes most germane to the forest and rangeland regions of California are the following:

- the overall State economy dominates economic growth rates, employment, and industry-specific growth patterns;

- forest and range products are significant components of regional agricultural economies in some parts of California but small components at a Statewide level;
- the regional economies of areas dominated by forests and rangelands are small compared to the Statewide economy, with proportionally less of the high value industries and employment and proportionally more dependence on commodities and services related to forests and rangelands; and
- as consumers, Californians demand vast amounts of commodities and ecosystem services such as clean water, wildlife habitats, and restoration of ecological reserves—some of which can, and do, come, from California's forests and rangelands.

Key drivers of the new California economy

Much of California's growth has centered on industries such as computer equipment, electronic components, apparel, aircraft, and instruments. Service-producing industries, such as motion pictures, computer services, tourism, and engineering have also contributed to California's economic growth. Growth in the economic base causes supporting sectors such as retail trade, medical services, construction, and education to expand as well (Center for Continuing Study of the California Economy (CCSCE), 2002). Growth in California's export industries will determine the rate of overall job growth. Growth in real income and spending is driven largely by increases in the productivity that accelerated during the 1995-2000 period due to investments in technology, industrial restructuring to reduce costs, and other innovations that increased worker productivity. As a result, incomes rose, and living standards stayed high (CCSCE, 2002). California has an economy that is fast, flexible, global, networked, and knowledge-based. This economy is not only characterized by a set of new industries but also by new sources of competitive advantages faced by all industries, from apparel to agriculture, entertainment to forestry, and software to telecommunications (California Economic Strategy Panel (CESP), 2000).

Findings on California's economy by sector

California's economy consists of a wide range of different sectors. The sectors vary tremendously in their relative share of employment, economic value of their output, and their recent and projected growth. Although the majority of the economic activity is centered in the major metropolitan areas, the current and future status of regional economies depend on the ability to maintain a share of more productive industrial sectors such as manufacturing, financial services, transportation, and wholesale trade.

The structure of California's economy has been changing over the last 30 years. In the early 1970s, there were 10 jobs in metal products for every job in computer services. Now there are more than two computer service jobs for every job in metal products. Aeronautics production has declined since the seventies in favor of the pharmaceutical and publishing industries. The aircraft industry had three jobs for every motion picture industry job in the early seventies. Now, the motion picture industry has 80,000 more jobs than the aircraft industry. The heavy dependence on defense-related jobs in the manufacturing and government sectors has given way to an emphasis in services, technology, and foreign trade (CCSCE, 2002).

Recent California economic growth has been propelled by growth in computers and electronics, tourism, and export-based industries. Traditional forest and rangeland industries such as wood production, agriculture, forestry, and fishing have made minor contributions to California's economic growth. To assess the structure and strength of a changing economy, analysis of gross state product (GSP) distribution, job growth, average wage levels, and value of sales, receipts, or shipments are examined by industrial sector. Increases in sector diversity (e.g., less dependency on a single industry) and increasing growth are generally interpreted as desirable economic conditions.

Gross state product and employment of major economic sectors

During the 1990's California economy recovered from a recession and then grew rapidly. Table 1 summarizes sectoral output and employment for the principle non-farm industries. The GSP grew by more than 30 percent during the decade. It was driven primarily by growth in high-value services, especially financial services, and the manufacturing sector that reduced its workforce but achieved high productivity growth. Sectors that are relatively more important in forest and range regions, agricultural and forestry services, transportation and utilities, and government had low productivity growth and another—manufacturing—lost jobs.

The 1990 and 2000 estimates of GSP per worker illustrate a number of important characteristics of the California economy (Table 1). The service sector remains the largest sector in terms of both employment and economic output. However both the level of economic output per worker as well as productivity growth were below the State average. The sectors with both high output per worker and high rates of productivity growth (manufacturing, financial services, and wholesale trade) added relatively few workers during the decade. Productivity increases, measured by the increase in value of gross state product produced for each job in California's industrial sector (\$GSP per job), grew by more than 20 percent in manufacturing, wholesale trade, transportation, and utilities.

Table 1. California industrial sectors by output and employment, 1990 and 2000

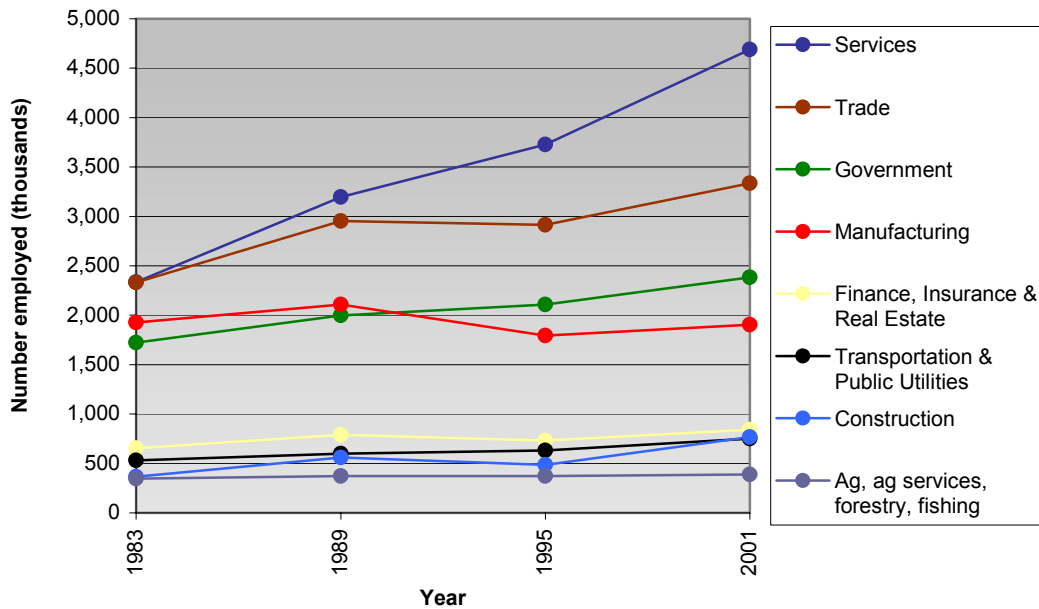
	GSP (millions of dollars)		Jobs (thousands)		Productivity (\$ GSP/job)		Productivity growth (percent)
	1990*	2000	1990	2000	1990	2000	
All sectors	1,034,400	1,344,623	12,863	14,897	80,417	90,261	12
Services	214,139	328,274	3,343	4,613	64,056	71,163	11
Retail trade	93,425	121,300	2,224	2,477	42,008	48,971	17
Government	124,230	141,109	2,075	2,318	59,870	60,875	2
Manufacturing	152,809	189,962	2,069	1,948	73,856	97,516	32
Financial services	232,173	293,110	809	820	286,988	357,451	25
Wholesale trade	67,535	87,392	769	818	87,822	106,836	22
Transportation and utilities	73,435	94,183	612	744	119,992	126,590	5
Construction	46,380	55,472	562	727	82,527	76,303	-8
Agriculture, agriculture services, forestry, fishing	22,007	24,587	364	409	60,459	60,115	-1

*1990 amounts adjusted to 2000 constant dollars

Source: California Employment Development Department (EDD), 2000; BEA, 2001

Figure 2 illustrates the Statewide trends in the primary employment sectors over the past 20 years. Employment grew significantly in the services, retail trade, wholesale trade, and construction sectors.

Figure 2. Historical employment by industrial sector, 1983-2001



Source: EDD, 2000

Average real wage level per job by industry

California's average wage level was \$40,367 in 2000 (Table 2). In terms of real wages, California's average wage per job rate increased 19 percent between 1990 and 2000. Services, retail trade, and manufacturing had the largest influence on California's average wage level due to the very high number of people employed within those industries (BEA, 2002a).

Among the major industrial sectors, the mining industry and the fire, insurance, and real estate industries had the highest wage per job rates; however, these industries only employ five percent of all California employees. The high-tech industries (industrial machinery and electronics) within the manufacturing sector also had some of the highest wage per job rates in California. With the exception of the agriculture sector, all major industrial sectors had real wage level increases between 1990 and 2000 (Table 2) (BEA, 2002a).

Among the industrial sectors typically associated with forests and rangelands, the metal mining industry had the highest average wage per job rate in 2000 at \$72,380. Only paper products had a higher average wage level in 2000. The agriculture, agriculture services, forestry, and fishing industries in California continued to have very low wage per job rates. In addition to the agriculture sector, the lumber and wood products industry had a real wage level decline between 1990 and 2000 (Table 2) (BEA, 2002a).

Table 2. Average real wage level (dollars) by industrial sector, 1990 and 2000

SIC	Industrial sector	1990	2000	Percentage change 1990-2000
All	California real average wage level per job	33,790	40,367	19
(10-14)	Mining	53,232	64,624	21
(60-65), 67	Finance, insurance, and real estate	42,428	60,246	42
(20-39)	Manufacturing	41,767	57,279	37
(50-51)	Wholesale trade	41,075	48,888	19
(40-49)	Transportation and public utilities	42,271	47,301	12
(70-89)	Services	32,533	40,371	24
(15-17)	Construction	38,754	40,334	4
(91-96)	Government and government enterprises	35,158	38,693	10
(52-59)	Retail trade	19,933	22,149	11
(01-02, 7-09)	Agriculture, agriculture services, forestry, fishing	18,590	18,299	-2

SIC – Standard Industrial Classification

2000 constant dollars

Source: BEA, 2002a

Statewide value of commodities associated with forest and rangeland areas

Timber, cattle and calves, sheep, lambs and wool are the primary agricultural commodities associated with California's forests and rangelands. During the 1990s, the Statewide value of these commodities declined while the overall value of agricultural commodities increased slightly (Table 3). The value of wine grapes, a replacement of historic forest and rangeland use in a number of areas, increased tremendously during the same period (California Agricultural Statistics Service (CASS), 2000).

Table 3. California product values (thousand dollars) for commodities typically located within forest and rangeland, 1990 and 2000

Commodity	Gross value		Percentage change (1990-2000)	Percentage of total agriculture production (2000)
	1990	2000		
Cattle and calves	1,910,577	1,626,229	-15	5
Timber products	1,169,942	919,277	-21	3
Alfalfa hay	1,139,470	715,074	-37	2
Wine grapes	983,374	1,914,640	95	6
Pasture and range	170,639	175,881	3	1
Sheep, lambs, and wool	90,469	55,889	-38	0
All others	24,423,443	24,850,121	2	82
Total commodities	29,887,914	30,257,111	1	100

2000 constant dollars

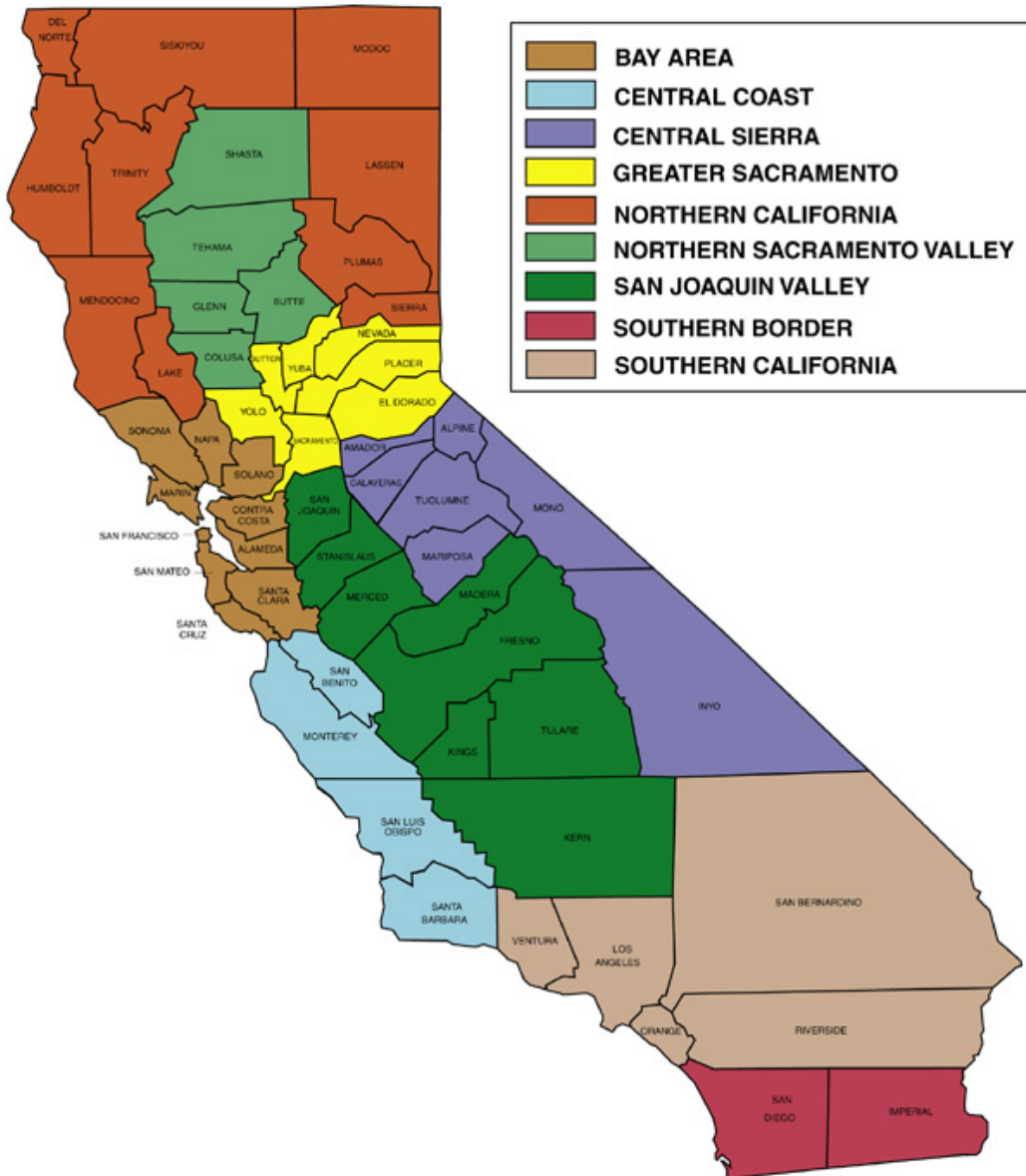
Source: CASS, 2000

See the document [Agricultural Production Value Data](#).

Regional economies

The sheer size and complexity of the California economy often overwhelms the unique regional patterns around the State. The situation also loses clarity due to the many different regional groupings used by different State agencies, research entities, and major media outlets. The CESP divides California into nine separate regions that are very similar to the county-based bioregions used throughout this Assessment. Figure 3 illustrates these economic regions as well as the major land covers of California. Three of the regions—Northern California, Central Sierra, and the Central Coast—are the primary forest and rangeland areas. The Northern Sacramento Valley is centered on irrigated agriculture but also includes considerable forests and rangelands as well as a large portion of California’s timber mills.

Figure 3. California Economic Strategy Panel economic regions, 1998



Source: CESP, 2000

CESP formulated these regions by identifying economic, demographic, and geographic characteristics of each county. Characteristics such as metropolitan areas, population centers, commute patterns, land ownership, industrial composition, location quotients, labor force conditions, and geographic boundaries were used to assess the similarity of counties adjacent to each other. The following descriptions portray how counties within these economic regions are interrelated (CESP, 2000).

- **Northern California:** This region is heavily dependent on natural resources and mainly consists of public and privately owned forest and grazing lands. The region as a whole is sparsely populated.
- **Northern Sacramento Valley:** The economy of these counties is primarily based on agriculture. Shasta County is the center for forestry and farm-related manufacturing. Compared to the surrounding region, there is considerably more private land and more industry and services along the major transportation corridors.
- **Greater Sacramento:** Placer, El Dorado, and Nevada counties extend from the Lake Tahoe region down into the foothills on the western slope. Most of the new growth occurs in the western areas of these counties. Parts of Sutter and Yuba counties currently are more closely aligned with the Northern Sacramento Valley agricultural areas, but much of the new growth is occurring along highways radiating out from the Sacramento area.
- **Bay Area:** In addition to the nine counties that border the San Francisco Bay, Santa Cruz County has now become more integrated into this region centered around the computer and other high technology sectors, high value service industries, and international trade.
- **San Joaquin Valley:** This group of counties has economies based upon agriculture and other related industries. Sixty percent of the region consists of privately owned farmland.
- **Central Sierras:** This region is largely government owned, sparsely populated, and contributes little to California's overall economic activity. The historically important timber and grazing-based industries are being supplanted by commuters, retirees, and new small businesses.
- **Central Coast:** The economic base is a broad mix of agriculture, services, and government-based employment.
- **Southern California:** This group of counties comprises an economically interdependent region. Orange County differs from neighboring counties within this region but not to an extent requiring a separate region. Approximately one out of every six Orange County residents commuted to Los Angeles County to work in 1990.
- **Southern Border Region:** This two-county region is the smallest yet the most diverse economic region in California. San Diego County has numerous technology-based sectors and one of the higher levels of income. Imperial County on the other hand is based on irrigated agriculture and is marked by a high unemployment rate due to the imbalance of seasonal work opportunities and a labor pool that is closely integrated with Mexico. Both counties share a long border with Mexico.

Overall personal income by region

At a regional level, the relative role of timber and cattle and calves within the larger agricultural sector varies widely. Table 4 shows the major importance of timber in two regions (Northern California and the Central Sierra) and relative importance of cattle and calves in one region (Central Sierra). The importance of cattle and calves in the San Joaquin Valley is primarily related to operations within irrigated agricultural areas and is less connected to rangelands than in the other regions of the State.

Table 4. Gross production value (thousand dollars) of products typically derived from forests and rangelands by CESP region, 2000

Region	Cattle and calves	Timber	Total agricultural commodity value	Timber/Total (percent)	Cattle and calves/total (percent)
Bay Area	63,820	42,249	2,164,002	2	3
Central Coast	95,982	23	4,359,334	0	2
Central Sierra	41,394	44,429	155,138	29	27
Greater Sacramento	58,327	66,984	1,238,948	5	5
Northern California	95,336	629,965	1,193,083	53	8
Northern Sacramento Valley	67,349	123,751	1,202,640	10	6
San Joaquin Valley	*942,336	11,250	14,420,135	0	7
Southern Border	*174,066	436	2,173,444	0	8
Southern California	87,621	190	3,350,386	0	3
California	1,626,229	919,277	30,257,111	3	5

2000 constant dollars

*Most of the cattle and calves are raised within irrigated agricultural settings

Source: CASS, 2000

Based on personal income, the three primary forest and range regions represent around five percent of the overall State economy. From 1990 to 2000, the most significant change between the regions was the rapid growth of the San Francisco Bay Area in terms of its share of the total economy as well as in terms of the significant increase in per capita incomes (Table 5).

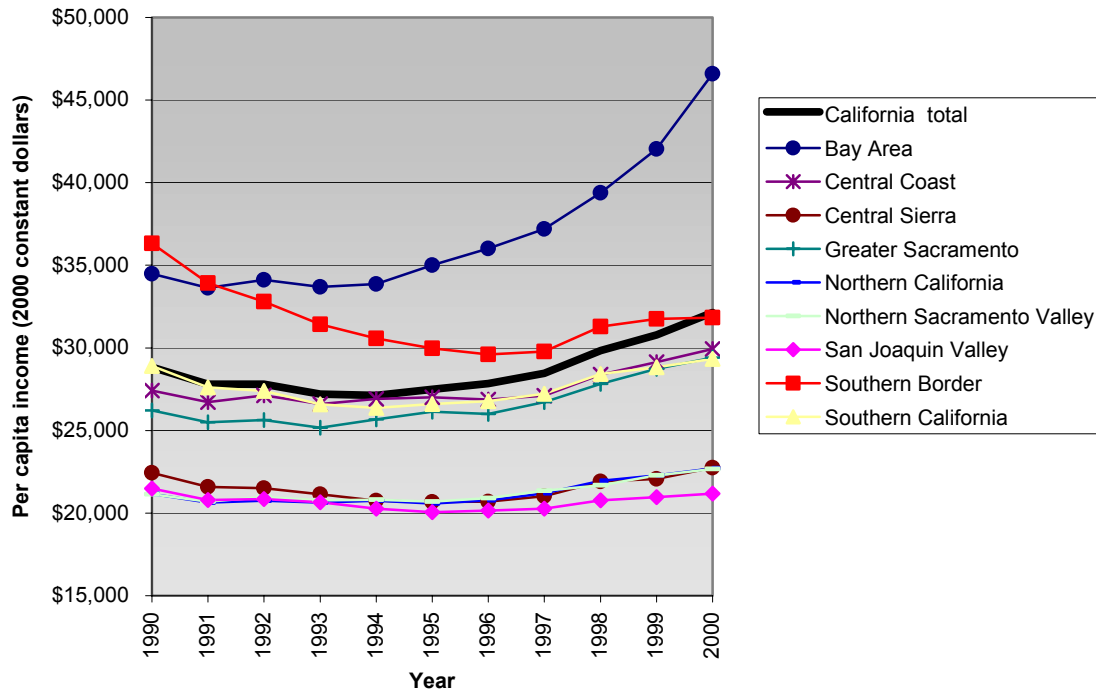
Table 5. Regional shares of Statewide personal income (percent), 1990 and 2000

Region	1990	2000
Southern California	49	44
Bay Area	25	30
Central Coast	3	3
Central Sierra	<1	<1
Greater Sacramento	5	5
Northern California	1	1
Northern Sacramento Valley	1	1
San Joaquin Valley	7	6
Southern Border	8	9

Source: BEA, 2002a

Trends in per capita income for each economic region from 1990 to 2000 show that the Bay Area increased its relative economic advantage (Figure 4). The rest of the more populous regions are clustered around the Statewide average, while the two agriculturally dominated regions (the San Joaquin Valley and the Northern Sacramento Valley) and the two forest regions (Northern California and the Central Sierra) have per capita incomes that are only two-thirds of the State average. Without significant growth in existing sectors and the addition of new higher-wage opportunities, these regional disparities will probably continue.

Figure 4. Per capita personal income by CESP region, 1990-2000



Source: BEA, 2002a

Components of personal income by region

Personal income is the income received by individuals from net earnings, property income, and transfer payments. It is the broadest measure of income received from all sources—one that does not simply include the wages of working people. Economic regions with broad-based personal income sources are generally more immune from local economy changes such as loss of forestry and wood manufacturing jobs. The implication of a broad personal income base is that local economic conditions are less dependant on local economies and more dependant on macro, Statewide, or U.S. economic conditions.

Net earnings consist of earnings by place-of-work (the sum of wage and salary disbursements, other labor income, and proprietors' income), minus personal contributions for social insurance, plus an adjustment to convert earnings from a place-of-work to a place-of-residence basis. Property income consists of interest income, rental income, and dividend income. Transfer payments measure the payments to persons for which no current services have been performed. They consist of payments to individuals and to non-profit institutions by businesses and federal, state, and local governments (BEA, 1994).

With the exception of the Central Coast, personal income in forest and rangeland economic regions consisted of a higher proportion of transfer payments than the California average.

Personal income by residence in economic regions containing urban sectors tend to be comprised of higher net earnings and lower transfer payments. Personal income in the Bay Area, Greater Sacramento, Southern Border, and Southern California economic regions is characterized by the greatest discrepancy between high net earnings and low transfer payments. In 2000, property income as a proportion of personal income was higher than the State average only in economic regions containing significant forests and rangelands (Central Coast, Central Sierra, Northern California and Northern Sacramento Valley). With the exception of the Central Coast, personal income in these economic regions was comprised of a higher rate of transfer payments than the State average (Table 6) (BEA, 2002a).



Personal income in the Bay Area is characterized by the largest discrepancy between high net earnings and low transfer payments. San Francisco Oakland Bay Bridge. Photo courtesy of CalTrans.

Table 6. Components of 2000 personal income (dollars) for California and CESP regions

Region	Per capita income by region (dollars)				
	Total income	Property income	Property income as percent of total income	Transfer payments	Transfer payments as percent of total income
California	32,149	5,787	18	3,536	11
Bay Area	46,586	7,920	17	3,261	7
Central Coast	29,941	7,485	25	3,293	11
Central Sierra	22,739	5,457	24	4,320	19
Greater Sacramento	29,408	4,999	17	3,823	13
Northern California	22,708	4,769	21	4,769	21
Northern Sacramento Valley	22,662	4,532	20	4,759	21
San Joaquin Valley	21,173	3,388	16	3,811	18
Southern Border	31,839	6,049	19	3,502	11
Southern California	29,329	5,279	18	3,519	12

Source: BEA 2002

Regional employment and unemployment patterns

During the 1990s, employment growth in California was substantial and very similar to the national pattern of a decade long boom. Considerable variation in job growth existed at the regional level (Table 7). Only two regions had job growth rates below the national and State patterns. Surprisingly, they were the largest regional economy (Southern California) and one of the smallest regional economies (Northern California).

Table 7. Total employment (thousands) in the United States, California, and CESP regions, 1990 and 2000

Region	1990	2000	Percentage change 1990-2000
United States	139,427	163,758	17
California	13,159	14,897	16
Bay Area	3,032	3,651	20
Central Coast	387	460	19
Central Sierra*	47	55	18
Greater Sacramento*	692	879	27
Northern California	126	143	13
Northern Sacramento Valley	138	165	19
San Joaquin Valley	1,000	1,208	21
Southern Border	1,022	1,256	23
Southern California	6,308	6,783	8

*Inyo, Mono (Central Sierra) and Sutter (Greater Sacramento) employment was estimated in 1990

Source: EDD, 2000

Unemployment rates also exhibited substantial regional variations (Table 8). Civilian unemployment includes those individuals who are not working but are able, available, and actively looking for work on a weekly basis. Unemployment rate is the number of unemployed as a percentage of the labor force (EDD, 2002). In both 1990 and 2000, when compared with the Statewide average, regions that are more metropolitan have tended to have lower unemployment rates. This is largely because of the more diverse economic base compared to other regions with more agricultural or forest land bases that have a narrower base.

All metropolitan areas have low unemployment rates. All irrigated agricultural and wildland regions have much higher rates of unemployment.

Table 8. Civilian unemployment in the United States, California, and CESP regions, 1990 and 2000 (percent)

Region	1990	Difference in regional rate from Statewide 1990 average	2000	Difference in regional rate from Statewide 2000 average
United States total	5.6		4.0	
California	6.1		5.2	
Bay Area	4.1	-2.0	2.7	-2.5
Central Coast	7.3	+1.2	6.2	+1.0
Central Sierra	6.7	+0.6	6.3	+1.1
Greater Sacramento	5.6	-0.5	4.8	-0.4
Northern California	10.0	+3.9	8.0	+2.8
Northern Sacramento Valley	10.0	+3.9	8.3	+3.1
San Joaquin Valley	12.8	+6.7	13.9	+8.7
Southern Border	5.7	-0.4	4.1	-1.1
Southern California	5.8	-0.3	5.0	-0.2

Source: EDD, 2000

Average real wage levels

California's real average wage per job increased 19 percent between 1990 and 2000, slightly higher than the national average of 13 percent. According to year 2000 statistics, California's average wage per job was \$40,367, well above the national average of \$34,652 (Table 9).

California's higher overall average wages were driven primarily by the Bay Area with the other metropolitan regions only slightly above the national average. All five of the irrigated agriculture and wildland regions still lag far behind the national and State averages. The Northern California and the Central Sierra regions had absolute declines in the inflation-adjusted wages. This was due to losses in manufacturing jobs that were not compensated by increased numbers of other high wage jobs.

The Northern California and Central Sierra economic regions had the smallest average wage levels in California, and real wage levels have decreased.

Table 9. Average wage (dollars) per job in the United States, California, and CESP regions, 1990 and 2000

Region	1990	2000	Percentage change 1990-2000
United States	30,727	34,652	13
California	33,790	40,367	19
Bay Area	37,445	55,686	49
Central Coast	28,214	30,212	7
Central Sierra	25,162	24,671	-2
Greater Sacramento	31,248	35,165	13
Northern California	24,883	24,544	-1
Northern Sacramento Valley	24,841	25,378	2
San Joaquin Valley	26,661	26,851	1
Southern Border	30,387	36,195	19
Southern California	34,796	37,571	8

2000 constant dollars

Source: BEA, 2000

Californians as consumers of forest and range goods and services

Californians as consumers have significant and increasing demands for commodities and services that come from forests and rangelands. Historically, California met a considerable portion of these demands from its forests and rangelands. However for a variety of reasons, commodity production declined during the 1990s. As the demand for commodities such as timber and paper products increases with population growth and increased wealth, the increasing gap between California production and consumption is met via imports. While California's metropolitan consumers can continue to meet their demands via imports, the lack of market- and institution-based approaches to increase investments that promote multiple commodities and services is already having strong regional equity impacts as forest and range areas are losing some of their historically strong economic sectors.

The following table summarizes the major goods and services that are strongly associated with California wildlands. Because information on forest and rangeland sectors is often scattered and not consistent, this type of comprehensive overview is less quantitative than the preceding sector-specific

analyses. Many of the commodities and services associated with forests and rangelands are not sold, some have substitutes, and many would require significant investments to increase. The following information represents a sample qualitative view rather than a complete review of the performance of forest and rangeland sectors. Table 10 reviews the status of selected sectors from the perspectives of demand, supply, constraints, and opportunities.

Table 10. Production and use trends of selected traditional commodity and ecosystem services in forests and rangelands

Resource	Level of consumption	Supply/availability	Constraints	Opportunities
Traditional commodities and services				
Forest products: timber	Increasing	Decreasing availability due to new regulations, lawsuits, declining timberland base, and increased costs.	Global competition, development, exotic species, limits on public timber, T&E species, clean water laws, and tax policies	Long-term plans to lower regulatory costs, new products and niche markets. Certification for sustainable forest management, new technologies, income from complementary products and services
Forest products: energy (biomass)	Increasing	Decreasing but could rise	Initial infrastructure costs, energy pricing policies, high planning and regulatory costs	Improved pricing and policies for renewables, enhanced private investment, and new technologies and products
Agriculture: range livestock	Per capita static; total consumption up	Historically cyclical	Development, exotic species, limits on public forage, water availability, T&E species, clean water laws, tax policies, and global competition	Improved range management, consolidation, diversification, improved tax/public policies, and new products and niche markets
Recreation	Increasing but uneven among recreation sectors, slightly increasing toward developed sites and wider range of experiences near urban areas	Uneven by recreation sector, quality of some experiences degraded, new experiences emerging, limited access makes some experiences unavailable	Low public funding, maintenance backlog, liability concerns, transport cost and congestion, and environmental impacts of "overuse" of existing sites	Additional funding, new technologies, new products/"experience" sets, more use of private providers and partnerships, and improved access
Resource-based activities in urban areas	Increasing	Increasing where public or private funding is available	Financing, commercial scale facilities, cost competitiveness, regulatory oversight, technology maturity	Landfill mitigation using organics for energy products
Water quantity	Increasing, especially for human and unique water-based habitats	Limited quantity with current shortage growing to 2020.	Weather, infrastructure, institutions related to pricing and ground water replacement, and T&E and water quality laws	Conservation, new technologies and products, improved pricing and demand management, and new storage
Wildlife as a commodity	Increasing, varies by game species	Uneven, varies by game species	Habitat and population dynamics, past land use legacies	Improved habitat, increased private ventures, and new breeding technology
Ecosystem services				
Air quality	Increasing	Limited, improving selectively	Funding, interbasin transport, global climate change, wildfires, continued development and auto use	Improved technology, use methods less harmful to air quality, new institutions for pollution offsets, trading, and dealing with interbasin transport
Carbon sequestration	Increasing where cost is less than CO ₂ production limits	Increasing	Accounting systems and markets just being developed, existing part of carbon load	Develop accounting and market structure to reimburse sequestration
Water quality	Increasing	Limited, improving selectively	Regulations, past land use impacts, limited restoration funds, lack of sizeable and equitable funding mechanisms	Regulatory change, new technology, more funding for restoration, and improved information
Habitat restoration—fish	Increasing	Increasing	Funding, exotic species, water availability to moderate flows, continued habitat loss, weather patterns, adequate information to support decision making	Successful habitat restoration and management; new technologies; and new institutions for cost sharing/incentives with private landowners; better monitoring protocols being developed; increased funding via water bond initiatives
Habitat restoration—wildlife	Increasing	Limited	Available funding, exotic species impacts, urban development, habitat loss and fragmentation, limited information, and wildfire	More funding, improved information and management, new technologies, policy changes to enhance landowner cooperation
Urban forests/open space	Increasing in communities	Limited, high conversion pressure	Funding and available land base, institutional responsibility for long term maintenance	Enhanced funding, development of new community/non-profit based institutions
Wilderness allocation	Increasing	May increase with recovery of human-impacted areas; may increase or decrease as social concepts of wilderness change	Conflicts with current land uses, lack of management of threats such as exotics, severe fire, etc. May require Congressional action	Increased public and private funding and new institutions
Ecological reserves	Increasing	Limited	Complexity of identifying effective expansion priorities. Cost of acquiring new parcels, exotics, climate change	Increased public and private funding and new institutions

Conclusion on economic conditions and structures

A regional perspective of a variety of economic conditions provides a more detailed picture of the often very different patterns across California. Most of the regions closely associated with forests and rangelands have had similar trends in economic conditions. From 1990 through 2000, these regions showed the following trends as compared to State averages: similar employment rate increases; unemployment rates that decreased but that were above State levels; substantially lower average wage levels combined with flat levels of increase; and a greater dependence on transfer payments as a component of personal income. The combination of these factors implies a pattern of weak job growth in most wildland and agricultural regions. Part of this trend is due to the specific conditions within the historically important commodity producing and processing sectors such as forest products, range livestock, and some of the agricultural sectors.

While California's forests and rangelands cover approximately eighty percent of the State's land area, the key economic factors that influence them are based in the metropolitan areas as well as around the world. The large overall State economy sets the pattern that smaller regions follow. California's forest and range regions (Northern California, Central Sierras, and the Central Coast) together constitute less than five percent of the overall economy. These regions have a much greater dependence on specific commodities (such as timber and cattle) and services (such as rural tourism, recreation, and land management) that have not exhibited the high rates of job and wage growth common to some of California's metropolitan regions. Without an increased migration of new higher-wage jobs from metropolitan areas or some degree of resurgence of the traditional commodity and service sectors, it appears that many of these regions will not catch up with the metropolitan areas in the near future in terms of economic indicators.

As consumers, Californians demand vast amounts of commodities, traditional services such as outdoor recreation, and ecosystem services such as clean water, wildlife habitats, and representative examples of various ecosystems—some of which can, and do, come from California's forests and rangelands. During the 1990s, the demand for higher levels of various ecosystem services appears to have led to a decline in some types of commodity production (especially from federal lands) without an accompanying increase in the prices paid for the remaining commodities that were produced with higher levels of associated ecosystem services. Most of the increased demand for commodities was met through imports from other states and nations. Numerous approaches designed to increase the commodity prices paid by consumers to producers of more 'environmentally friendly' products such as Forest Stewardship Council (FSC) certified timber, free-range meat products, green energy, and organic agricultural products were initiated during the 1990s and show promise in connecting consumers to combined packages of a commodities with associated ecosystem services.

Glossary

average wage level or average wage per job: Total wages and salary disbursement divided by employment level.

BEA: U.S. Bureau of Economic Analysis.

CASS: California Agricultural Statistics Service.

CCSCE: Center for Continuing Study of the California Economy.

CESP: California Economic Strategy Panel.

civilian unemployment: Number of people actively searching for work and not finding work.

CIWMB: California Integrated Waste Management Board.

Consumer Price Index: An index of prices used to measure the change in the cost of basic goods and services in comparison to a fixed base period.

decadal: Pertaining to ten; consisting of tens, particularly 10 years; by decade.

ecosystem services: The beneficial outcomes, for the natural environment, or for people, that result from ecosystem functions. Some examples of ecosystem services are support of the food chain, harvesting of animals or plants, clean water, or scenic views. In order for an ecosystem to provide services to humans, some interaction with, or at least some appreciation by, humans is required.

EDD: California Employment Development Department.

feedstock: The raw material used for chemical, biological processes, or industrial processes.

FRAP: Fire and Resource Assessment Program.

gross domestic product: The total market values of goods and services produced by workers and capital within the U.S. borders during a given period.

gross state product: Gross output (sales, receipts and other operating income, commodity taxes, and inventory changes) minus intermediate inputs (consumption of goods and services purchased from other U.S. industries or other nations).

GSP: See **gross state product**.

net earnings by place of residence: Earnings by place-of-work (the sum of wage and salary disbursements, other labor income, and proprietors' income) minus personal contributions for social insurance, plus an adjustment to convert earnings from a place-of-work to a place-of-residence basis.

personal income: The sum of net earnings by place of residence, property income, and transfer payments.

production value: Gross value of products and services sold, adjusted for inflation.

property income: Consists of personal dividend income, personal interest income, and rental income.

sales, receipts, or shipments: Total sales, shipments, receipts, revenue, or business done by establishments.

SIC: See **Standard Industrial Classification**.

Standard Industrial Classification: A numerical system for categorizing industrial sectors, used in the U.S. until 1997.

total employment: Total of all wage and salary employment, full time or part time, by place of work excluding the self-employed, unpaid family workers, and private household employees.

transfer payments: Income payments to persons for which no current services have been performed. They consist of payments to individuals and to non-profit institutions by businesses and federal, state, and local governments.

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