

# 2006 Wealth Index

## Financial Capital

### A Summary of Findings

Overall, the Sierra Nevada is prospering financially. However, that prosperity is concentrated largely in the North Central counties, where job creation has outpaced population growth, and unemployment is lower than in California as a whole. In addition, per capita income in the North Central Sierra exceeds the California average and investment in high speed Internet is substantial.

By contrast, trends in the other Sierra regions—South Central, East, and North—are more mixed. In the South Central Sierra, population is growing faster than jobs. In all three regions, unemployment has climbed since the recession in 2001. Seasonal unemployment continues to be a problem in the North and the East, as well as in parts of the South Central. Per capita incomes in these three regions have fallen behind the North Central as the income gap continues to widen. Also, the number of low paying jobs exceeds the number of higher skilled, higher paying jobs, resulting in unaffordable housing for many.

Region-wide, tourism—heavily dependent on the natural beauty and landscape of the Sierra—now accounts for 15 percent of the region's total payroll. In a number of counties, it is the single most important economic activity.

## Sierra Nevada Wealth Index

### Understanding and Tracking our Region's Wealth

The Sierra Business Council (SBC) developed the Sierra Nevada Wealth Index to help business leaders and policy makers understand the assets that sustain our region. The Index describes the social, natural and financial capital, which are the foundation of the Sierra Nevada's economy and thereby provides an integrated understanding of our region's wealth.

A growing number of decision makers nationwide recognize the need to develop new, more inclusive measures of wealth. The Sierra Nevada Wealth Index is just such a measure. By examining the Sierra Nevada's social and natural capital, in addition to our financial capital, the Index gives private and public investors a more complete and useful picture of current conditions and trends in our region.

Why do we need a more complete picture of our assets? Quite simply

because the Sierra Nevada's economic well-being depends on more than just financial capital. In the last decade, rapid improvements in communications and transportation, and the explosive growth of knowledge-based industries, have transformed the fundamental relationship between customer, product, producer, and place in our economy. The Internet, Federal Express, UPS, and fax machines have freed many businesses from the need to locate adjacent to suppliers and customers, giving business owners greater flexibility when selecting locations for their operations. And today's business owners are taking full advantage of their new found flexibility. Every year hundreds of individuals move their businesses, their financial resources, and their families to the Sierra Nevada to enjoy our superb quality of life. At the same time, local business owners who once might have been forced to leave the region to expand their operations are finding it possible to grow their businesses from within the Sierra.

Sierra Nevada's exceptionally high natural and social capital are the magnets that hold and attract financial capital to our region. Our outstanding environmental quality, attractive towns, and good schools are no longer simply nice amenities; they are essential elements for business retention and investment. In today's economy, talented people do not move to, or stay in, communities where their children cannot receive an excellent education or where their air is contaminated with toxic chemicals. In fact, the opposite is true. Business owners and skilled workers move to the communities with the most outstanding schools, the best health care, the most vibrant artistic culture, the lowest levels of crime and poverty, and the very highest environmental quality.

The Sierra Nevada's natural capital also plays another, even more fundamental role in our region's economy: It is the life support system that makes our very existence as a society possible. Healthy natural systems provide, free of charge, a variety of ecosystem services essential to life in this region and worldwide, services such as air purification, soil formation, nitrogen fixation, water filtration and storage, biological pest control, and plant pollination, to name just a few. Researchers recently estimated that the global value of these ecosystem services is at least \$33 trillion a year, close to the gross world product.<sup>1</sup> For most of these services, however, there is no known substitute at any price.

The *Sierra Nevada Wealth Index* helps decision makers in the Sierra Nevada keep focused on these important realities. It reminds us of the need to track all of the factors essential to maintaining and enhancing our wealth. It reminds us of the need to develop and implement integrated investment strategies to build the social, natural, and financial capital of our communities. Finally, it reminds us that our region's prosperity depends directly on our willingness to make wise use of our assets and to act swiftly to prevent their diminishment.

The 2005-2006 edition of the Sierra Nevada Wealth Index is a more

concise, web-based update of the 1999-2000 edition. This edition includes a number of new indicators, as well as data additions to some previously published indicators. We welcome your comments.

1 Costanza, R.; d'Arge, R.; deGroot, R. et. al. *The Value of the World's Ecosystem Services and Natural Capital*. Nature. 387:253-260

## A More Complete Definition of Wealth

Recent economic research has led to new, more inclusive and useful definitions of wealth. Wealth is not just monetary worth, but the different types of capital that, taken together, sustain a region.

To understand the economy of the Sierra Nevada, it is important to assess and track three types of wealth:

**1) Social or human capital 2) Natural or natural resource capital 3) Financial capital**

Each must be conserved and increased if the Sierra Nevada economy is to be prosperous, stable, and sustainable. Each form of capital supports the economy, and the diminishment of one undermines the others. Neglect of social capital, such as a failure to provide first-rate education or to reduce poverty, means fewer opportunities for businesses and residents to multiply financial assets. Deteriorating natural assets, such as polluted streams or marred scenery, reduce property values, drive away new businesses, and undermine the quality of life for current residents. Low financial capital, such as insufficient diversification or high unemployment, leads to social instability and a vulnerability to economic cycles. By understanding and tracking all three forms of capital—social, natural and financial—the Sierra Nevada Wealth Index presents a more integrated, accurate and useful portrait of our region's economy.

## How the Sierra Nevada Wealth Index is Used

The *Sierra Nevada Wealth Index* describes the social, natural, and financial assets that comprise the wealth of our region. But measurement alone will not expand wealth. The Sierra Nevada's wealth will grow only to the extent that public and private decision makers invest resources carefully and wisely to expand that wealth, particularly today when pressures for development are in full force. Wiser decisions are made when local leaders understand and act on long term trends. The responsibility to use this information rests where it always has, with individual business owners, civic leaders, and other who want to see our

communities prosper.

The *Sierra Nevada Wealth Index* is a powerful tool for decision-making. The Capital Investment Diagram pictured in this section shows the relationship between social, natural, and financial capital. The critical challenge for decision makers is to design and implement investment strategies for Sierra Nevada communities that will increase at least two forms of capital without diminishing the third. Investments located in the intersection of the three circles offer the greatest return for Sierra residents. Investments that expand one form of capital, at the expense of one or both of the other forms of capital, diminish the Sierra Nevada's overall wealth and must be avoided.

For example, a business owner who decides to buy and remodel a vacant building downtown, rather than build a new facility on farmland outside of town:

- **Builds financial capital** by turning an underperforming physical asset into a business that creates financial capital for the private and the public sectors
- **Builds social capital** by enhancing the vitality of the downtown and reducing commute times for employees
- **Maintains natural capital** by not diminishing the size and productivity of the working agricultural landscape and by reducing pollution from unnecessary car trips

The Capital Investment Diagram is useful for decision makers of all types whether businesses, individuals, families, or public agencies. The more quickly, widely and frequently people in the Sierra Nevada begin to evaluate and make decisions on this integrated basis, the more rapidly we will see our region's wealth grow and our communities prosper. How well we plan for the future dictates the future wealth of the Sierra Nevada.

## Indicators

Indicators are measurements that inform us about the condition of the key assets that comprise our wealth. By measuring change over time, indicators tell us whether the condition of our assets is improving, declining, or remaining constant, and provide insights into the linkages between various forms of capital.

No set of indicators can be all-inclusive. The Dow Jones Industrial Average, a widely respected indicator of stock market performance, does not include every stock traded on the New York Stock Exchange. Nor

does the Consumer Price Index measure the prices of all consumer goods. Both indices, like the *Sierra Nevada Wealth Index*, are based on developing and monitoring a sample of indicators which, *viewed together*, provide a barometer of overall performance.

The 60 indicators included in this web-based version of the Index were selected because:

- They are measurable and can be updated with existing and objective data sources.
- They measure the condition of assets of material importance to the Sierra Nevada's wealth.
- They measure the condition of assets where active public interest exists.

## **Social Capital**

### A Summary of Findings

Social capital in the Sierra Nevada is generally strong. The quality of education is generally high, demonstrated by high school seniors consistently outperforming the California average on the SAT, the standard college entrance exam. Residents' commitment to community is exemplified through high voter participation and vested interest in funding for the arts and in local cultural activities.

Other indicators of social capital strength are as follows:

- The number of people with health insurance is higher than in the state of California
- A steady decrease in violent crimes throughout the region
- A higher percentage of home ownership than in California
- The availability, although somewhat limited, of different housing stock for different income levels throughout the region

Some indicators, however, point to the need for additional investment. There is currently a shortage of staffed hospital beds in the entirety of the Sierra Nevada, except in the North. More children are being diagnosed with asthma and are experiencing more serious symptoms due to the increase in air pollution from commuters to and from the region. School enrollment is on the decline because of the decreasing number of young families in the region. Home prices continue to increase, displacing lower income households, forcing people to live in unaffordable housing, and inhibiting many from purchasing a home.

# Health Insurance

## Many Rural Residents Lack Coverage

### Why is it important?

Rural residents have poorer health care than their urban counterparts, and the gap is widening.<sup>1</sup> While just about every part of the health care system contributes to this gap – doctors, insurance, government, and pharmaceutical companies – demographic characteristics of the people who live in rural areas are another factor. They tend to be older, have less access to preventive health care and tend to avoid seeking medical advice until their illness escalates to an emergency.

Yet statistically, rural residents also have less health care coverage than urban residents. As the costs of health care soar, health maintenance organizations (HMOs) and insurance companies have canceled service in rural areas, which further discourages entrepreneurs, retirees, and skilled professionals from living there. Without health insurance coverage, people lack access to good health care, and this constrains rural areas from building financial capital.

### How are we doing?

In 2001, the Sierra Nevada averaged one in five non-elderly residents who lacked health coverage for all or part of the year.<sup>2</sup> Placer County had the highest percentage of residents with health coverage in 2001 at 96 percent, approximately 10 percent higher than the state. The overall Sierra Nevada region is doing better in terms of numbers insured than the state. However, because this indicator is a survey, it is difficult to accurately measure. Numerous variables, such as the number of people contacted or interviewed versus how many people are actually insured but not accounted, contribute to the difficulty of this assessment.

<sup>1</sup> This description of the problems with rural health care is based on Emelyn Rodriguez, "Rural Health Care: Is There a Doctor in the House?" *California Journal*, April 2001, 10-16.

<sup>2</sup> [http://www.healthpolicy.ucla.edu/pubs/files/SHIC\\_report\\_11142003.pdf](http://www.healthpolicy.ucla.edu/pubs/files/SHIC_report_11142003.pdf)

**[Download data and charts.](#)**

# Hospital Capacity

## Many Rural Residents Use Urban Facilities

### Why is it important?

Most rural hospitals are on the verge of bankruptcy. Because they serve fewer people, the cost of providing health care per person is higher than in urban hospitals. Yet their patients are generally less reliable sources of income than urban patients. Even if patients have jobs and health insurance, their per capita incomes average less than urban patients. Exacerbating the situation, rural patients are more likely to be on Medicare or Medicaid, which puts hospital finances at risk to changes in public policy.

Yet, hospitals play an essential part in building rural financial capital. Because distance to medical care may mean the difference between life and death, hospitals are attractive to entrepreneurs in search of a good place to own a business and raise a family.

Hospitals also attract and retain retirees, who through transfers and capital payments account for one-third of the Sierra's personal income. When retirees move away to be near good medical care, a community's financial capital is reduced by the income they take with them. Hospitals themselves are a good form of economic development because they have remained steadily active and cause little environmental harm.<sup>3</sup>

Not only do rural residents have fewer medical professionals per capita than urban residents, rural hospitals generally provide only primary care services. Telemedicine makes it possible for rural patients to consult with the best specialists without having to travel to urban areas. Future advances in telemedicine will continue to reduce the gap in health care between urban and rural areas.

### How are we doing?

Staffed beds are higher in North Sierra because of high demand during summer months (visitors, forest product workers) requiring additional capacity, according to Ray Marks, CEO at Seneca District Hospital in Chester. Staffed beds in the North Central Sierra are much lower than the state average because many of its residents are served by hospitals in Sacramento.

<sup>3</sup> Sam Cordes, "Health Care and the Rural Economy," Forum for Applied Research and Public Policy, 13, no. 2, (1998):90-93.

[Download data and charts.](#)

# Asthma in Children and Adults

## Airborne Pollutants Have Adverse Effects

### Why is it important?

Asthma is a chronic lung disease that inflames airways and creates breathing problems such as coughing, wheezing, chest tightness, and shortness of breath. Asthma is one of the most common chronic conditions in the United States and around the world, and its prevalence has been increasing over the past three decades. Asthma episodes can be mild, moderate, or even life threatening. Environmental irritants, allergens, or infections usually trigger asthma episodes. General irritants include the following: tobacco smoke, spray deodorants, talcum powder, make-up, perfume, odors from cleaning fluids, paints, furniture polish, room fresheners, smog, car and truck exhaust; hair, insect, and cleaning sprays.

Frequent symptoms among asthmatic children can be a sign of inadequate medical control and persistent exposure to the general irritants mentioned above. Many children who suffer from asthma do not receive the proper medical care due to lack of access in the area, particularly in rural communities of the Sierra Nevada. Without proper medical attention, asthma can be debilitating for children, possibly preventing them from participating in necessary learning and development activities.

The lack of proper medical facilities or access to them may be the cause for discrepancies in reported data. If many people suffering from asthma are not seeking treatment or are incapable of doing so, they will not be accounted for.

### How are we doing?

Airborne pollutants are referred to as particulate matter – a term used for a mixture of solid particles and liquid droplets found in the air. Coarse particles (larger than 2.5 micrometers) come from a variety of sources including windblown dust and grinding operations. Fine particles (less than 2.5 micrometers) often come from fuel combustion, power plants, diesel buses and trucks. This particularly affects the Sierra Nevada due to the traffic pollution from highway 395 as well as from dust and pesticides from ranch and farmland.

The average adult breathes 13,000 liters of air per day while children breathe 50 percent more air per pound of body weight than adults. Because children's respiratory systems are still developing, they are more susceptible to environmental threats than healthy adults.

4 Based on the California Health Interview Survey, *El Dorado County has the highest percentage of children who take asthma medications, while the south central area has the least.*

4 <http://www.epa.gov/ttn/oarpg/naaqsfin/pmhealth.html>

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## School Enrollment

### Despite Population Increase, School Enrollment Continues to Drop

#### Why is it important?

School enrollment levels are essential in determining the amount of state funding received by local schools. Funding is based primarily on enrollment and average daily attendance. Enrollment trends over a historical period of time provide insight into a school's financial stability. It is also a good indication of the number of families with children living in a particular area. Changes in school enrollment rates are due partially to increases in home prices and partially to loss of living wage jobs. These changes make it next to impossible for young families to afford to live in the area.

#### How are we doing?

As shown in the graph above, school enrollment figures for the Sierra Nevada depict an overall decline from 1993 to 2004 indicating that families are actually leaving the Sierra Nevada despite the large population increases in recent years. Decreases in school enrollment and in the number of young families living in the Sierra Nevada suggest an element of instability in the region's wealth, as the education of future generations faces the potential threat of decline in public funding and a corresponding decline in quality.

[Download data and charts](#)

# Educational Attainment

## Education Levels of Residents Comparable to California

### Why is it important?

Adults with more education are more productive, earn higher incomes and have broader employment options than less-educated adults.<sup>5</sup> As the link between skills and opportunity grows ever stronger, individuals without advanced education are likely to be left further behind. People need a solid high school education plus at least two years of college to learn the skills needed for today's professions: how to identify and solve problems, work effectively in groups, and understand systems. When entrepreneurs look for a place to grow their business, they are attracted to places where the level of education indicates the quality and diversity of the labor pool.

### How are we doing?

In the Sierra Nevada, a higher concentration of high school graduates and a lower concentration of college graduates live here compared to California. Every subregion has a relatively large number of high school graduates, with the North Central Sierra leading the way at 90 percent. In California only 78 percent of people have graduated from high school. In terms of college education, only the North Central Sierra is comparable to California. For the remainder of the Sierra, only 18 percent of the population has a Bachelor's degree compared to 28 percent in California. The North Central Sierra led all subregions in every category of educational attainment.

<sup>5</sup> Jenkins, L.B.; Kirsch, I.S. 1994. Adult literacy in California: results of the state adult literacy survey. Sacramento: California Department of Education. <http://www.otan.dni.us>.

[Download data and charts](#)

# Youth Organizations

## Participation Rates Remain Low

### Why is it important?

Youth-serving organizations such as 4-H, scouting, and FFA enable young people to develop as individuals and contribute to society.<sup>6</sup> These organizations build the civic capacity of future generations in the region. The presence of youth organizations provides benefits for causes such as the natural environment and fosters entrepreneurship among participants.

## How are we doing?

There is a significant lack of active youth organizations throughout much of the Sierra Nevada. No organizations were identified in the North, five were identified in the North Central and South Central, and only one in the East Sierra. The Center for Economic Development surveyed organizations for average daily or weekly participation. Participation ranged from a high of 40 children per 1,000 in the North Central Sierra, fell to 31 in the East Sierra, and only 13 in the South Central Sierra.

6 "A Tool to Assess the Worth of a Youth Organization." Journal of Extension. <http://www.joe.org/joe/2000june/rb3.html>

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## Child Poverty Rate

### Poverty Rates Remain Consistent Despite Increases in Prosperity

#### Why is it important?

Economic stresses directly impact the development and welfare of children. Studies show that children raised in poverty are more likely to be exposed to factors that can impede brain development: inadequate nutrition, substance abuse, maternal depression, environmental toxins, trauma or abuse, and poor day care.<sup>7</sup> Due to lack of housing choices for low-income wage earners, many families are forced to move frequently, disrupting the community support system. In addition, many neighborhoods where low-income families can afford to live do not have safe or adequate outdoor play areas to help promote learning and development. As prosperity increases in the Sierra Nevada, directing benefits of our growing economy toward these children and the future we share is critical.

#### How are we doing?

The U.S. Department of Commerce's Bureau of the Census reports that for the North, North Central, and East Sierra, child poverty rates decreased from 1990 to 2000. However, a more accurate picture of the number of children in need can be determined by reviewing enrollment in a school's free or reduced lunch program. In order to qualify for these programs, the school children must come from families with incomes at or below 130 percent of the poverty level.<sup>8</sup> According to the California Department of Education, child poverty has decreased in the North Central Sierra, remained steady in the South Central Sierra, and

increased in the East Sierra. The North region has experienced a significant fluctuation with a dramatic increase since 1999, although this may be due to reporting inconsistencies. All four subregions, however, remain well below the percentage of children in California enrolled in the Free School Lunch Program.

7 National Center for Children in Poverty, Columbia University, New York, NY. <http://cpmcnet.columbia.edu/dept/nccp/>.

8 <http://www.fns.usda.gov/cnd/Lunch/AboutLunch/NSLPFactSheet.pdf>

[Download data and charts](#)

## Violent Crime Rate

Overall Decrease in Rate Continues

Why is it important?

Violent crime undermines a community's quality by creating a climate of fear and mistrust. These fears, if persistent, can affect growth in social capital by triggering stress-related illnesses and can affect growth in financial capital through decreased work productivity.<sup>9</sup>

How are we doing?

Crime rates have been declining both nationwide and in California's urban areas. Violent crime has also fallen across the Sierra Nevada, albeit in differing patterns. In the North and South Central Sierra, violent crime declined steadily between 1995 and 2001, but rose again in 2002. In the North Central Sierra, violent crime decreased throughout the 1993-2002 study period. The East Sierra experienced a spike in violent crime through 1997—exceeding the state's crime rate that year—and fell to levels consistent with the rest of the Sierra by 1999. Except for the East Sierra in 1997, violent crime rates across the Sierra Nevada were well below those in the state, although the declines in Sierra violent crime have not been as great.

9 CIGNA Behavioral Health.

<http://apps.cignabehavioral.com/web/basic/site/bulletinBoard/copingWithFearOfViolentCrime.jsp>

[Download data and charts](#)

# Historic Preservation

## Low Number of Historic Resources Designated for Preservation

### Why is it important?

Preserving and enhancing a region's irreplaceable historic values, as a matter of public interest, provides a vital legacy of cultural, educational, recreational, aesthetic, economic, social, and environmental benefits. These benefits maintain and enrich a community for present and future generations.

The National Historic Preservation Act (NHPA) was enacted in 1966, creating the National Register of Historic Places, a list of historic landmarks with the intent of managing important sites in the face of development projects. It requires evaluation of the impact of any government-funded construction project on historic resources. 10

### How are we doing?

Less than half of the Sierra's known historic resources are designated for preservation. The North Sierra has the highest percentage with just less than 60 percent, while the East subregion has the lowest with fewer than 35 percent of known historic resources designated for preservation. These numbers do not match the magnitude of the cultural and historical richness of the region.

10

[http://encyclopedia.worldvillage.com/s/b/National\\_Historic\\_Preservation\\_Act](http://encyclopedia.worldvillage.com/s/b/National_Historic_Preservation_Act) (see text of NHPA at <http://www.nps.gov/history/local-law/nhpa1966.htm>)

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# Performing Arts Attendance

## Residents Eager for More Arts Investments in Their Communities

### Why is it important?

The performing arts are essential to human experience. Art events and activities enrich lives, from childhood through adulthood, helping people interpret and explore their relationships amongst each other and with the

world. Arts enhance aesthetic pleasure for area residents and make the Sierra Nevada even more attractive to visitors. Arts festivals generate about \$11 in economic activity for every dollar of cost. While the outcome of this is beneficial, it is imperative for arts programs to receive initial funding and support thereafter. Sierra Nevada residents are eager to see more arts investment in their communities. In a recent survey of Sierra Nevada voters, 50 percent indicated their interest in having more “cultural resources such as theatres and the arts” in their county.<sup>11</sup>

## How are we doing?

Unfortunately, few organizations maintain records on annual attendance figures. For many, time and cost issues present barriers to compiling this information. Without this information, it is difficult for venues and theaters to seek outside funding to help sustain performing arts programs. The number of attendees is vital in proving the worth of community arts programs. Organizations that do keep records confirm that attendance at performing arts events in the Sierra is increasing.

11 Sierra Nevada Voter Survey conducted in November, 1995, by J. Moore Methods, Inc., located in Sacramento, California.

[Download data and charts](#)

# Civic Capacity: Voting Record

## Sierrans Voice Opinions Regarding their Communities

### Why is it important?

Voting expresses a preference for particular candidates, and increasingly, it is a way for Sierrans to voice their opinions about the Sierra Nevada's future. Several recent California state voter initiatives provide evidence about local feelings toward important issues in the Sierra – education facilities and clean water supply. Educational facilities are important because of the region's rapid growth rate, local use of schools as community centers, and preservation of unique historical resources through renovation of decorative, yet technologically obsolete, school buildings for continued use. Since the Sierra Nevada supplies much of the state's water, as shown in the Water Use section in the Natural Indicators, protecting local water quality is of statewide importance.

### How are we doing?

Sierrans were less likely to vote in support of supplying clean water and

building public education facilities than other Californians, although, the public education bond passed narrowly in all four Sierra regions. Citizens of the North Central subregion had greater support for the measures than other Sierrans, though less than the state's urban areas. This may be due to Sierrans believing their communities already provide educational facilities and clean water, or they may disagree with paying for these through debt financing. Sierrans prefer working within their own communities to accomplish goals rather than waiting for a government agency to step in and make decisions. Thus, historically, they have rejected state efforts to manage natural resources.

[Download data and charts part 1](#) [Download data and charts part 2](#)

## Population Growth

### Population Growth

#### Why is it important?

People significantly affect trends and conditions in the Sierra's social, natural and financial capital. They may build capital if they are entrepreneurs who create good jobs or they become employees in growing businesses. New residents also support local businesses when they buy houses or hardware, enroll in exercise classes or eat out. They also build social capital when they volunteer for Rotary, Soroptimists, PTAs or building trails.

On the other hand, more people also create problems when they demand limited resources. When land and housing prices fly skyward, communities can unravel. Traffic may choke interstates and intersections. Crowds may ruin a visit to Yosemite or Desolation Wilderness. Conflicts can increase when urban residents move into rural communities. Ranchers may have to curtail their operations to not offend new neighbors next door. And the tussle over who gets Sierra water -- residents or remote cities, fish or farmers, rafters or hydropower producers -- is eternal.

Our challenge as business and community leaders is to make decisions so that the population grows in ways that build at least two forms of capital without diminishing the third. How we develop private land, build transportation infrastructure, recreate outdoors, and conduct public processes all influence who lives here and how strong our economies and communities are.

#### How are we doing?

Population in the Sierra Nevada has grown to 819,000 residents, making it the fastest growing region in California since 1990. In fact, the Sierra is

growing faster than was predicted in the 1999-2000 Wealth Index, especially after the recession began in 2003. Almost all the additional growth is in the North Central counties, although the South Central is growing rapidly as well. At this pace, the Sierra will surpass 1 million residents by 2020. Bear in mind that these numbers account only for residents, not the growing “shadow population” of recreationists and second homeowners who also enjoy our region.

## **Population Migration**

### Population Migration

#### Why is it important?

To ensure long-term prosperity, communities that foresee high in-migration must be willing to avoid the kind of growth that makes housing prices soar and quality of life decline. In places where most population growth is natural (births minus deaths), increased demand is spread over the two decades that children grow, giving business and community leaders time to develop sound plans for building overall community wealth.

#### How are we doing?

In-migration accounts for four-fifths of the Sierra’s population growth, and is a consistent factor in the North Central and South Central regions. In the North and East regions, migration patterns fluctuate as local economies grow and decline.

## **Demographics of New Residents**

### Demographics of New Residents

#### Why is it important?

The age of people moving in and out of the Sierra can influence the region’s overall wealth for years to come. In-migration of 25- to 34-year-olds carries the potential for future growth through childbearing. If these people have college educations, they bring the latest skills and knowledge, which can foster economic growth in emerging sectors.

At advanced ages, health concerns may force some people to move closer to or in with their children, to assisted-care facilities, or to nursing homes. Some rural communities like Kremmling, Colorado, have recognized that creative projects aimed at meeting the needs of older people can build a stronger community. After Kremmling built an assisted-living care facility, it found that families could stay together

even when seniors could no longer live independently. This strategy created good jobs and kept wealth from leaving the community.

Active retirees are often the backbone of community oriented volunteer organizations -- reading to children at the public library or building new bicycle trails. Some become involved in local politics and hold elected positions.

## How are we doing?

During the 1990s, 25- to 34-year-olds represented 37 percent of the people moving into the Sierra, 80 percent of which moved into North Central and most of the rest into South Central. About half that number of 35- to 44-year-olds and 45- to 54-year-olds moved into the region, again primarily into North Central although 30 and 38 percent of each age group respectively opted for the South Central.

The Sierra lost its 5- to 14-year-olds, especially from the North, although South Central and East lost people in that age group as well. Many of these may have left for higher education, others to seek their fortune elsewhere. Sixty-five and 74-year-olds also left the Sierra, half of them coming from South Central, a third from North and the rest from the East.

## Housing Indicators

[» Home Ownership](#) [» Housing Affordability](#) [» Housing's Share of Income](#) [» Housing Prices](#) [» Income Needed to Rent Housing](#) [» Housing Gap](#) [» Household Overcrowding](#) [» Job-Housing Balance](#) [» Second Homes](#)

### Housing Indicators: A Summary of Findings

This edition of the Sierra Nevada Wealth Index includes a new housing indicators section. Largely indicative of the rapid development taking place in the Sierra Nevada, particularly in the North Central and the Eastern subregions, housing is a major factor in the region's health. Development not only has significant financial implications for the region, but affects both social and natural capital as well.

Both residential and nonresidential development certainly can have positive in a community. Residential development increases the number of available housing units, which helps regulate housing prices by not allowing demand to greatly surpass supply. Residential development can also foster a sense of community, improving local social capital. Nonresidential development can create jobs, increase tax revenues, and attract tourists.

The negative trends with development largely affect the social capital of an area. If demand for housing increases faster than houses are built, housing prices increase, many times making them less or unaffordable for many people with lower paying local jobs. Similarly, if a local economy places an emphasis on revenues from a service industry such as tourism, many more seasonal or low paying jobs than year-round jobs are created, as we will see in the financial capital indicators section. As a result, development can widen the income gap, inhibit people from buying houses, and displace lower income families or individuals.

Development can also negatively affect natural capital by decreasing the amount of open space or farm and ranch acreage in an area. Rapid population increases can also contribute to air and water pollution problems, threatening the beauty, quality of life, and the future of the Sierra Nevada.

## Natural Capital

### Natural Capital: A Summary of Findings

Natural Capital in the Sierra Nevada exhibits both strengths and weaknesses. Because only 16 percent of the land in the Sierra Nevada is privately owned, future settlement patterns are more predictable than statewide, helping to maintain a healthy natural capital. Designations of land use through general plans provide a balance in communities and help preserve open space. The Sierra Nevada supplies about 60 percent of California's usable fresh water. Between 1990 and 2003, the value of agriculture produced in the Central Valley using Sierra Nevada water was valued at \$15-18 billion per year. Advances in hydropower and geothermal electricity production allow the Sierra Nevada to export electricity to a wider portion of California State. Increases in production result in lower wholesale electricity prices.

Troubling trends include the loss of farmland in the North Central counties, where thousands of acres of highly valuable fruit orchards and nut trees have been lost. Pressures for development continue to threaten open space, particularly in the North and North Central counties. Throughout the Sierra, certain habitats have limited protection from conversion, including oak-dominated landscapes, riparian areas, and agricultural lands. Fire hazard is significant on 45% of the Sierra Nevada landscape. Air quality is declining due to both particulate matter and ozone. As a result of decreasing snowpack levels and subsequent snowmelt, groundwater levels are falling. Commuters into the region are significant contributors to traffic congestion resulting in increased air and water pollution.

## Land Use

### General Plans Provide Balance in Communities

#### Why is it important?

Beginning in 1937, all cities and counties in California were required to adopt master plans, now called general plans. These documents generally assign land to a particular use including residential, commercial, industrial, and open space. Therefore, general plan land use designations are a predictor and designator for future land use with timeframes usually between ten and twenty years into the future. The general plan preserves natural capital by restricting development in sensitive areas, allows financial capital to grow by allowing business land uses, and develops social capital through residential development standards that encourage interaction by residents in neighborhoods.

#### How are we doing?

A large portion of the Sierra Nevada is reserved in local general plans as open space. This space is used for agriculture, forestry, and recreation. Some counties have different definitions for the same use. For example, Amador and Plumas counties have no agricultural zone and instead use a very low-density residential zone for agricultural land. Development spreading from the Sacramento metro area is visible in the North Central Sierra in the vast tracts of low- and medium-density residential areas in its western reaches. The western portion of the South Central Sierra contains large tracts of low- and very low-density residential, although most of these portions of Tuolumne and Mariposa counties remain in agriculture or open space. Developable land in the East Sierra is visible in strips following Highways 395 and 6, while nearly all of the remainder is preserved as public or open space.

## Water Use

### Most Sierra Water Used for the Environment

#### Why is it important?

The Sierra Nevada supplies about 60 percent of usable fresh water in California. While local water availability in the Sierra Nevada is critical to local agriculture, environment, recreation, and residents, most of this supply is utilized downstream or exported to other water basins.

#### How are we doing?

Most Sierra Nevada regional water is used for agriculture, and most water used for agriculture is exported to the Central Valley. About 13 million acre-feet per year (34 percent of usable freshwater) is used for environmental preservation and enhancement, including in-stream flows for aquatic and riparian health and diversion to wetlands. Within the Sierra Nevada, the environment through evaporation and transpiration consumes most water by trees and other plants.

Nearly all of the water originating in the San Joaquin River Basin and the Tulare and Kern rivers are exported to the Central Valley for use. About 21 percent of Sierra Nevada water in the Sacramento River Basin is used in the Sierra Nevada, mostly by the environment. More than 30 percent of Owens River water is used in the Sierra Nevada, mostly for agriculture, and the Los Angeles Aqueduct exports most of the remainder. Nearly all Sierra Nevada water in the Truckee and Walker rivers is used for agriculture and not exported. Although in-stream flows for environmental purposes are likely used again downstream in Nevada.

[Download data and charts](#)

## Groundwater

### Groundwater Levels Prove to be Falling

#### Why is it important?

When water resources are in short supply, groundwater levels fall. This occurs for two reasons when water shortages occur: groundwater is normally pumped to supplement surface water rights and less water is available to recharge underground reservoirs.

#### How are we doing?

The North Sierra has some monitored wells located in the Sierra Valley, where groundwater levels have been falling since 1998. In 1999, rainfall was ten inches below normal causing a decline in groundwater levels. However, rainfall from 2000-2003 has been more than ten inches above normal, yet groundwater levels continue to decline. This may be tied to increased agricultural acreage in the North Sierra.

In the North Central Sierra, groundwater levels are consistently measured only in the Lake Tahoe area. Rainfall levels have been at or below normal since 1999 causing groundwater levels to drop through 2003. Although, rising groundwater levels in 2003 occurred despite rainfall being six inches below normal that year. Well monitoring is inconsistent in the South Central and East Sierra, although observed measurements follow

the same trend as in the North and North Central Sierra.

[Download data and charts](#)

## **Agricultural Production**

Steady Production Points to Efficient Water Use and Conservation of Farmland

Why is it important?

Agricultural production is a vital source of income and livelihood in the Sierra Nevada as shown in the Sources of Income indicator in the Financial Capital section. Agricultural is the most important and direct link between natural and financial capital. Agricultural production is a function of farm acreage, yield, and market price for products. For example, a change in production is indicative of a change in acreage, yield, market price for products, or any combination of the three. Farm acreage is provided as its own natural capital indicator. Agricultural yield is indicative of the natural environmental factors, such as soil and water quality. Therefore, changes in production and acreage, without change in market prices, indicate change in environmental quality and the environment's ability to directly produce financial capital.

How are we doing?

Production in the North Sierra has been relatively steady in the last fifteen years even with a significant increase in farm acreage due to the utilization of marginal lands. Although both declining yield and market prices for livestock products likely play a role. Ranchers may be adding land to compensate for declines in yield and product prices. The East Sierra has experienced an increase in agricultural production since 1991 without an increase in water availability, indicating a more efficient use of water in the area. The North Central Sierra has continued to experience relatively high agricultural production, although farm acreage and average farm size have decreased. Since 1995, urban development has not resulted in the loss of farmland. Recent development has occurred on non-productive land or land removed from production prior to 1995.

[Download data and charts](#)

# Farm Acreage

## Average Farm Size Decreases, but Total Acreage Remains Stable

### Why is it important?

Farmland adds to the rural feeling residents and visitors experience in the foothills and highland valleys. While the average acreage of farms in the United States has increased more than 50 percent since the mid-1950s, average farm size in California has increased roughly 13 percent in the same time. This is partially due to a trend toward smaller farms throughout the state, unlike in other parts of the nation.<sup>2</sup>

Farm acreage in the Sierra Nevada includes cropland as well as rangeland. A farm is defined as an operation that generates \$1,000 or more in agricultural products in one year.<sup>3</sup> As pressure for future development increases, farm acreage may remain relatively stable while productivity decreases due to anticipation of development or land conversion, as demonstrated in the Williamson Act Natural Capital indicator.

### How are we doing?

The South Central Sierra comprises approximately 50 percent of all farm acreage in the Sierra Nevada and has remained relatively stable since 1987. The North Central Sierra, with less land utilized for crop production, has seen a six percent decrease in farm acreage, largely because of urban encroachment in the Roseville/Lincoln area. Development pressure also results in land remaining idle in the anticipation of future development, particularly in the North Central and South Central Sierra. The average farm size in the North Central Sierra decreased 30 percent in the same time, partially due to the introduction of organic farming practices. This was particularly prevalent in the area of Placer County that lies within the Central Valley.

The East and North Sierra have more rangeland, resulting in a larger average farm size. Farm acreage in the North Sierra has increased 64 percent since 1987, although the value of agricultural productivity has actually decreased. This is mostly due to expansion of existing ranches into less productive lands.

<sup>2</sup> Retrieved May 10, 2005 from <http://are.berkeley.edu/extension/giannini/Chapter3.pdf>

<sup>3</sup> National Agricultural Statistics Service. January 22, 1999. Retrieved May 10, 2005 from <http://www.nass.usda.gov/mt/pressrls/misc/cenfarm.htm>

[Download data and charts](#)

## Williamson Act

### Pressures of Urban Expansion May Cause Fewer Contract Renewals

#### Why is it important?

Agriculture is the most extensive private land use in the Sierra Nevada, producing jobs and income while maintaining space in a local landscape valued by residents and visitors. Enrollment in the Williamson Act is an indicator of future farm acreage in the Sierra Nevada. Decreases in enrollments will likely lead to an increase in conversion of land to urban uses in the near future as landowners perceive urban development pressures and choose not to reenroll in the Act.

The California Land Conservation Act of 1965, better known as the Williamson Act, was designed to provide tax relief to agricultural landowners in order to safeguard productive land from premature urban development or expansion. This is done through a ten-year rolling Williamson Act contract, an agreement on the part of the landowner to continue agricultural production or preservation. The Act reduces property tax liability for enrollees. Without the Williamson Act, agricultural property would be valued for its potential urban use. Near expanding cities, urban use is valued much higher than agricultural use.<sup>4</sup>

#### How are we doing?

As of 2003, 10 of the 12 Sierra Nevada counties participated in the Williamson Act program. Alpine and Inyo counties are the two exceptions. Since 1991, the number of acres enrolled in the program have increased less than one percent across the Sierra Nevada, from 771,000 to 776,500 acres, while there has been a four percent increase at the California level.

There has been little change in contract renewals in the North Sierra, although contracts in the North Central Sierra declined significantly in the 1990s and more recent years. More agricultural land in the area is potentially committed to future development through the non-renewal process, which takes place over a period of nine years as tax liability gradually increases. This trend reflects an intense pressure for urban development likely to increase and impact agricultural landowners. The South Central Sierra made up the majority of acres enrolled (71 percent), although renewals there have significantly decreased in recent years. This indicates the likelihood of an increase in urban development in the

future.

4 Mittlebach, F. & Wamben, D. 95. *Competition for Natural Resources in California's Sierra Nevada*. Retrieved May 12, 2005 from <http://www.spsr.ucla.edu/calpolicy/Mittlebach1.pdf>

[Download data and charts](#)

## **Value of Agriculture Using Sierra Nevada Water**

Wealth of Central Valley's Agricultural Industry Reflects Wealth of Sierra Water

Why is it important?

The value of the Sierra Nevada's water can partially be determined by the value of agricultural production where the water is utilized. As the primary source of water for the Central and San Joaquin valleys, the amount of agriculture produced using water from the Sierra Nevada illustrates how the region is connected to the state's most important agricultural areas. Large farms, rising pressure on the land and farmers for increased production, and the sheer scale of existing production in the Central and San Joaquin directly affects the Sierra Nevada. The large scale of agriculture requires a continued water supply in order to meet the state, as well as nation's, demand for agricultural production. With the exception of Glenn, Colusa, and Tehama counties, the value of agricultural production in the Central Valley is the true financial wealth of Sierra Nevada water.

How are we doing?

Between 1990 and 2003, the value of agriculture produced in the Central Valley using Sierra Nevada water has remained relatively steady, shifting between \$15 and \$18 billion annually. Production in the Sierra Nevada, itself, adds only very small fraction to that total. The wealth of Central Valley's agricultural industry is truly the wealth of the Sierra Nevada.

[Download data and charts](#)

# Value of Agriculture Sold Directly to Individuals

More Farms Selling Products Directly than in California

Why is it important?

Farmers markets have become increasingly important to local economies, especially in the Sierra Nevada. Local markets are a positive way for farmers to sell their products and interact with the community. Farmers benefit as shipping costs are eliminated, making it possible for farmers to sell fresh produce that may not withstand large-scale packaging or distribution.<sup>5</sup> Direct marketing and participation between the farmers and their local community improves civic capacity, a social capital indicator. Financial transactions remain local, thus increasing financial capital.

How are we doing?

The number of farms selling directly to individuals has changed little in the last five years, despite the region's increasing population. Thus the number of farms per 10,000 people has decreased, except in the North Sierra, which saw little population growth. However, the value sold directly to individuals by those farms has increased significantly in every region except the East Sierra.

In all subregions of the Sierra Nevada, there are more farms selling directly to individuals per 10,000 people than in California. The greatest concentrations of these farms are found in the South Central Sierra, even though the number decreased from 19 to 13 farms per 10,000 people. The value sold to individuals per capita is higher in the North Central and South Central Sierra and lower in the North and East Sierra than in California. However, the value sold per capita is increasing faster than in California in all but the East Sierra.

<sup>5</sup> California Federation of Certified Farmer's Markets. Retrieved May 16, 2005 from <http://www.cafarmersmarkets.com/about>

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# Organic Agriculture

Organic Farms Have Big Environmental Benefits, but are Small in Number

## Why is it important?

Organic agriculture contributes to soil, water, and air conservation by using renewable resources, as well as alternatives to many conventional pesticides and fertilizers, bioengineering, and other practices.<sup>6</sup> Organic farms are classified as such by a USDA certified inspector and are generally found on small local farms. These farms create environmental, economic, and health benefits for their customers, the landscape, and the community. Organic farming increases soil and plant biodiversity, while organic ranching produces healthy, hormone-free meats and animal products. Organic livestock (which is separate from livestock products) is uncommon. Therefore, this indicator compares organic production to the value of non-livestock agricultural production. In addition, small farms help maintain biodiversity in the area's soil and foliage, creating a viable future for food production and environmental health, which promotes a healthier environment for citizens.<sup>7</sup> Throughout California, organic production represents less than one percent of all agricultural production, excluding livestock.

## How are we doing?

Organic agricultural production is most common in the North Central Sierra because the large population size supports farmer's markets and roadside stands selling organic agricultural products. The area's abundance of small farms tends to produce more organic products. Organic farming makes up roughly two percent of total production in the North Central Sierra and one percent in other areas.

<sup>6</sup> California Certified Organic Farmers. Retrieved May 9, 2005 from <http://www.ccof.org/aboutorganic.php>

<sup>7</sup> Community Alliance with Family Farmers. Retrieved May 12, 2005 from <http://www.caff.org/programs/buylocal.shtml#whyblg>

**[Download data and charts](#)**

# Forests & Timber Production

## Federal Legislation Places Dependence on Private Harvesters

### Why is it important?

Since the days of the Gold Rush, timber harvesting has continuously occurred in the Sierra Nevada.<sup>8</sup> A large majority of the state's diverse forest resources are found within the Sierra Nevada.<sup>9</sup> In terms of gross revenue, timber is one of the Sierra Nevada's most valuable products. Timber is also one of the largest net contributors to county government funds through forest reserve revenue and timber yield taxes.

Timber harvest is directly related to supply and demand, while USDA Forest Service management policies affect the supply of timber on public lands.<sup>10</sup> A decrease in available timber harvest leads to mill closings, lost jobs, and decreasing potential financial capital. Also, well-managed forests help maintain healthy water quality and plant biodiversity, and contribute to forest fire prevention.

Since the mid-1940s, about 16 percent of oak woodland regions have been converted to other uses including rangeland and urban development.<sup>11</sup> Policy and funding changes demonstrate the value of the Sierra Nevada's natural environment and community dependence on its environment. The community value placed on timber production shows the need for responsible forest management and production.

### How are we doing?

The majority of timber production in the Sierra Nevada now comes from private harvests. Federal legislation on forest production, particularly the Sierra Nevada Forest Plan Amendment and the Roadless Land Initiative, has contributed to reduced availability of timber production on public land. The majority of timber now comes from private lands due to decreases in logging on public lands. Past management practices of logging the larger, more valuable trees combined with a policy of fire suppression has forced federal land managers to reduce timber harvest activities to protect sensitive species. This decline in timber output from public lands in response to past management activities combined with global market forces has led to an increase in harvesting on private lands in the Sierra Nevada. Timber exports throughout the Sierra Nevada continue to be an important source of revenue. Although it has decreased slightly as shown in exports by product sector, a financial capital indicator.

The North Sierra continues to rely heavily on timber harvesting as an integral part of the economy. While the North Central and South Central

Sierra produced the largest amount of timber in 2002, its diversified economy is less reliant upon this resource. The East Sierra's low-lying plains provide little marketable timber.

8 Economic Assessment of the Ecosystem. Retrieved May 10, 2005 from <http://elib.cs.berkeley.edu/docs/data/0700/777/HYPEROCR/hyperocr.html>

9 California Forest Products Commission . Retrieved May 12, 2005 from [http://www.calforests.org/all\\_about\\_california\\_forests.html?ID=19](http://www.calforests.org/all_about_california_forests.html?ID=19)

10 *2000 Sierra Wealth Index* Sierra Business Council. 2000

11 Summary of the Sierra Nevada Ecosystem Project Report, p 6. Retrieved May 10, 2005 from [http://ceres.ca.gov/snep/pubs/web/PDF/exec\\_sum.pdf](http://ceres.ca.gov/snep/pubs/web/PDF/exec_sum.pdf)

[Download data and charts](#)

## Fire Threat

### Fire Protection Vital in the Sierra Nevada

#### Why is it important?

Every year, fire damage to homes and businesses threatens lives and the financial stability of rural communities. Continuing population growth in rural areas of the Sierra Nevada increases fire hazards, particularly in areas with large, spread-out housing developments. Wildland-urban interfaces are areas "where structures and other human development meet or intermingle with undeveloped wildland." The growing prevalence of Sierra Nevada wildland-urban areas has important implications for the impact and management of wildfires. These areas create "an environment in which fire can move readily between structural and vegetation fuels. [Their] expansion has increased the likelihood that wildfires will threaten structures and people."<sup>12</sup>

Fire protection preserves and cultivates financial capital. A large fire can damage property to the extent of billions of dollars. The threat of severely-affected utility delivery, especially electricity and water can limit financial capital growth by discouraging investment in communities.<sup>13</sup> Some fire threat is due to a history of strict fire control and the resulting accumulation of underbrush.<sup>14</sup>

#### How are we doing?

Medium-to-high fire threat in the North Sierra is largely due to long-term

forestry practices, which are being addressed through various projects. The western portions of the North Central and South Central Sierra, where most Sierrans live, have the highest risk for fire damage. The Lake Tahoe area in the North Central Sierra is also at risk due to the difficulty of evacuating the area.

The East Sierra is the least threatened due to its sparser vegetation and widespread rangeland habitat. Although the heavily forested areas of northern Mono County present a medium threat.

12 [http://www.silvis.forest.wisc.edu/projects/WUI\\_Main.asp](http://www.silvis.forest.wisc.edu/projects/WUI_Main.asp)

13

[http://www.iafc.org/downloads/WF\\_Workshop/IAFC%20Wildland%20Fire%20Policy%20Statement.pdf](http://www.iafc.org/downloads/WF_Workshop/IAFC%20Wildland%20Fire%20Policy%20Statement.pdf)

14 <http://biology.usgs.gov/s+t/SNT/noframe/ca163.htm>

## **Air Pollution: Particulate Matter**

Central Valley Air Pollution Standards Affect the Sierra Nevada

### Why is it important?

Particulate matter contributes to various health concerns including childhood asthma, acute respiratory symptoms, and chronic bronchitis, as well as difficulty completing daily tasks and attending school or work. The minute size of each particle is especially harmful in its ability to reach far into the human lungs, and it's difficulty to remove.<sup>15</sup>

Particulate matter is generated from a variety of sources, including diesel fuel emissions and agricultural operations. In the Sierra Nevada, a significant amount of particulate matter is blown in, originating in the Central Valley. Because of the prevailing wind patterns, air pollution standards in the valley have a significant effect on the Sierra Nevada region. Not all air monitoring stations reported readings during some years.

### How are we doing?

In the North Central and South Central Sierra, particulate matter blown in from the Central Valley produces at least ten days exceeded during most years where state standards are exceeded. In the East Sierra, wind causes some of the highest concentrations of particulate matter in the nation. Since its water has been diverted to Los Angeles, Owens Lake

contributes to the problem with its alkaline soil increasing concentrations of unhealthy particulate matter in the air. The nation's highest recorded amount of dust particulate in the air, almost 140 times the EPA standard, was measured at Owens Lake.

15 Environmental Protection Agency. Retrieved May 11, 2005 from <http://www.epa.gov/ttn/oarpg/naaqsfm/pmhealth.html>

[Download data and charts](#)

## **Air Pollution: Ozone**

### Pollution from Commuters Poses a Further Threat

#### Why is it important?

Ozone, while a natural and beneficial environmental component in the upper atmosphere, is a harmful air pollutant when it appears in the lower atmosphere. Health hazards range from itchy eyes and throat or chest pain to long-term lung damage.<sup>16</sup> Tree and plant species also suffer from concentrated ozone levels.<sup>17</sup>

The two primary causes of lower atmosphere ozone are motor vehicle emissions and the reflection of the sun on rock or concrete. Both instances result in the breakdown of chemicals and production of harmful ozone. Air movement from the Sacramento and San Joaquin valleys particularly affects ozone concentration in the Sierra Nevada, especially in the North Central and South Central Sierra. The number of air monitoring stations has increased in the last decade, producing more accurate data. The table represents an average of all reporting stations for each subregion.<sup>18</sup>

#### How are we doing?

The North and East Sierra have few days when state ozone standards are exceeded. In the North Central and South Central Sierra, state ozone standards are exceeded by at least ten days in most years. The problem is slightly worse in the North Central during most years because of added pollution sources from travelers on Interstate 80 and urban areas.

16 California Department of Health Services. Retrieved May 9, 2005 from [http://www.cal-iaq.org/o3\\_fact.htm](http://www.cal-iaq.org/o3_fact.htm)

17 Centers for Water and Wildland Resources. University of California, Davis. June 1996. Summary of the Sierra Nevada Ecosystem Project Report. Retrieved May 9, 2005 from

[http://ceres.ca.gov/snep/pubs/web/PDF/exec\\_sum.pdf](http://ceres.ca.gov/snep/pubs/web/PDF/exec_sum.pdf)

18 [http://www.cal-iaq.org/o3\\_fact.htm](http://www.cal-iaq.org/o3_fact.htm)

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## Global Warming

### Decreased Snowmelt Poses Threat to Sierra Water Supply

#### Why is it important?

*Global warming has affected the amount of snowmelt in the Sierra Nevada since 1950.*

Precipitation in the form of snow, rather than rainfall, increases water availability originating from the Sierra Nevada by delaying water flows downstream into spring and summer months when water, particularly for agriculture, is needed most. Snowmelt water provides about 75 percent of the water supply in the western United States.<sup>19</sup> It increases water storage and groundwater recharge capacity. Amount of snowmelt is affected by changes in snow precipitation, percolation, and evaporation. A reduction in snow precipitation and percolation is influenced by the global warming environmental effect.

#### How are we doing?

In the map, red circles indicate decreasing snowmelt water and blue circles indicate increasing snowmelt. Circle size indicates percent increase or decrease. The map shows that snowmelt has decreased more than 80 percent in some areas of the northern Sierra Nevada, while snowmelt has increased in the southern Sierra Nevada since 1950. Global warming has undoubtedly impacted these statistics, and will continue to do so in the Sierra Nevada and other regions of the Western United States in the years to come.

<sup>19</sup> Mote, Philip. *The West's Snow Resources in a Changing Climate*. Testimony before the U.S. Senate Committee on Commerce, Science, and Transportation. May 6, 2004.

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# Energy Production

## Hydropower and Geothermal Electricity Enable the Sierra Nevada to Export Electricity

### Why is it important?

The production of electricity is a transfer of natural capital to financial capital in the Sierra Nevada. In particular, the production of renewable energy through biomass, hydropower, and geothermal facilities increases the Sierra Nevada's natural and financial wealth simultaneously. In 2002, a bill enacted in California required the state to generate 20 percent of its energy from renewable sources, excluding hydropower, by no later than 2017.<sup>20</sup> This will require more creative production of energy as the population increases. Data here represents power plants that produce one megawatt-hour or more and reported production for all the years presented.

### How are we doing?

The Sierra Nevada exports a tremendous amount of electricity to California's urban areas. Residential use is less than five megawatt-hours per person per year, so even the North Central Sierra, where per capita production is by far the lowest, exports electricity. Generation has been increasing in the North and North Central Sierra, but declining in the East Sierra.

The North, North Central, and South Central Sierra rely heavily on hydropower for electricity production. Sierra Nevada water flow is a direct source of electricity for both the Sierra Nevada and the Central Valley. The East Sierra has the greatest existing and potential production of geothermal electricity in the Sierra Nevada.<sup>21</sup> Utilizing state funding for research and development, the Mammoth Pacific Limited Partnership has received awards for innovation and research for developing the world's first air-cooled geothermal electricity production facility.<sup>22</sup> This design helps generate clean, renewable electricity in the summer as demand for electricity rises.<sup>23</sup>

20 U.S. Department of Energy. Retrieved May 17, 2005 from <http://www.eere.energy.gov/news/archive.cfm/pubDate=%7Bd%20'2002-09-18'%7D>

21 Geo-Heat Center. <http://geoheat.oit.edu/califor.htm>

22 California Energy Commission. Six Projects to Advance Geothermal Energy Research and Production in California. Retrieved May 17, 2005 from [http://www.energy.ca.gov/releases/2001\\_releases/2001-07-30\\_geotherm\\_grants.html](http://www.energy.ca.gov/releases/2001_releases/2001-07-30_geotherm_grants.html)

23 California Environmental Protection Agency. December 1, 2003.  
Retrieved May 17, 2005 from  
<http://www.calepa.ca.gov/PressRoom/Releases/2003/R6.htm>

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## Energy Use

### Per Capita Energy Use Higher than in California

Why is it important?

Energy use per capita in the Sierra Nevada tends to be higher than California's urban areas due to a greater need for heating in the winter, air conditioning in portions of the Sierra Nevada in the summer, and transportation between remote communities. This occurs despite electricity exports as shown in the energy production indicator.

How are we doing?

Average residential electricity consumption in the North and South Central Sierra has risen substantially—more than 20 percent in the last four years reported. This may be due to the increasing number of second homes in the region, which adds use without increasing permanent population. In the North Central Sierra, nonresidential electricity usage per customer is the highest in the region, although no Sierra Nevada subregion had average nonresidential use as high as in California.

[Download data and charts](#)

## Electricity Prices

### Rise in Energy Production Causes Decrease in Wholesale Electricity Prices

Why is it important?

The price of electricity is an indicator of financial capital gained from energy production in the Sierra Nevada. Also, the production cost for agricultural products—an important financial sector in the Sierra Nevada—is directly affected by the price of electricity and the amount of energy available. The value of electricity in the Sierra Nevada is not necessarily transferred to the communities where the energy is produced. Energy companies charge customers for the cost of energy transfer, and

that cost is not fully redistributed to the community. Therefore, urban areas receive more value than rural areas, as the cost of transfer tends to be less. This may account for higher electricity prices in Northern California than in Southern California during the 2000-2001 energy crisis.

## How are we doing?

In the majority of the Sierra Nevada, annual wholesale electricity prices decreased with a rise in energy production between 2001 and 2003, as shown in the energy produced natural capital indicator.

[Download data and charts](#)

# Vehicle Miles Traveled

## Use of Gasoline Per Capita Remains Above the State Average

### Why is it important?

The number of vehicle miles traveled on California state highways indicates trends in energy use and consumption as well as tourism and commuters. Road alteration and expansion contributes to the transfer of travel from older roadways to newer, more efficient ones. Also, air quality is directly related to vehicle travel—as emissions increase, air quality decreases. The data shown represents the location of gasoline usage along California state highways rather than the location of purchase. Gasoline purchases are more likely to occur in urban areas where the fuel is cheaper.

### How are we doing?

Vehicle miles traveled is projected to increase in the Sierra Nevada, while California travel miles should remain relatively stable. Travel will continue to be more extensive in rural areas. In particular, an almost doubling of vehicle miles traveled in the North Sierra between 1980 and 2005 may be due to more residential trips to neighboring communities and its increasing popularity with visitors. Travel miles in the North Central, South Central, and East Sierra remain well below the state average.

The use of gasoline per capita has remained above the state average between 1997 and 2002 in all areas except the South Central Sierra, where communities are located closer together than in other regions. In the East Sierra, gasoline consumption is significantly higher than in other sub regions. This, coupled with less than average vehicle miles traveled,

means there is a greater concentration of truck, pickup, and SUV traffic by local residents and visitors from the Los Angeles area.

[Download data and charts](#)

## **Solid Waste**

### Majority of Waste Exported to the Central Valley

#### Why is it important?

The amount of solid waste generated and disposed is increasingly important as population rises in the Sierra Nevada. The proper diversion and disposal of waste is vital to maintaining healthy air and soil. Much of the solid waste generated in the Sierra Nevada is exported to landfills in the Central Valley, rather than taken care of locally. Waste diversion programs are another way to decrease waste disposal through recycling, source reduction, and composting, among other means.<sup>24</sup>

#### How are we doing?

Waste in the Sierra Nevada is being exported out of the area in the North, North Central, and South Central Sierra. The East Sierra generates the largest amount of waste per capita by far, but is able to landfill nearly all of it. Both scenarios have both advantages and disadvantages in regards to the natural capital of their respective regions, as waste management has not yet reached a point of maximum efficiency.

<sup>24</sup> California Integrated Waste Management Board. Retrieved May 19, 2005 from <http://www.ciwmb.ca.gov/LGCentral/Glossary.htm#DRS>

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## **Toxics Pollution**

### Waterborne Toxics Found in Several Areas of the Sierra Nevada

#### Why is it important?

Due to the Sierra Nevada's rich geological history, the presence of toxins in the soil and water is a significant factor in the use and conservation of productive areas. Toxins can contaminate air and water supplies as well

as soil composition and crop production. Also, contamination of lakes and streams can be harmful to fishing and other regional recreational uses. Toxins can originate from either human or natural causes. Both are represented in the map. Multiple dots in a single area represent a single source of multiple toxins.

## How are we doing?

Most of the waterborne toxics contamination is located east of the Sierra Nevada divide. Point sources of multiple toxins are found in Truckee's Martis Valley, South Lake Tahoe, and the Carson Valley. The western half of the North Central and South Central Sierra, formerly part of the Mother Lode gold mining area, also have many sources of metallic water contamination. The North Sierra has relatively few sources of waterborne toxics.

# Financial Capital

## A Summary of Findings

Overall, the Sierra Nevada is prospering financially. However, that prosperity is concentrated largely in the North Central counties, where job creation has outpaced population growth, and unemployment is lower than in California as a whole. In addition, per capita income in the North Central Sierra exceeds the California average and investment in high speed Internet is substantial.

By contrast, trends in the other Sierra regions—South Central, East, and North—are more mixed. In the South Central Sierra, population is growing faster than jobs. In all three regions, unemployment has climbed since the recession in 2001. Seasonal unemployment continues to be a problem in the North and the East, as well as in parts of the South Central. Per capita incomes in these three regions have fallen behind the North Central as the income gap continues to widen. Also, the number of low paying jobs exceeds the number of higher skilled, higher paying jobs, resulting in unaffordable housing for many.

Region-wide, tourism—heavily dependent on the natural beauty and landscape of the Sierra—now accounts for 15 percent of the region's total payroll. In a number of counties, it is the single most important economic activity.

# Per Capita Income

## Sierra Nevada Must Reverse Widening Income Gap

### Why is it important?

Per capita income measures a region's economic strength and the standard of living its residents enjoy. To calculate it, all sources of income – wages, capital payments and transfers – are added together, divided by total population, and then adjusted for inflation to track real income over time. When per capita income rises, a region's financial capital is growing faster than its population.<sup>1</sup>

### How are we doing?

Since 1993, the Sierra Nevada's per capita income grew on average 2.06% per year, faster than the California rate of 1.53%, suggesting a strong overall economy with the region's financial capital growing faster than population. But when examined more closely, the North Central's economy was so large and strong that it obscured weaker economies with declining financial capital in the rest of the Sierra Nevada. The North Central's spectacular per capita income growth is primarily due to the growth of Sacramento. As the city spreads out, western North Central is evolving from a collection of bedroom communities to an economic engine in its own right.

As already mentioned, the rest of the Sierra Nevada did not fare as well. The North, with a growth rate of 1.46%, barely kept pace with California. The South Central and East both lost ground with growth rates of only 0.77% and 0.70%, respectively. These trends mirror those found in rural areas across the United States where incomes average 70 percent of urban levels with a growing gap.<sup>2</sup> This widening income gap puts rural Sierra Nevadans at a disadvantage relative to urban dwellers who can afford to pay high prices for retirement or second homes. Although some Sierrans could earn higher incomes in urban areas, they forego some income in return for the "second paycheck" they receive from having an outstanding quality of life. But if incomes in the Sierra Nevada fall too far behind the California average, such non-financial compensation may no longer suffice as a reimbursement for lower incomes. If the Sierra Nevada is to reverse the widening income gap, it must find ways to create more high-wage jobs.

<sup>1</sup> Note that these numbers do not include people incarcerated in Mule Creek State Prison in Lone (Amador County) or the Sierra Conservation Center in Jamestown (Tuolumne County).

<sup>2</sup> Michael E. Porter, *Competitiveness in Rural U.S. Regions: Learning and Research Agenda*, (Harvard Business School, (February 25, 2004);

available from [www](http://www).

[Download data and charts](#)

## Sources of Personal Income

Income Experiences Regional Shifts

### Why is it important?

A comprehensive view of income origination helps identify key resources and how overall wealth will be affected by changes in the economy and population characteristics.

“**Local wages**” are closely tied to the local economy and measure its productivity through the value of goods and services produced by social, natural and financial capital.

“**Capital payments**” are income from stocks, bonds and real estate. Derived from accumulated wealth, this income is linked to national and global markets.

“**Commute wages**” are earned outside a person’s county of residence. People commute when they prefer to live other than where they work, they can’t afford to live where they work, or they can’t find appropriate work where they live. This income is offset by external costs such as traffic congestion, air pollution, and time away from family and friends. Transfer payments” are a hodgepodge including retirement, disability, medical payments, food stamps, and unemployment.

Non-local sources of income, especially capital and transfer payments, buffer the local economy against downturns in important regional or seasonal industries such as timber and tourism. On the other hand, they also disconnect residents from local economic fortunes, weakening their incentives to invest in their communities.

### How are we doing?

In 2001, local wages provided only half of the Sierra Nevada’s income, significantly less than the three-quarters local wages contributed to California’s economy. Capital payments paid 20 percent, commute wages 16 percent, and transfer payments 12 percent. None of these proportions have changed much since 1980.

Within transfer payments, medical payments were the fastest growing source of income, likely due to increasing medical costs. If age or poverty

were driving factors, food stamps and unemployment would be expected to increase as well, but instead they became less important. Within the Sierra Nevada, significant shifts occurred. Rapidly growing employment in western North Central caused local wages to be stable in the Sierra Nevada because it offset declines elsewhere. Although local wages dropped by 5 to 10 points in the rest of the Sierra, they still contribute two-thirds of income in the East, but they have dropped to 55 percent of income in the North and 47 percent in South Central.

Changes in commute wages show that as Sacramento expanded jobs moved out to the suburbs in Placer and El Dorado counties, which caused commuting income to become less important in North Central. The growth of Sacramento and Reno indicates that the South Central and the North are the new bedroom communities. In the East, commute wages flow out of the Sierra Nevada because people living outside the region commute to jobs at mines and ski resorts. In the North, South Central and East, capital payments are becoming more important as more retirees and others derive income from accumulated wealth.

[Download data and charts](#)

## Earnings-per-Job

### Sierra Nevada Economy Must Create More High Wage Jobs

#### Why is it important?

Earnings-per-job measures the purchasing power of people who work in the local economy. It is determined by economic activities, workforce quality, and the unemployment rate.

#### How are we doing?

People who work in the Sierra Nevada have consistently earned lower wages than the average Californian, which shows why non-residents so easily outbid residents for homes. As the earning gap grows, Sierra Nevadans lose more ground and many choose to move away rather than continue to struggle financially. Lower earnings-per-job are the result of the Sierra Nevada having a high proportion of consumer service and retail jobs, as well as a workforce without skills for higher wage jobs. For Sierra Nevada communities to prosper in the long-term, our economy must create more high wage jobs.

Even in the comparatively wealthy North Central, earnings averaged 25 percent below the state level and the gap has remained constant since 1993. In the North, earnings were 30 percent below the state average, up

from 25 percent below in 1993. This region maintained higher average earnings because it had only a small retail sector and greater dependence on government and manufacturing jobs.

In South Central and East, earnings were a shocking 40 percent below the state average, greater than the average gap of 32 percent for rural U.S. counties. This gap increased from 30 percent in 1993, most likely because of the growth of consumer service and retail jobs and the severe decrease in mining and timber jobs.

[Download data and charts](#)

## Income Distribution

### Income Distributed More Equally in the Sierra Nevada than in California

#### Why is it important?

Income distribution measures how income is divided among families in a region. One economic gauge is the Gini coefficient, which ranges from 0.20 when income is evenly distributed, to 0.60 when it is divided inequitably. Income is more unequally distributed in the United States than in Japan and Europe and has become even more so since the 1980s. Severe inequality makes it difficult for communities to resolve conflicts and make progress.

#### How are we doing?

Income is distributed more equally in the Sierra Nevada than in California, but less equally than in the United States, which has a Gini coefficient of 0.40. Inequality is highest in the Eastern Sierra, followed by North Central, South Central and the North.

But inequality tells only part of the story. The other ingredient is the income level of the richest five percent of families. The median income of the richest five percent of families is highest in North Central at \$192,000. In the East, which has greater inequality, the richest five percent receive an average of \$9,000 less. This means that income is more equal in North Central because it has more wealthy families, not because it has lower incomes.

You can see the importance of looking at both distribution and level by comparing North Central and South Central. Even though they have very similar income distributions, families in South Central are worse off because the richest five percent earn \$18,000 less than in North Central.

In the North, income is more evenly distributed because the level earned by the richest five percent is \$54,000 less than in North Central.

[Download data and Charts as of 2000](#)

[Download data and Charts for 2004](#)

## Employment Dynamics

### Employment and Unemployment Rise and Create Unusual Pattern in Sierra Nevada

#### Why is it important?

The dynamics between the employed, unemployed, or not in the labor force indicate if the local economy is strong enough to employ all who want to work. Those not in the labor force are too young to work, retired, disabled, tending to their families, or independently wealthy.

They may be volunteers for community organizations, but some may enter the labor force if low unemployment causes wages to rise. When employment rises, unemployment normally declines. When jobs grow faster than population, people may either commute into the region for work or hold more than one job. When population grows faster than jobs, increasing proportions are either retired or commuting to jobs outside the region.

#### How are we doing?

Steady job growth and declining unemployment indicate that the Sierra Nevada economy has been strong since 1993. However, after 2001 both employment and unemployment rose, creating a highly unusual pattern. This may have occurred as a result of the collapse of the Bay Area economy, as people moved to the Sierra Nevada and brought with them both jobs and unemployed family members.

This graph also shows that more Sierra Nevadans are not in the work force. This means our region has a large pool of volunteers who can strengthen communities by joining service organizations.

The North Central has the strongest job growth. This is the only region where the number of people who work equal the number not in the work force. In the other three regions, many more people are not in the labor force than there are employed.

# Labor Force Participation Rates

## Rates Vary Among Subregions

### Why is it important?

Labor force participation rates show what percent of the population is employed or actively looking for work. These rates tend to increase during expansions because non-workers enter the job market and decline during recessions when discouraged workers leave. During the past few decades, more women have entered the national workforce than men have left, which has caused participation rates to rise.

### How are we doing?

In the Sierra Nevada, labor force participation rates average 73 percent, several points lower than in California. The North Sierra rates come closest to California's, though they declined over the past decade. The low participation rates in South Central are because one-third of its population is 55 or older. In the East, the population is much younger so the low rates probably have more to do with lifestyle preferences and family responsibilities.

Once again, North Central has a different trend than the rest of the Sierra. Its participation rates averaged higher than California and, as we'd expect, they increased in response to strong job growth during the 1990s. The exception was that, even though the economy was growing, participation rates declined between 2000 and 2002, which suggests that a high percent of new residents were not in the work force because of age, family duties, or wealth.

[Download data and charts](#)

# Unemployment

## Seasonal Jobs Increase Unemployment Rate in the North

### Why is it important?

The unemployment rate measures the percent of the labor force out of work and actively seeking employment. This rate rises during recessions and falls during expansions. Because some turnover is normal – people leave jobs to move or change occupations – rates rarely fall below 2 or 3 percent. When rates reach these low levels, employers have difficulty filling positions and raise wages. When rates rise above 6 percent, the economy is performing below its potential. Economies with many

seasonal jobs have high annual unemployment even if levels are low during peak months. In such areas, creating more year-round jobs can reduce annual unemployment rates.

## How are we doing?

With the recession in 2001, unemployment rates climbed throughout the Sierra Nevada, which follows the pattern seen in California. Although historical unemployment rates in the Sierra Nevada consistently exceeded California's, today they match or are lower in three of four regions. Only in the North does unemployment exceed the state rate. The gap increased after the Sierra Pacific Industries sawmill closed in Loyalton. In North Central, the economy is so strong that unemployment rates average 2 points lower than California's.

Unlike what was found in the Sierra Business Council's previous two Wealth Indices, seasonal unemployment is now a significant factor only in the North. This suggests that South Central and East have succeeded in creating more year-round jobs.

[Download data and charts for 2003 \(Monthly\)](#) [Download data and charts 1990-2003](#)

# Economic Structure

## Sierra Economy Faces Noteworthy Shifts

### Why is it important?

The economic structure of a region changes over time in response to global markets, new technologies, population growth, and public policy. When business and community leaders have an accurate picture of an economy's structure, they better meet future challenges and choose investments that most benefit their community, whether in education or infrastructure, planning or building design.

Although many people believe that local wages have decreased because manufacturing has declined and services have grown, not all service jobs are to blame. Business services include such high-wage jobs as law, finance, real estate, and technical positions. Social services are more ambiguous because they include high-paying medical jobs and low-paying education jobs. Government often provides the highest-paying jobs in rural communities. Consumer service jobs such as arts and entertainment, household maintenance, lodging, retail, and recreation are most often low wage.

## How are we doing?

The Sierra Nevada economy has structural weaknesses that must be addressed if we are to avoid compromising our region's long-term prosperity. Compared to California, the Sierra Nevada has a higher percent of jobs in construction and retail. The construction industry is notoriously sensitive and linked to state and national economic cycles. Retail creates low-wage jobs that do not support families, especially when housing prices are high. As the Sierra Nevada's economy grows, we must expand those economic sectors that pay living wages and offer steady, year-round jobs.

On the positive side, business services were the fastest growing sector in the Sierra Nevada in the past 20 years and are now the most significant component of the economy. Most of this growth was in business management and engineering. Manufacturing also grew slightly, in contrast to its steep decline at the state level.

The greatest losses were in government jobs, primarily state and local. The Sierra Nevada lost more in the distribution sector than did the state, largely within transportation and public utilities. Sierra agriculture experienced a decline, but the mining industry was harder hit. Both of these sectors are strongly influenced by international markets and government policies.

Each Sierra region, though, experienced distinct and noteworthy changes. In the North, declines in manufacturing were offset by increases in business services and government, which provide high-wage jobs. In North Central, distribution and government jobs became less important, while manufacturing jobs became more so. In South Central, jobs were lost in agriculture, mining and manufacturing, but gained in business services. In the East, declines in agriculture and mining were offset by increases in both consumer and business services

[Download data and charts 1969 to 2000](#)

## Economic Diversity

North Central is the Only Region with High Economic Diversity

### Why is it important?

Economic diversity is the same idea as diversifying your investment portfolio. Higher diversity reduces a local economy's exposure to shocks such as factory closures, downturns in major sectors, and general

recessions. Places with high economic diversity rebound more quickly than those with low diversity. Unemployment rates and per capita income return more quickly to the levels they had before the shock. Low economic diversity is a major reason why rural communities experience boom-and-bust cycles.

## How are we doing?

North Central is the Sierra Nevada's only region with high economic diversity, but it declined slightly toward the end of the 1990s. Both North and South Central have medium economic diversity. The East has the lowest economic diversity, making it the most susceptible to experiencing economic shocks. The East's trend in economic diversity moved in the opposite direction from the rest of the Sierra, declining during the 1990s expansion, then increasing toward the end of the decade as the economy slowed down.

[Download data and charts 1990 to 2000](#)

# Fastest Growing Sectors

## Trends Differ Throughout the Sierra Nevada

### Why is it important?

Economic sectors grow rapidly in the short-term build local financial capital and are good candidates for economic development. Declining sectors, on the other hand, may be difficult to revive at any price, especially if the decline is a long-term trend. If a sector is in decline, officials should understand the reasons why and consider carefully before investing more in it.

## How are we doing?

In the short term, some of the Sierra Nevada's fastest growing sectors corresponded to California trends, especially local government and education and health services. Financial activities (finance, insurance, and real estate) sectors grew rapidly in the Sierra Nevada, counter to their trends in the California economy. Also unlike the rest of the state, natural resources and mining declined significantly in the Sierra Nevada economy.

Each subregion in the Sierra Nevada had distinctly different trends in some sectors. Between 2001 and 2002, construction grew significantly only in the North. The information sector grew rapidly in North Central, despite its decline at the state level. Personal services grew in North and South Central, consistent with the California trend. In South Central, the education, health, and financial services sectors all declined, contrary to

their patterns in the rest of the Sierra Nevada and California. On the other hand, the state government, professional, and business service sectors grew significantly in South Central, while they declined in other regions. Manufacturing grew significantly in the East alone, contrary to its declining trend elsewhere.

[Download data and charts 2001 and 2002](#)

## **Economic Multipliers**

"Leaky" Economies Must Be Considered in Development

Why is it important?

Economic multipliers show how many times a new dollar circulates in a local economy; a multiplier of two means a dollar is spent twice before it leaves. When multipliers are high, dollars flowing into an economy create more jobs than when they are low. Communities increase economic multipliers when they buy from local businesses. Encouraging local businesses to supply goods that the community routinely buys elsewhere help complete the circle. This economic development strategy, called "plugging the leaks," is an alternative to recruiting new businesses. The strategy's effectiveness results from its investment in social capital – the local businesses and entrepreneurs at the heart of a community.

How are we doing?

North has the most leaky economy, followed by the East and South Central. When residents shop outside their region, they go to cities such as Reno or Sacramento, instead of other parts of the Sierra. This helps explain why the Sierra Nevada has a smaller multiplier than North Central. Normally, the larger area will have the larger multiplier. Plugging the leaks would be a good development strategy for North, South Central and East.

[Download data and charts 2001](#)

## **Patents**

Patenting Rising in Sierra Subregions

Why is it important?

Patents measure the rate at which people register new ideas. Patents are

one expression of innovation, a key component to creating competitive regional economies in the global economy. In the past two decades, Sierra Nevada communities have found themselves competing in a more global economy. As a result, wages and prices for local products are less sheltered than they once were. To remain competitive, local businesses must constantly create and improve products, find better ways to make products, or enter into emerging niche markets.

## How are we doing?

The Sierra Nevada averages two patents per capita compared to more than three in California. North Central nearly comes close to the California standard, but the gap has widened recently because its patenting has grown at a slower average annual rate. North, South Central and East average about one patent per capita. Despite having highly volatile trends, patenting is rising in all three regions.

This covers patents for inventions, not for other types of patent documents such as for plants, designs, statutory invention registration, or defensive publications.

[Download data and charts 1990 to 1999](#)

## **Nonresidential Construction**

Sierra Nevada Investing in Buildings that Provide Local Services

### Why is it important?

The type of nonresidential space our communities build indicates the type of economic activities in demand and the types of jobs either available or being encouraged. Building purpose provides a strong indication of wages and the types of jobs available. For example, retail space and tourism structures employ significantly more low-wage jobs, while manufacturing space, medical and office buildings indicate high-wage jobs. Careful consideration of the types of nonresidential structures built can help communities change its economic future.

Because local governments in California are limited in how they raise revenues, they increasingly rely on new sales taxes to pay for government services. In this fiscal climate, local governments thus have an incentive to approve more new retail space than is good for a community's overall wealth – its social, natural and financial capital.

### How are we doing?

The North Central Sierra was responsible for 76 percent of the more than \$3 billion in nonresidential construction in the Sierra Nevada between 1993 and 2003, followed by the South Central Sierra (16 percent), the East Sierra (7 percent), and the North Sierra (1 percent). These are almost exactly the same percentages reported in the 1999-2000 Wealth Index. Compared with California, the Sierra Nevada invests a higher percent of its nonresidential construction into churches, schools, medical facilities, storage, agricultural buildings, and buildings that provide local services. This is especially true in the North, where these buildings represent 60 percent of nonresidential construction and in the South Central and East, where they represent about 50 percent.

On the other hand, the Sierra Nevada under invests in office space, everywhere except North Central. The North stands out with its higher than average investment in manufacturing facilities, but has only two percent invested in retail space. South Central lags behind other regions in building manufacturing spaces - only eight percent of all construction. In the East, 1 out of 4 nonresidential construction dollars went to building structures related to tourism – reflecting the its economic priority for the tourism and service sector.

[Download data and charts for investment by type 1994 to 2003](#)

[Download data and charts for investment valuation 1993 to 2003](#)

## **Per Capita County Revenue**

County Revenues Average About Two-Thirds of the California Level

Why is it important?

County revenues provide important community services from fire protection to planning to public works. Police, sheriffs, and local courts help to make a community safe. At local libraries, residents can find great literature, research facts, record local history, and read stories to children. Medical services and hospitals tend to the sick and injured. Local governments rely on a variety of revenues to pay for these services: property taxes, special assessments, licenses and permits, user fees and money from state and federal governments.

How are we doing?

In the Sierra Nevada, county revenues average \$1,171 per person, about two-thirds of the California level. Moreover, between 1993 and 2002 revenues increased more slowly in the Sierra Nevada than across the

state, 1.5 percent compared to 1.9 percent annually. Although per capita revenues do not rise and fall in all counties at the same time, revenues have risen throughout the Sierra since 2000. Revenues per capita are highest in the East, about 25 percent above the state average, but holding steady. In the North, per capita revenues are seven percent above California, but increasing by three percent per year, the fastest rate within the Sierra Nevada. In North Central, per capita revenue is about half the state rate, and increasing by two percent per year. In South Central, county revenue averages about 70 percent of the state and is holding steady.

[Download data and charts 1985 to 2002](#)

## **Business Establishments**

Majority of Businesses Have Twenty Employees or Less

Why is it important?

Small, locally owned businesses are the source of 75 to 95 percent of all job growth in a community, either because they are newly formed or expanding. But since these new jobs are scattered throughout the economy, they are often overlooked. Yet a powerful form of economic development focuses on local firms by asking what they need to be more successful – better information, access to markets, broadband, etc. Determining why these firms located to a community can reveal unusual assets worth conserving and investing in for economic development. Assets such as access to outdoor recreation, historic charm, and spectacular scenery can spur economic development.

How are we doing?

As shown by the above graph, the majority of business establishments – ranging from about 89-95 percent – in all four subregions are considered small, with twenty or less employees. This implies that most businesses are more locally focused and thus provide jobs for members of the local community. This only becomes problematic when most of these jobs are low paying and create difficulty for employees to afford housing in the area.

[Download data and charts 1994 to 2001](#)

# Bank Accounts

## Bank Deposits Grow Per Capita

### Why are they important?

Bank deposits grow with population and per capita income. They also grow when the stock market declines because people move money out to safer investments. Money flows more easily between banks and the stock market today because people have more options for mutual funds and other investments than they did years ago. Local bank accounts are a form of financial capital that can be reinvested in the community through loans for businesses or construction.

### How are we doing?

The chart tells us that bank deposits per capita have grown steadily since the late 1990s. This positive trend is probably due to the increase in per capita income and larger numbers of new residents bringing financial resources from other parts of the state.

[Download Data and Charts](#) 1994-2003

# Exports by Product Sector

## Technological Products and Travel Import Majority of Dollars into the Region

### Why is it important?

Exports generate wealth and jobs for a region and indicate its competitiveness in the global economy. By serving a growing global demand for local goods and services, a region can increase jobs and import more dollars. The travel industry and government jobs serve a similar economic function because they also import dollars. One way to diversify the economy is to develop a wider variety of exports.

### How are we doing?

Technological products and travel are equally important to the Sierra Nevada economy, each accounting for nearly a third of the dollars imported into the region. Technological products dominate the economy in North Central, accounting for 43 percent of imported dollars. Travel, overwhelmingly, imports the most dollars in the East, responsible for three-fourths of all imported dollars. State and federal government dollars

account for 16 percent of the dollars that flow into the Sierra Nevada and are distributed relatively evenly, except in the North where they represent one out of every four imported dollars. Forestry and wood products account for roughly 10 percent of dollars imported into the Sierra Nevada, and still predominate in the North where they account for 41 percent of imported dollars.

The other three sectors – agriculture, mining, other forms of manufacturing – each represent about five percent of the dollars imported into the Sierra. Only agriculture in South Central has regional significance.

[Download data and charts 2001](#)

## **Percent of Payroll Generated by Travel Spending**

Tourist Spending Accounts for 15% of Sierra Nevada's Total Payroll

Why is it important?

The multi-billion dollar travel industry is a vital part of the Sierra Nevada's economy. The industry is represented by a myriad of retail and service firms such as lodging establishments, restaurants, retail stores, gasoline service stations, outdoor recreation providers, agricultural and cultural tourism businesses. The travel spending figures included herein are estimates of destination travel spending; these estimates include all travel spending except for air transportation and travel arrangements.

Visitors are attracted to the Sierra Nevada because of its outstanding natural and social capital. The blue skies, wide-open mountain vistas, rushing streams, healthy forests and lovely historic towns draw visitors from around the world. These visitors help build the Sierra's financial capital by supporting local jobs and generating billions of dollars in revenue for the private and public sectors.

While low population density can be a disadvantage for some kinds of economic activities, it can be beneficial for others, like tourism and retirement communities. Many authors have highlighted the success of such "high amenity" rural regions. These rural regions show strong economic performance by attracting tourists, retirees, and other residents with a higher quality of life. With scenic beauty or tourism offerings such as beaches or mountains, these areas attract visitors and residents who stimulate local business development, boost the demand for higher quality local services, and elevate per capita income.

## How are we doing?

Tourist spending provides 15 percent of Sierra Nevada's total payroll compared to three percent of California's total payroll. The importance of tourism to local wages varies considerably across the Sierra Nevada, from a high of 53 percent in the East Sierra, to approximately 28 percent in the South Central Sierra and the North Sierra, and nine percent in the North Central Sierra.

In 1997, visitor spending accounted for more than \$3.3 billion in revenues to Sierra Nevada communities. Tourist spending was highest in the North Central Sierra (\$1.6 billion/year), followed by the South Central Sierra (\$880 million/year), the East Sierra (\$617 million/year) and the North Sierra (\$203 million/year).

[Download data and charts 1992 to 2002](#)

## Summary

*The Sierra Nevada Wealth Index clearly indicates that the Sierra Nevada region is wealthy, and we have a precious opportunity to build upon that wealth.*

Rapid movements in communications and transportation have brought Sierra Nevada businesses ever closer to their customers worldwide, transforming our region's economic prospects. Responding to this reality, a new breed of economic pioneer is moving to the Sierra—inspired by the opportunity to live and raise families in small communities with easy access to the natural splendors of the Sierra Nevada. At the same time, skilled young people and business owners, who might once have been forced to leave the region to find work or to expand their operations, are finding that they can remain in the Sierra and prosper.

This reality is reflected clearly in the 2005-2006 Sierra Nevada Wealth Index through indicators such as increasing economic diversity, rising personal incomes, exports, residential and commercial development. It is also reflected in polls of Sierra Nevada voters, which repeatedly demonstrate that the primary motivation for most people to live in the Sierra Nevada is the region's outstanding quality of life and exceptional natural environment.

But the 2005-2006 Index demonstrates a continuation of negative trends introduced in the last edition. First, the technological and demographic changes that have driven the Sierra Nevada's expanding prosperity have not come without costs: rapid loss of farmland, surprisingly high levels of water and air pollution, declining biodiversity, and unsightly sprawl. This diminishment of natural capital, if it continues, will ultimately drive

financial capital from our region to places with effective long-term plans to safeguard their natural capital as population increases.

Secondly, the Sierra Nevada's expanding prosperity has not reached everyone or everywhere. In some counties, the growing number of children in poverty, declining personal incomes, low educational attainment levels, and outdated communications infrastructure show that people and communities are being left behind. These trends, occurring when much of California has experienced unprecident prosperity, only reinforces the need to invest in social capital in order to build regional wealth.

The web-based *2005-2006 Sierra Nevada Wealth Index* illuminates trends we must address to ensure our region's long-term prosperity:

Increasing affordable housing units, investments in local communities, growing personal incomes, increasing the number of higher skilled jobs, higher paying jobs, and declining unemployment trends need to be supported and encouraged

Continued loss of farmlands and open space, increasing air and water pollution, declining biodiversity and rapid urban sprawl are all trends we should work swiftly to reverse Growing childhood poverty, low levels of educational attainment, low public school enrollment, decreasing size and quality of hospitals, and sub-par health insurance coverage among residents demonstrate that some Sierra Nevadans are being left behind; these, too, are trends we must reverse

The Sierra Nevada Wealth Index is designed to help business leaders and policy makers develop integrated investment strategies to build wealth in the Sierra Nevada. As we do so, we must put behind us, decisively and forever, the notion that our economy functions in a vacuum, sealed from society and the natural order.

*Our wealth is our total capital—social, natural, and financial—and our investment strategies must reflect this reality.* Only by monitoring trends in all three forms of capital and taking full account of those trends in our investment decisions, will we be able to build the wealth of our communities for ourselves and for our descendants.