



Scenarios for Sustainability Indicators

Economic Domain

Prosperity

Weighted personal income per capita

Personal income per resident adjusted to account for income inequality. Earnings, interest and dividends, unemployment compensation, worker's compensation, social security, supplemental security income, public assistance, veterans' payments, survivor benefits, disability benefits, pension or retirement income, rent and royalty payments are all sources of personal income. To account for inequality, personal income per capita is adjusted by an index of distributional inequality (IDI) which causes a community's personal income per capita to fall when income is more concentrated in the hands of the highest income brackets and to rise when income is more evenly distributed.

Weighted net personal wealth per capita

Personal net wealth per resident adjusted to account for wealth inequality. Net wealth is simply the value of all assets owned by a household minus all liabilities including the value of its mortgage, consumer debt, and loans. To account for inequality, personal net wealth per capita is adjusted by an index of distributional inequality (IDI) which causes a community's personal wealth per capita to fall when wealth is more concentrated in the hands of the highest wealth brackets and to rise when wealth is more evenly distributed.

Genuine Progress Indicator

The Genuine Progress Indicator (GPI) is an alternative to Gross Domestic Product (GDP) that provides a more comprehensive portrait of economic welfare. The GPI differs from GDP by accounting for the negative effects of income inequality, crime, family breakdown, traffic congestion, environmental degradation, and loss of local self reliance and the positive impacts of volunteering, household work, ecological restoration, and public infrastructure. The GPI is a composite indicator that consists of 23 separate sub accounts.

Diversity

The Ogive Index of economic diversity

The ogive index is similar to the Gini coefficient and its graphical counterpart the Lorenz curve, which are widely used by economists to measure the distribution of income among individuals. For a given region, the ogive index can be expressed as:

$$Ogive\ Index = \sum_{i=1}^N \frac{(X_i - 1/N)^2}{1/N},$$

where N is the number of sectors into which the regional economy has been divided for purposes of the analysis, and X_i is the sectoral share of economic activity for the i th sector. With N sectors, an equal distribution of sectoral activity implies that X_i is equal to $1/N$, the *ideal* share for each sector, and the ogive index equals zero. This is referred to as *perfect diversity*. A

more unequal distribution of sectoral activity will result in a higher ogive index.

Employment, Unemployment, and Underemployment

Local employment impact

The ratio of new direct, indirect, and induced jobs created by a project or program filled from the local job pool to those filled by relocating workers from outside the region.

Number and percent of local labor force underemployed

Underemployment refers to a situation in which a worker is employed, but not in the desired capacity, whether in terms of compensation, hours, or level of skill and experience. While not technically unemployed, the underemployed are often competing for available jobs.

Net job growth in key economic development sectors

Number of jobs added minus jobs lost in economic development sectors or business types prioritized by a locality's economic development plan or economic policy objectives.

Number and percent of jobs paying living wages

Living wages are generally defined as wages sufficient to lift a family of 3 or 4 above the federal poverty line by 10 to 30% as adjusted to reflect local cost of living.

Self reliance

Goods and services import ratio

Dollar value of goods and services imports divided by the gross regional or local product. Import value is calculated as household, business, and government expenditures on goods and services manufactured or provided by businesses located outside a defined local region.

Net local, regional, national, and international business starts

The number of new business starts minus the number of business closures. Figures are calculated for local, regional, national, and international businesses so that the relative performance of businesses in each category can be monitored.

Local self reliance index

The local self reliance index measures the degree to which an economy in a specified region depends on goods and services produced in that region. The index charts progress towards local self reliance targets for a local economy as a whole or for key sectors. For example, a local self reliance target for food consumption may be 50%. If locally produced food currently accounts for 10% of current consumption, the LSR would be 10/50 or .20, meaning that the locality is still 80% below its target level.

Affordability

Real household income growth

This measure tracks whether or not household incomes are keeping pace with inflation by adjusting the change in average median household income with the change in a local consumer price index. Both average median household income and local consumer price indices can be derived from national or regional figures or established through community surveys.

Housing affordability index

This index simply divides an area's median household income by the median housing price for the same year and arrives at a ratio. Higher ratios indicate greater affordability of single family homes. The index can also be constructed for rental markets by dividing the median monthly rental rate by median household monthly income.

Hours required to earn basic family budget at minimum wage

Basic family budget is based on the local cost of housing, food, child care, and other essentials needed to support a family without public or private assistance. The standard of living envisioned is more than a "bare bones" existence, yet covers only basic expenses, allowing little to no room for "extras" such as college savings, vacations, or emergencies (California Budget Project, 2005). It is based on a family definition of two adults and two children, but can be scaled up or down based on local demographic information.

Fiscal solvency

Net fiscal impacts of new development

The projected annual revenues from property, gross receipts, or other local taxes generated by new developments in a given city or county minus the expected annual public infrastructure and public services costs associated with those developments. This is an indicator of future fiscal stress.

Value of public infrastructure backlog

Expected costs of completing all overdue public infrastructure or public services projects promised as part of general or specific development plans or otherwise required by federal, state, or local statutes, regulations, or ordinances.

Defensive expenditure index

Ratio of expenditures on crime, pollution clean up, accidents and other defensive items generally viewed by a community as undesirable to expenditures on education, community events, environmental protection and other proactive items generally viewed as desirable. Defensive and proactive expenditure categories are developed through community surveys or other community involvement processes.

Environment Domain

Threatened, endangered, and sensitive species

Population estimates for threatened, endangered, and sensitive (TES) species

As defined in the Endangered Species Act of 1973, "endangered" species are classified as species judged to be in immediate danger of extinction throughout all or a major part of their range while "threatened" species are likely to become endangered in the near future. Sensitive species are defined by the state or region as plant and animal species or sub-species for which there is a concern for population viability.

Suitable and occupied habitat estimates for TES species

Suitable habitat is generally defined as meeting minimum ecological definitions for basic life cycle needs. Occupied habitat is simply that portion of suitable habitat where occurrences of the species have been recorded or where occupancy is presumed.

Protected areas

Per capita conservation expenditures

Dollars spent on acquiring land for conservation purchases or managing such lands divided by the total population.

Protected land area per capita

Acres of protected lands divided by population. Includes all types of protected lands such as wilderness, wildlife habitat, primitive areas, parks, recreation sites, greenways, open space preserves, cultural and historic sites, conservation easements, agricultural reserves and other classifications generally off limits to development or intensive land uses.

Number and percent of TES species with habitat protection

A species is considered to have habitat protection if specific habitat protection areas have been delineated by approved federal, state, or local conservation or recovery plans.

Pollution

Number of poor air quality days in non-attainment areas

Non-attainment is if a community or area exceeds the number of poor quality air days allowed by federal or state regulatory agencies over a three year period. If in a non-attainment zone a community must show steps to increase its overall air quality. Non-compliance occurs if a community in an attainment zone exceeds the accepted air quality standards deemed safe in a city or region. The result is a poor air quality day.

Volume of inorganic pesticides, herbicides, and cleaners used in the community

Inorganic pesticides are typically derived from minerals or chemical compounds that occur as deposits in nature. Common inorganic pesticides are silica aerogel, boric acid, borates, diatomaceous earth, cryolite, copper, and sulfur. Herbicides are pesticides used on plants.

Litter volume by consumer good category

Litter volumes are extrapolated from litter surveys of randomly selected plots.

Sustainability

Renewable energy as % of total energy use

Renewable energy is energy that is regenerative or supplied by energy sources that are naturally and continually replenished, such as wind, solar power, geothermal, hydropower, and various forms of biomass.

Recycling availability and rates

The percent of potentially recyclable items subject to home pick up services and the rate at which each item is actually recycled by individuals.

Ecological footprint, biocapacity, and overshoot

Ecological Footprint Analysis (EFA) measures the amount of forestland, cropland, pastureland, built space, carbon sequestration land, and fisheries needed to support the resource demands and absorb the wastes of a given population. A community's ecological footprint can be compared its fair share of the world's biological capacity. When a community's footprint exceeds its fair share of biological capacity, it is said to be engaging in unsustainable ecological overshoot.

Net natural resource damage

Net natural resource damage measures the economic value of environmental quality changes in a given year. It is calculated as the present net value of change in the dollar value of both market and non-market ecosystem service flows from forests, wetlands, farmland, riparian corridors, and other open spaces. Calculated as:

$$NNRD = \sum_{t=1}^n \frac{(\$gain - \$loss)}{(1+r)^t}$$

Where $\$loss$ is the value of ecosystem services lost to development in year t , $\$gain$ is the value of ecosystem services gained by ecological restoration activities in year t , n is the time horizon for evaluating the impacts of the change, and r is the social discount rate. Ecosystem services refer to economically valuable products, uses, values, and functions provided by intact natural areas.

Social Domain

Civic engagement

Voter registration

Percentage of voting-eligible residents in a specified geographic area who are legally registered to vote with the County Registrar of Voters. May be further broken down into demographic segments according to data availability, such as age, sex, or race/ethnicity.

Voter engagement

Percentage of registered voters in a specified geographic area who typically vote in general elections. May be further broken down into demographic segments according to data availability, such as age, sex, or race/ethnicity.

Common space usage

Estimated annual patrons and patrons as percentage of general population who utilize public places such as community centers, parks, recreation facilities, swimming pools, museums, and libraries in a specified geographic area.

Common space distribution

Percentage of the total population living within a specified distance of public places such as community centers, parks, recreation facilities, swimming pools, museums, and libraries

Common space investment per capita

Total annual expenditures for the building, maintenance, and operations of all public places such as community centers, parks, recreation facilities, swimming pools, museums, and libraries divided by the general population of a specified geographic area.

Equity

Open space access

Percentage of the population or subgroups of interest in a specified geographic area living within a specified distance of natural open spaces such as wilderness, wildlife habitat, primitive areas, parks, recreation sites, greenways, open space preserves, cultural and historic sites, conservation easements, agricultural reserves and other classifications generally off limits to development or intensive land uses.

Index of representational equity (IRE)

This indicator provides a quantitative measure of how well the racial or ethnic composition of elected or appointed officials or public employees or subgroups of such employees such as educators matches the racial or ethnic demographics of the corresponding geographic area. The indicator is calculated as:

$$IRE = .5 \sum_{i=1}^N |X_i - Y_i|$$

Where X is the number of elected or appointed officials or public employees of racial or ethnic group i divided by the total number of elected or appointed officials or public employees and Y is the number of persons in the general population of racial or ethnic group i in a specified area divided by the total population in that area. Lower IRE scores indicate more consistency between the racial or ethnic composition of officials or public employees and that of the general population while higher IRE values indicate less consistency.

Segregation index

A measure of probability that two individuals drawn at random from the same subsection of a specified geographic area will be of different specified demographic characteristics, such as race. The index ranges from "0", indicating no segregation, to "100", indicating total segregation. The value of the index between "0" and "100" reflects the extent of segregation of a certain minority group in the research area.

$$S = 0.5 \times \text{Sum} |P_{ig} / P_g - T_i / T_p|$$

Where P_{ig} is the population of group g in census tract i
 P_g is the total population of group g
 T_i is the total population of group g & h in census tract i
 T_p is the total population of group g & h

Dissimilarity index

The dissimilarity index assesses segregation between groups by computing the sum total in a larger area of the differences in the relative populations in subareas. Resulting in a measure from 0 to 1, the higher the number, the more segregated the two groups are. Calculated as:

$$D = 0.5 \times \text{Sum} |P_{ig} / P_g - P_{ih} / P_h|$$

Where P_{ig} is the population of group g in census tract i
 P_{ih} is the population of group h in census tract i
 P_g is the total population of group g
 P_h is the total population of group h
 T_i is the total population of group g & h in census tract i
 T_p is the total population of group g & h

Transit

Public transit reliance

Percent of population within a specified geographic area using any means of public transportation as the primary mode of transportation for work commute.

Public transit access

Percentage of the population in a specified geographic area living within a specified distance to at least one public transit mode.

Public transit friendliness

Percentage of population in a specified geographic area who would rely on public transportation as the primary mode of transportation for work commute given access to at least one mode within a specified distance.

Vehicle miles traveled by mode

Daily vehicle miles traveled in cars, buses, taxis, or vans by persons or households residing within a specified geographic area.

Transportation expenditure burden

Average percent of household income in a specified geographic area spent on transit-related costs including vehicle purchases, insurance, finance charges, gasoline, motor oil, gasoline taxes, auto maintenance, repairs, auto rental, leases, licenses, tolls and fares for public transportation.

Pathologies

Obesity rate per 1,000 population

The standard method of measuring whether an individual is overweight is the Body Mass Index (BMI). A person who has a BMI over 25 but less than 30 is considered "overweight"; if the 30 or higher, the individual is "obese." Calculated as:

$$\frac{\text{weight (kg)}}{\text{height (meters squared)}} \text{ (divided by)}$$

Obesity rates can be derived from existing public health statistics.

Morbidity

Total annual deaths for the 10 leading causes of death in a specified geographic area and percent of all deaths represented by these causes.

Crime rate

Number of violent and nonviolent crimes and rates per 1,000 population by type within a specified geographic area.

Victimization rate

Victims of misdemeanor and felony crimes as percentage of population in a specified geographic area.

Health insurance coverage

Percent of population in a specified geographic area covered by health insurance.

Health insurance gap rate

Number of households in a specified geographic area with at least 1 uninsured member

Health care expenditure burden

Average percent of household income in a specified geographic area spent on healthcare-related costs, including all those deemed eligible for Medical Spending Account Reimbursement from the IRS.

Poverty**Economy wage structure**

Proportion of minimum wage rate jobs, living wage rate jobs, and average wage rate jobs to all jobs in a given geographic area. Living wages are generally defined as wages sufficient to lift a family of 3 or 4 above the federal poverty line by 10 to 30%.

Self sufficiency index

Percent of households in a specified geographic area earning below self-sufficiency wages, as established and peer-reviewed by Californians for Economic Self-Sufficiency and Equal Rights Advocates. The family self sufficiency wage varies depending on family size. For more information, please see http://www.nccsf.org/DataCentral/SSS/SSS_learn.htm.

Public reliance

Percent of households in a specified geographic area relying on public assistance programs, including Aid to Families with Dependent Children (AFDC), California Medical Assistance (Medi-Cal), County Medical Services Program, Food Stamps, In-Home Supportive Service (IHSS), Multipurpose Senior Service Program, Social Services, SSI/SSP Special Circumstances Payments, and Women, Infants and Children Program.

Poverty concentration

Percent of neighborhoods within a region in which 40% or more of the population live at or below 200% of the Federal Poverty Line (FPL). The FPL varies with family size. For more information, please see <http://www.census.gov/hhes/poverty/povdef.html>.

Homeless census

Point-in-time count of the street population and homeless persons in a specified geographic area residing in shelters, resource centers, transitional housing, mental health and substance abuse treatment beds, hospitals, and jails.

Education**High school drop-out rate**

Percent of students residing in a specified geographic area, absent without an approved excuse or documented transfer who do not return to a specified school by the fall of the following school year, or who complete the school year but fail to reenroll the following school year.

Student-teacher ratio

The number of students in membership at a specified school divided by the full time equivalency of teaching assignments serving these students during the same period of time.

Teacher turnover rate

The rate at which personnel in a specified geographic area whose primary function is classroom teaching leave or separate from the district, or change from their classroom teaching to another position from one school year to another, expressed as a percentage. This rate is determined by comparing the classroom teachers reported in the current year against those reported in the previous year.

Expenditures per pupil

The amount of money spent on education by a school district or state, divided by the number of students educated within the same geographic area.

Literacy rate

Percentage of population in a specified geographic region aged 15 and over who can with understanding both read and write a short simple statement on his everyday life. A person is illiterate who cannot with understanding both read and write a short simple statement on his everyday life.

Teacher compensation rate

The average salary of staff assigned the professional activities of instructing pupils in self-contained classes or courses by district, based on the contract salaries reported for certificated personnel within those same classes or courses.