2023 COMMUNITY RESILIENCE ESTIMATES

Quick Guide

Updated January 2025[1]

Small Area Estimates Program

Social, Economic, and Housing Statistics Division

U.S. Census Bureau, Department of Commerce

[1] The U.S. Census Bureau has reviewed this data product to ensure appropriate access, use, and disclosure avoidance protection of the confidential source data used to produce this product (Data Management System (DMS) number: P-7517412; Disclosure Review Board (DRB) approval number: CBDRB-FY25-0096).

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Overview

Community resilience is defined as the capacity of individuals and households within a community to prepare for, absorb, respond to, and recover from a disaster. Local planners, policy makers, public health officials, emergency managers, and community stakeholders need a variety of estimates to help assess the potential resiliency and vulnerabilities of communities and their constitutent populations to help prepare and plan mitigation, recovery, and response strategies. Community Resilience Estimates (CRE) focuses on developing a tool to identify socio-economic vulnerabilities within populations.

The 2023 Community Resilience Estimates (CRE) are produced using information on individuals and households from the 2023 American Community Survey (ACS) and the Census Bureau's Population Estimates Program (PEP). The CRE uses small area modeling techniques that can be used for a broad range of disaster related events (hurricanes, tornadoes, floods, economic shocks, etc.) to identify population concentrations likely to be relatively more impacted by and have greater difficulties overcoming disasters.

Data

The ACS is a nationally representative survey with data on the characteristics of the U.S. population. The sample is selected from all counties and county-equivalents and has a sample size of about 3.5 million housing units and about 18,000 group quarters facilities each year. It is the premier source for timely and detailed population and housing information about our nation and its communities.

We also use auxiliary data from the PEP, the Census Bureau's program that produces and publishes estimates of the population living at a given time within a geographic entity in the U.S. and Puerto Rico. We use population data from the PEP by age group, race and ethnicity, and sex. Since the PEP does not go down to the census tract level, the CRE uses the Public Law 94-171 summary files (PL94) and Demographic Housing Characteristics File (DHC) tables from the 2020 Decennial Census to help produce the population base estimates.

Once the weighted estimates are tabulated, small area modeling techniques are used to create the estimates for the CRE.

Components of Social Vulnerability (SV)

Resilience to a disaster is partly determined by the components of social vulnerabilities exhibited within a community's population. To measure these vulnerabilities and construct the community resilience estimates, we designed population estimates based on individual- and household-level components of social vulnerability. These components are binary indicators or variables that add up to a maximum of 10 possible components using data from the ACS.

The specific ACS-defined measures we use are as follows:

Components of Social Vulnerability (SV) for Households (HH) and Individuals (I)

- SV 1: Income-to-Poverty Ratio (IPR) < 130 percent (HH).
- SV 2: Single or zero caregiver household - only one or no individuals living in the household who are 18-64 (HH).
- SV 3: Unit-level crowding with > 0.75 persons per room (HH).
- SV 4: Communication barrier defined as either:
    - Limited English-speaking households[2] (HH) or
    - No one in the household with a high school diploma (HH).
- SV 5: No one in the household is employed full-time, year-round. The flag is not applied if all residents of the household are aged 65 years or older (HH).
- SV 6: Disability posing constraint to significant life activity.
    - Persons who report having any one of the six disability types (I): hearing difficulty, vision difficulty, cognitive difficulty, ambulatory difficulty, self-care difficulty, and independent living difficulty.
- SV 7: No health insurance coverage (I).
- SV 8: Being aged 65 years or older (I).
- SV 9: No vehicle access (HH).
- SV 10: Households without broadband internet access (HH).

Each individual is assigned a 0 or 1 for each of the components based upon their individual or household attributes listed above. It is important to note that SV 4 is not double flagged. An individual will be assigned a 1 if either of the characteristics is true for their household. For example, if a household is linguistically isolated and no one over the age of 16 has attained a high school diploma or more education, the household members are only flagged once.

The result is an index that produces aggregate-level (tract, county, and state) small area estimates: the CRE. The CRE provide an estimate for the number of people with a specific number of social vulnerabilities. In its current data file layout form, the estimates are categorized into three groups: zero, one or two, or three or more social vulnerability components.

[2] A "Limited English-speaking household" is one in which no member 14 years old and over (1) speaks only English at home or (2) speaks a language other than English at home and speaks English "Very well."

Differences with CRE 2022

There were no significant changes to geographical boundaries or inputs between CRE 2022 and CRE 2023.

However, CRE 2023 uses a new methological approach that adjusts for geographic correlations between tracts within a county. As a result, county-level margins of error are consistently smaller than those seen in CRE 2018-CRE 2022. For a more detailed explanation, see section 5.4 in the 2023 Community Resilience Estimates Detailed Technical Documentation.

Further Information

Community Resilience Estimates Program Website
<https://www.census.gov/programs-surveys/community-resilience-estimates.html>

Community Resilience Estimates Technical Documentation
<https://census.gov/programs-surveys/community-resilience-estimates/technical-documentation.html>

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