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San Diego Hunger Coalition Meal Gap Methodology

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I. Definitions

- **Nutrition Insecure Population:** Total population that requires assistance in getting three, nutritious meals per day; includes those who may have to make difficult tradeoffs between food, medical care, housing, and other necessities.
- **Self-Purchased Meals:** Meals purchased using one's income. Income is defined as income received regularly before payments for personal income taxes, social security, etc. but does not include non-cash benefits, such as CalFresh.
- **Meal Gap:** Number of meals needed by the nutrition insecure population, after subtracting self-purchased meals and food assistance.

II. Defining and modeling the Nutrition Insecure Population

Defining and Modeling the Nutrition Insecure Population

The Hunger Free San Diego Advisory Board defines the nutrition insecure population as the total population under 200% of the Federal Poverty Level (FPL). **This population often requires assistance to get three nutritious meals per day.** The US Census Bureau American Community Survey releases annual estimates of the number of people under the Federal Poverty Level, as well as various income-to-poverty ratios (i.e., 50% of the Federal Poverty Level, 200% Federal Poverty Level). Due to the rapidly changing impact of the COVID-19 pandemic on employment and income throughout 2020, we developed a model to predict changes to the estimated nutrition insecure population throughout this time by using real-time economic indicators to predict changes in the population under 200% of the Federal Poverty Level). Our first model used the San Diego County unemployment rate to predict the population under 200% Federal Poverty Level (FPL).

As the economy settled into a new normal in 2022, we noticed that the unemployment rate is slowly losing statistical correlation to the changes in the population under 200% FPL. To develop a more robust

and predictive model, we shifted the variables to incorporate two economic indicators and the actual poverty level itself to predict the population under 200% FPL. Using more than 10 years of poverty ratio data from the American Community Survey, we now model the relationship using the size of the labor force, the average weekly wages of workers in San Diego County, and the yearly poverty level to predict the number of people in the county that fall below the current year’s poverty level. We obtain the data on the size of the labor force from the Federal Reserve Economic Data (FRED), and we obtain the average weekly wages earned by workers in San Diego County from the Quarterly Census of Employment and Wages (QCEW) program within the Bureau of Labor Statistics to estimate the number of people below 200% FPL for San Diego County for each month.

Estimating Nutrition Insecurity Rate by Zip Code

The American Community Survey also releases 5-year population estimates with income-to-poverty ratios by zip code. The most recent ACS 5-year analysis available is the 2016-2020 ACS five-year survey. We apply countywide nutrition insecurity estimates for 2022 to each zip code by establishing a baseline ratio for each zip code’s population under 200% compared to the countywide estimate for the same 5-year dataset. Then, we multiply this ratio by the estimated countywide population under 200% FPL.

The total population is increased or decreased uniformly across all zip codes to account for changes to the size of the population.

To determine how many total meals need to be accounted for by the nutrition insecure population, we then calculate the number of meals needed each month as follows:

$$3 \text{ meals per day} \times \text{average number of days per month} \\ \times \text{estimated number of people experiencing nutrition insecurity.}$$

III. Calculating the Cost and Pounds of a Meal

The Hunger Free San Diego Advisory Board uses the conversions within the Official USDA Food Plans weekly cost of food for the Moderate-Cost Plan, and the Hunger Coalition weights the conversion amounts using San Diego County’s age, gender, and household size from the 2020 American Community Survey, and then divides the weekly cost by 21 to estimate the cost of a meal (\$4.44). The Moderate-Cost Plan is also used to estimate the weight of a meal (1.85 pounds) using weighted conversions based on San Diego’s population.

To account for the difference in food costs between urban and rural areas, we use a conversion adapted from the County of San Diego Aging and Independent Services’ urban and rural meal reimbursement rates by increasing the cost of a meal by the same percentage increase that AIS uses for their congregate meal reimbursements.

In summary, the following values were used in 2022 to convert all measures of output into meals:

$$1 \text{ meal} = 1.85 \text{ lbs} = \$4.44 \text{ (Urban)} = \$5.40 \text{ (Rural)}.$$

IV. Calculating Number of Meals Provided

To track the number of meals currently being provided, data are obtained from local and state-level agencies that provide each type of food assistance. Since the measure of output varies by type of food assistance, all output is converted to “meals” to provide a common unit of measure. For example, the total dollar amounts of non-cash benefits distributed through the CalFresh and WIC programs are converted to meals, and pounds of food distributed by a food bank or pantry are converted to meals. Programs that serve congregate meals (e.g., school meals, senior meals) or deliver meals to people’s

homes report the number of meals they provide; thus, no conversion is required. Many of these data sources are not able to provide their food assistance output until a few months after the close of a month, so collecting this data usually takes around 5 months, resulting in our data being about 5 months behind the current month.

Data Sources

CalFresh

SDHC obtains reports from San Diego County Health and Human Services Agency on the dollar amount of benefit issuances by month and by zip code in San Diego County.

WIC

SDHC obtains data from the California Department of Public Health, Data Analysis, Research and Evaluation Section, Women, Infants and Children (WIC) Division, on the WIC food vouchers redeemed by month and by zip code in San Diego County.

Senior Meals (Federal and Private)

SDHC obtains data from the County of San Diego Aging & Independence Services (AIS) on the number of meals provided through AIS contracts for the Congregate Nutrition Program and Home-Delivered Nutrition Program by zip code. In addition to meals provided through AIS contracts, several local organizations provide additional congregate and home-delivered meals through private funding. SDHC contacts these organizations to determine the additional number of meals provided by Meals on Wheels, Jewish Family Service, Serving Seniors, and the Salvation Army. Many congregate meal sites ceased operations during the COVID-19 pandemic and most senior meals distributed were funded through AIS.

The Child & Adult Care Food Program (CACFP) is another USDA federal program that provides meals to older adults who receive care in nonresidential adult daycare centers. SDHC obtains data from the California Department of Education on all meals served through this program. SDHC then estimates the number of meals distributed by each CACFP site.

Child and Youth Meals (Child Nutrition Programs)

SDHC obtains data from the California Department of Education on the number of meals served by site by month through each of the following programs.

- School Meals (National School Lunch Program & School Breakfast Program)
- Summer Child Meals (Summer Food Service Program & Seamless Summer Option)
- Child and Adult Care Food Program (CACFP) – At Risk Afterschool Meals Program; HeadStart meals; Adult Day Care meals.

Food Distribution Program on Indian Reservations (FDPIR)

The program is administered locally by Indian Tribal Organizations (ITOs) or an agency of a state government. USDA purchases and ships food to the ITOs and State agencies, which store and distribute the food, determine applicant eligibility, and provide nutrition education to recipients.

Food Banks (Private and Federal)

SDHC obtains data from each food bank on the number of pounds of food it distributes throughout its network. Federal food distributions include food received and distributed through USDA's Commodity Supplemental Food Program (CSFP), and The Emergency Food Assistance Program (TEFAP), as well as FEMA's Emergency Food and Shelter Program (EFSP).

Additional Pantries

The majority of donated food that is distributed in San Diego County is accounted for by the food banks, as described above. However, there are additional donation sources distributed by community-based partners that do not originate from the food banks. This includes food drives organized by pantries and other agencies, donations by stores and restaurants arranged through a direct relationship with a pantry (as opposed to a relationship coordinated by one of the food banks), and non-donated food that is purchased by pantries. SDHC and the food banks developed a series of questions for a pantry survey that was then fielded by the County of San Diego through the Live Well Food System Initiative in 2018. In addition to estimating the percentage of food provided by various categories (e.g., food bank, retail store, food drive, etc.), respondents were asked to identify the specific source (e.g., Vons, Walmart) so the food banks could determine whether the pounds were already included in their numbers and should not be counted again. SDHC analyzed the survey data and held meetings with the food banks and County to refine the methodology and develop final estimates of the number of additional pounds provided by pantries and other agencies. Assuming the ratios remain the same in future years, additional pantry pounds are estimated by multiplying total pounds distributed by foodbanks by 0.0579.

Anecdotal evidence suggests that, during the Covid-19 pandemic, pantries received additional funding and food from sources in addition to what was being provided by the food banks. We increased the additional pantry pounds multiplier by 15%, to 0.0666 to account for this change. This new value is applied to all months after April 2020.

Gleaning

Several nonprofit groups in San Diego County send volunteers to residential properties to harvest crops (mainly citrus) that would otherwise be wasted. Volunteers collect food donations from farmer's markets. SDHC obtains data from Produce Good and Senior Gleaners to determine how many pounds were distributed by these organizations. The pounds that were already accounted for in food bank distributions (as some organizations deliver gleaned produce directly to food banks for distribution) are removed from gleaning totals so as not to double-count.

V. Self-Purchased Meals

The nutrition insecure population purchases a portion of their meals with their income. The ability to self-purchase food varies for the population under 200% FPL, so SDHC developed a methodology to estimate food-spending by income level.

The Bureau of Labor Statistics and the US Census Bureau conducts the Consumer Expenditure Surveys (CE) program to gather data on expenditures, income, and demographic characteristics of consumers in the United States. CE data are collected by the Census Bureau for BLS in two surveys, the Interview Survey for major and/or recurring items and the Diary Survey for more minor or frequently purchased items. Data is collected through the CE program quarterly.

Using income, household size, and year, we categorize each household in the following buckets:

- 0-50% FPL
- 50-100% FPL
- 125-150% FPL
- 150-185% FPL
- 185-200% FPL

We determine the average amount of money spent per month, per person, on food at different income levels. Then, we adjust the amount of money spent on food per month by subtracting the most recent month's CalFresh issuance. This ensures that when we calculate the meal gap, we do not double count meals purchased with CalFresh issuances. Of note, the most recent Consumer Expenditure Survey data shows that even people around or above 200% are not spending enough money to afford 3 healthy meals per day. Average consumer spending doesn't reach levels high enough to afford three healthy

meals per day until income levels above 300% FPL. This tracks with the most recent living wage calculator developed by MIT that suggests that families are not able to fully support themselves or their families in San Diego County until they reach about 325% FPL.

	Monthly Spending (Per Person)	% Of Meals Self Provided	% Of Meals Still Needed
Below 50% FPL	\$133	33%	67%
Between 50%-100% FPL	\$194	48%	52%
Between 100-125% FPL	\$225	56%	44%
Between 125%-150%	\$236	58%	42%
Between 150%-185%	\$235	58%	42%
Between 185%-200%	\$266	66%	34%

VI. Calculating the Meal Gap

We calculate the meal gap by subtracting the food assistance and self-purchased meals from the estimated total meals needed.

$$\begin{array}{rclcl}
 \text{Total Meals Needed by} & & & & \\
 \text{Population at Risk of} & - & \text{Self-Purchased} & - & \text{Total Food Assistance} & = & \text{Meal Gap} \\
 \text{Food Insecurity} & & \text{Meals} & & \text{Provided (All Types)} & & \\
 \end{array}$$

VII. Limitations of the Data

Limitations of Nutrition Insecurity Estimates:

- We may be missing undocumented people who are not captured in the census but would benefit from access to food assistance resources.
- Some families above 200% FPL, especially those with children, may also need to access food assistance (Bureau of Labor Statistics data suggests that families above 200% also do not have enough money to purchase all their own food). With continued rising prices this is becoming more evident, and 200% FPL is likely too low of an estimate for actual number of people in need.
- These estimates may not fully capture the economic impact of and loss of income from the informal economy (i.e., unclaimed income from housekeeping, tips, etc. lost due to pandemic), leading to a decrease in food purchasing ability.

Limitations to Food Assistance calculations:

- All food pounds are not created equal:
 - Food Bank pounds and CalFresh/WIC spending may include beverages or snacks that do not count as a meal but are still included in our calculations

VIII. Defining Key Data Sets

I. **2021 American Community Survey 5-year estimates (Source: US Census Bureau) S1701 & B17002**

Definition

The survey provides current data about all communities every year, rather than once every 10 years. It is sent to a small percentage of the population on a rotating basis throughout the decade. Each address has about a 1-in-480 chance of being selected in a month, and no address should be selected more than once every 5 years. ACS forms are not mailed to specific people, but rather to specific addresses. The sample is designed to ensure good geographic coverage and does not target individuals. By focusing on quality geographic coverage, the ACS can produce a good picture of the community's people and housing by surveying a representative sample of the population. ACS data are very timely because they are released in the year immediately following the year in which they are collected.

The ACS creates period estimates, which means they represent the characteristics of the population and housing over a specific data collection period. These are the 1-year and 5-year estimates (U.S. Census)

What are Zip Code Tabulation Areas?

ZIP Code Tabulation Areas (ZCTAs) are generalized area-based representations of United States Postal Service (USPS) ZIP Code service areas.

The USPS ZIP Codes identify the individual post office or metropolitan area delivery station associated with mailing addresses. USPS ZIP Codes are not area-based features but a collection of mail delivery routes. The Census Bureau first examined all the addresses within each census block to define the list of ZIP Codes by block. Next, the most frequently occurring ZIP Code within each block was assigned to the entire census block as a preliminary ZCTA code. After all the census blocks with addresses were assigned a preliminary ZCTA code, blocks were aggregated by code to create larger areas.

II. **Civilian Labor Force in San Diego County, CA (Source: Federal Reserve Economic Data, ID CASAND5LFN)**

Description

These data come from the Current Population Survey (CPS), also known as the household survey. Civilian Labor Force includes all persons in the civilian noninstitutional population ages 16 and older classified as either employed or unemployed. The data is released monthly and shows how the size of the labor force changes over time dating back to 1990.

Key Terms

- *Civilian labor force.* Included are all persons in the civilian noninstitutional population ages 16 and older classified as either employed or unemployed. (See the definitions below.)
- *Employed persons.* These are all persons who, during the reference week (the week including the 12th day of the month), (a) did any work as paid employees, worked in their own business or profession or on their own farm, or worked 15 hours or more as unpaid workers in an enterprise operated by a member of their family, or (b) were not working but who had jobs from which they were temporarily absent because of vacation, illness, bad weather, childcare problems, maternity or paternity leave, labor-management dispute, job training, or other family or personal reasons, whether or not they were paid for the time off or were seeking other jobs. Each employed person is counted only once, even if he or she holds more than one job.

- *Unemployed persons.* Included are all persons who had no employment during the reference week, were available for work, except for temporary illness, and had made specific efforts to find employment sometime during the 4 week-period ending with the reference week. Persons who were waiting to be recalled to a job from which they had been laid off need not have been looking for work to be classified as unemployed.
- *Unemployment rate.* The unemployed percent of the civilian labor force [i.e., 100 times (unemployed/civilian labor force)].

III. **Average Weekly Wage in Total Covered Total, all industries for All establishment sizes in San Diego County, CA (Source: Bureau of Labor Statistics, Series ID ENU0607340010)**

Description

The Quarterly Census of Employment and Wages (QCEW) is a quarterly count of employment and wages reported by employers. The QCEW covers more than 95 percent of U.S. jobs available at the county, Metropolitan Statistical Area (MSA), state, and national level, by detailed industry. The primary source for the QCEW is administrative data from state unemployment insurance (UI) programs. These data are supplemented by data from two U.S. Bureau of Labor Statistics (BLS) surveys: the Annual Refiling Survey (ARS) and the Multiple Worksite Report (MWR). Before publication, BLS and state workforce agencies review and enhance the QCEW data, correcting errors, imputing for nonresponse, and confirming and annotating unusual movements.

QCEW wages data represent the total compensation paid during the calendar quarter, regardless of when the services were performed. In most states, covered employers report total compensation paid during the calendar quarter, regardless of when the services were performed. A few state laws, however, specify that wages be reported for or be based on the period during which services are performed rather than the period during which compensation is paid. Under most state laws or regulations, wages include bonuses, stock options, severance pay, the cash value of meals and lodging, tips and other gratuities. In some states, wages also include employer contributions to certain deferred compensation plans, such as 401(k) plans.