

“Missing Meals” in San Francisco and Marin

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Introduction

This document provides an update to the San Francisco-Marín Food Bank (SFMFB) on our annual analysis of “Missing Meals” in San Francisco and Marin, California. The Missing Meals measure is designed to provide a rigorous assessment of trends in the food landscape in both San Francisco and Marin Counties, as well as the role of government and nonprofit food providers in meeting ongoing food needs. In simple terms, the Missing Meals measure compares the number of meals needed by low and moderate income families in San Francisco and Marin, and subtracts from that the number of meals people can afford for themselves, the number of meals provided by government programs, and the number of meals provided by SFMFB and its partners to arrive at the number of meals that are “missing.” In the first section of the report, we outline the current methodology used to create our Missing Meals estimates. In the second section, we turn to what happened in 2019, and how that compares to prior years’ estimates.

Context: COVID-19

We realize, of course, that in 2020 the world of food needs and food assistance have been radically reshaped by the COVID-19 epidemic. Millions of Americans are out of work or have had their pay or hours reduced. Food insecurity has risen, especially for the most vulnerable segments of society. And the progress that we have observed over the past decade in the reduction of Missing Meals in the Bay Area may have been lost. We will continue to monitor the situation as new years of data become available, and also look to alternative indicators to see how the situation is playing out on the ground in real time. In the meantime, this document provides an update on our core data series to 2019, the latest year of available data.

Data

The primary data source underlying the Missing Meals measure is the United States Census Bureau’s American Community Survey (ACS). The ACS is essentially what used to be the long form of the decennial census, which is now collected annually from a very large

sample of Americans. In California, for instance, the ACS currently collects surveys each year covering over 360,000 individuals. Because of its large sample size, it can be used to study smaller geographic areas not represented in many other large national surveys, such as San Francisco and Marin counties. As a first step in our analyses, we use data from the most recent ACS processed and harmonized by the University of Minnesota's Integrated Public Use Microdata Series (IPUMS).¹ From this dataset we restrict our analyses to households residing in either San Francisco or Marin Counties in a given year. We also use a 3-year moving average for all estimates. The three-year averaging helps smooth this year-to-year variability, providing more stable estimates over time.

Methods

Each year, Missing Meals is calculated using the following formula:

$$\text{Missing Meals} = \text{Meals Needed} - \text{Meals Afforded} - \text{Government Meals} - \text{Non-Profit Meals}$$

Where meals afforded is our estimate of the number of meals low- and moderate-income families should be expected to be able to afford for themselves, government meals is an estimate of the number of meals provided by government food programs like CalFresh (formerly known as Food Stamps) or the School Lunch Program, and non-profit meals is an estimate of the number of meals provided by SFMFB and its partners. We describe how we calculate each of these parameters in turn.

Meals Needed

The number of meals needed by low- and moderate-income families in San Francisco and Marin is perhaps the most straightforward of the parameters necessary for estimating the equation described above. We first estimate the total number of people in

¹ Steven Ruggles, Sarah Flood, Sophia Foster, Ronald Goeken, Jose Pacas, Megan Schouweiler and Matthew Sobek. IPUMS USA: Version 11.0 [dataset]. Minneapolis, MN: IPUMS, 2021. <https://doi.org/10.18128/D010.V11.0>

the ACS who are low- or moderate-income and therefore may be in need of assistance for covering the cost of their food. To define this population, we use 200% of the federal poverty line (FPL), a common cutoff point used to define eligibility for various food and other assistance programs. For a family of four, this equates to about \$51,853 in 2019. After estimating the number of people falling under this threshold in each county, we simply assume each person needs three meals a day for 365 days per year to arrive at our parameter of meals needed.

Meals Afforded

While meals needed may be the simplest parameter to estimate for our equation, the number of meals afforded by low- and moderate-income families is undoubtedly the most difficult. So how might we arrive at such an estimate? One approach might be to look at people's expenditure patterns. That is, if we knew that low-income people spent, on average, 20 percent of their incomes on food, then we could theoretically calculate the number of meals that could be afforded using 20 percent of that family's income.

At first blush, this seems a reasonable enough approach to take. Its main problem, however, is that if you look at actual consumer expenditure data, many low-income people, and especially very low-income people, spend an inordinate amount of their income on food, and this percentage increases the lower you go down the income ladder. For example, the Consumer Expenditure Survey (CEX) – our main data source on people's expenditure patterns – shows that people making under \$15,000 annually spent nearly half of their income on food. If we accepted this half as the amount of food people in this income bracket could provide for themselves, we would wind up concluding that low-income people can afford to cover almost all of their necessary meals themselves.

But a closer examination of the data reveals a less rosy picture. Take that same income bracket, those making between \$5,000 and \$10,000 dollars: while the CEX shows their total after-tax income for the year to be, on average, a bit over \$8,000, the data also shows that their total expenditures over the course of the year come in at much more. To

put it another way, it appears that low-income households spend more than they can really afford on food, likely because food is so necessary for basic survival. Imagine you are a single parent of two children living in extreme poverty in San Francisco. You are trying to meet a number of needs for your family in order to get by with your annual income of, say, \$10,000. You might spend a bigger percent of your budget on essential necessities like food and shelter, but forego other essentials that would be required to meet a minimally adequate living standard. You might select substandard housing that is tainted with lead paint, as the rent is cheaper. You might skip necessary medical care because the costs are too high. You might leave your children without adequate childcare when you're at work because you have no room left in your budget, after providing food and shelter, to pay someone to watch the children. For all these reasons (and more) simply taking the percentage of expenditures at face value is an inadequate method for calculating how many meals the low-income population can provide for themselves.

So what we really need is the percentage of income that low-income people should reasonably be expected to devote toward food. To arrive at such a figure, we first want to identify those families that are able to meet a minimally adequate living standard. Conceptually, these are families at or above the poverty line. That is, if the poverty line for a family of four is, say, \$25,000 a year, we can theoretically say that a family making \$25,001 is able to maintain a minimally adequate living standard in contemporary America. We can then ask what percentage of income do those people devote toward food? Let's say the answer to that question is 20 percent. We know that a family just barely getting by in America devotes 20 percent of their budget to food, or about \$5,000. For the family making half of that amount, or \$12,500, we can say that they should reasonably be expected to pay about 20 percent of their income to food, or \$2,500. This is because we know for the family just getting by, 80 percent of their income must be reserved for other necessities. Essentially, we are saying that it is not fair to expect families making less than what it takes to get by to devote relatively more of their budget to food than we expect of people just making it.

So where do we derive estimates of this percentage for people just getting by? Here we turn to poverty thresholds recommended by the National Academy of Sciences (Citro, 1995) and produced by the United States Census Bureau (see Garner and Short, 2010). These thresholds find the amount of money it takes to cover five major categories of essential expenses: food, clothing, shelter, utilities, and medical care (plus a little extra to cover other essentials like toiletries, non-work related travel, etc.). These thresholds are produced each year, and can therefore be broken down into the percent going toward each category, including food. It turns out that this share is typically approximately 25% each year. Thus, it makes sense to assume that low-income people in our universe can afford to spend roughly a quarter of their income on food. Before proceeding, however, we make a number of key adjustments to both the percentage available for food and the amount of income to which this percentage applies. These adjustments are as follows:

Taxes:

The ACS only reports pretax income. For many poor, working families, the tax system boosts available income through programs like the Earned Income Tax Credit and the Child Tax Credit. For families on the higher end of the income distribution (toward 185 percent of the poverty line), the tax system may reduce available income through payroll and income taxes. Thus, it is important to transform our measure of pretax income into a measure of post-tax income. To accomplish this, we put each of our ACS families through the National Bureau of Economic Research's publicly available tax calculator software. This results in a new measure of each family's available income after taxes.

Child Care:

In addition to food, clothing, shelter, utilities, and medical care, the NAS poverty measurement procedures subtract out-of-pocket child care costs from families' income. We use the Census Bureau's estimates of childcare costs for different income groups to subtract out available income for families in the ACS where all parents in the household are working and there are children present under the age of 15 (see Table 1 for the percentage if income spent on childcare for each income group).

Table 1. Share of Income Spent on Child Care by Income Group²

Monthly Income Level	Percent of Income Spent on Child Care
Income under \$1,500	32.7
Income between \$1,500 and \$2,999	16.2
Income between \$3,000 and \$ 4,499	10.8
Income \$4,500 +	5.0

Shelter:

San Francisco and Marin are notorious for their high housing costs. Since the proportion of the NAS poverty threshold going to shelter is based on national averages, it is important to adjust this proportion to account for the fact that shelter costs are much higher in San Francisco. We thus take data on Fair Market Rents published by the U.S. Department of Housing and Urban Development for San Francisco (including Marin) and create a ratio of these costs to Fair Market Rents in the nation as a whole. We then inflate the proportion of the poverty threshold necessary to meet shelter expenses by this ratio, reducing the amount left over to pay for food.

Food:

It is not only shelter that costs more in San Francisco, but also food. For each family in the ACS, we derive an average cost-per-meal based on U.S. Department of Agriculture guidelines for its “Low Cost Food Plan,” which roughly corresponds to the costs of adequately nutritious meals for families in the second quartile of the American income distribution. These costs-per-meal average approximately \$2.50. We further adjust these costs-per-meal to reflect the higher than average costs of food in San Francisco. More specifically, we use Regional Price Parities for food goods (as opposed to services) in the San Francisco metro area, and create a ratio of this index to the same index for the nation as a whole. These adjustments raise the cost of a meal for San Franciscans by about 14 percent per year to about \$2.90 per meal.

² Looking at data on child care spending across the years, we find that the share of income spent on child care is relatively constant over time. Original estimates came from a Census report on child care spending (see <https://www.p2pga.org/wp-content/uploads/2019/05/whos-minding-the-kids-us-census-report.pdf>), that has since been updated.

Ultimately, these adjustments reduce the percentage of income available for food to a bit under 20%. Perhaps not coincidentally, this is roughly in line with what the two income brackets around the federal poverty line report in the CEX report that they spend on food, 19.9 percent and 16.6 percent for families making \$15,000-\$19,999 and \$20,000-\$29,999 per year, respectively.

Government Meals

The Federal, State, and Local governments administer a number of food assistance programs in San Francisco and Marin Counties. Thus, we compiled data on either the number of dollars flowing into San Francisco and Marin each year from these programs or the number of meals distributed by these programs in those same years. All data were compiled from the relevant administrative agencies. When administrative data were provided in dollars, we converted those figures into meals using the average meal-cost across our low-income population in the ACS data. The major programs factored into our analysis are:

CalFresh:

The CalFresh program, commonly known as food stamps (or Supplemental Nutrition Assistance Program [SNAP] nationally), is the largest program providing food assistance to low-income households. Administrative data for each year were obtained from the California Department of Social Services.

Women, Infants, and Children (WIC):

WIC provides targeted food assistance for specific types of foods (e.g., milk, peanut butter) to pregnant women and women with infants and young children. Administrative data for each year were obtained from the California Health and Human Services Open Data Portal.

School Nutrition Programs (SNP):

SNP is provided in the public schools, and provides free and reduced cost meals (breakfast and lunch) to low-income children. Administrative data for each year were obtained from the California Department of Education. The number of Summer Meal Service (SMS) meals, which are provided through the same program but during the

summer months when school is not in session, were also obtained from the same administrative source.

Child and Adult Care Food Program (CACFP):

CACFP provides meals typically through child care and adult care (typically elderly) providers. Administrative data for each year were obtained from the California Department of Education.

Senior Meals:

There are two primary programs providing meals to low-income seniors outside of the CACFP program. These are the Congregate Meals Program, which provides meals in community dining programs, and Home-Delivered Meals, which provides meals to home-bound seniors. Administrative data on these programs was provided by the Department of Disability and Aging Services in San Francisco and the Division of Aging & Adult Services in Marin County. For San Francisco, where many of the meals provided by DAS are funded by community based organizations, we use data provided by DAS on this funding breakdown to apportion some meals to the government side of the ledger and some to the nonprofit side of the ledger.

Fresh Fruit and Vegetable Program (FFVP):

The FFVP is administered nationally by the USDA, and provides grants to states, primarily through state Departments of Education. San Francisco schools began receiving its first FFVP grants in 2008, and Marin schools in 2009. The program provides free fresh fruit and vegetables to children in their schools. Administrative data on FFVP was obtained from the California Department of Education.

Non-Profit Meals

The primary non-governmental providers of food assistance in San Francisco and Marin are the San Francisco and Marin Food Bank (SFMFB). SFMFB provided us with the total number of pounds of food that they sent out of their doors each year. These pounds were converted to meals assuming that one meal equals 1.3 pounds, the conversion factor recommended by Feeding America based off of data compiled by the USDA.

SFMFB also works with a network of approximately 500 food providers to which it distributes food. Some of these providers receive 100 percent of their food from SFMFB, while others receive some portion of the food they distribute from SFMFB, and collect and distribute more food on their own. Unfortunately, there is no central database of all of these providers and exactly how much food they provide. But the SFMFB has collected information from each provider in its network on what percentage of their food they receive from SFMFB. Because of SFMFB's centrality in the food provision network in San Francisco, we assume that only a negligible number of providers are not represented in SFMFB's provider network. Using the percentages reported by network members, we are able to calculate how many non-SFMFB meals are provided by network members, which becomes our estimate of non-governmental food provision by nonprofit organizations other than the Food Bank.

Results

2019 saw a substantial reduction in the number of “missing meals” relative to 2018. Missing meals dropped from about 24.8 million in 2017 to 17.1 million meals in 2019 across the two counties combined. This was driven by a continued reduction in the total number of meals needed, from 245 million to 235 million, which was driven by a drop in the number of low-income individuals in the two counties as the wider economy continued to improve (or from 224,000 low-income individuals in 2018 to 215,000 low-income individuals in 2019). Both counties saw drops in the number of low-income families, from 183,000 in San Francisco in 2018 to 174,000 in 2019 and from 41,200 in Marin in 2018 to 40,700 in 2019. Though fewer people overall found themselves in need, both government and non-profit food assistance held strong, essentially filling a larger share of a smaller gap. Our analysis suggests that the roughly 17.1 million missing meals in the two counties

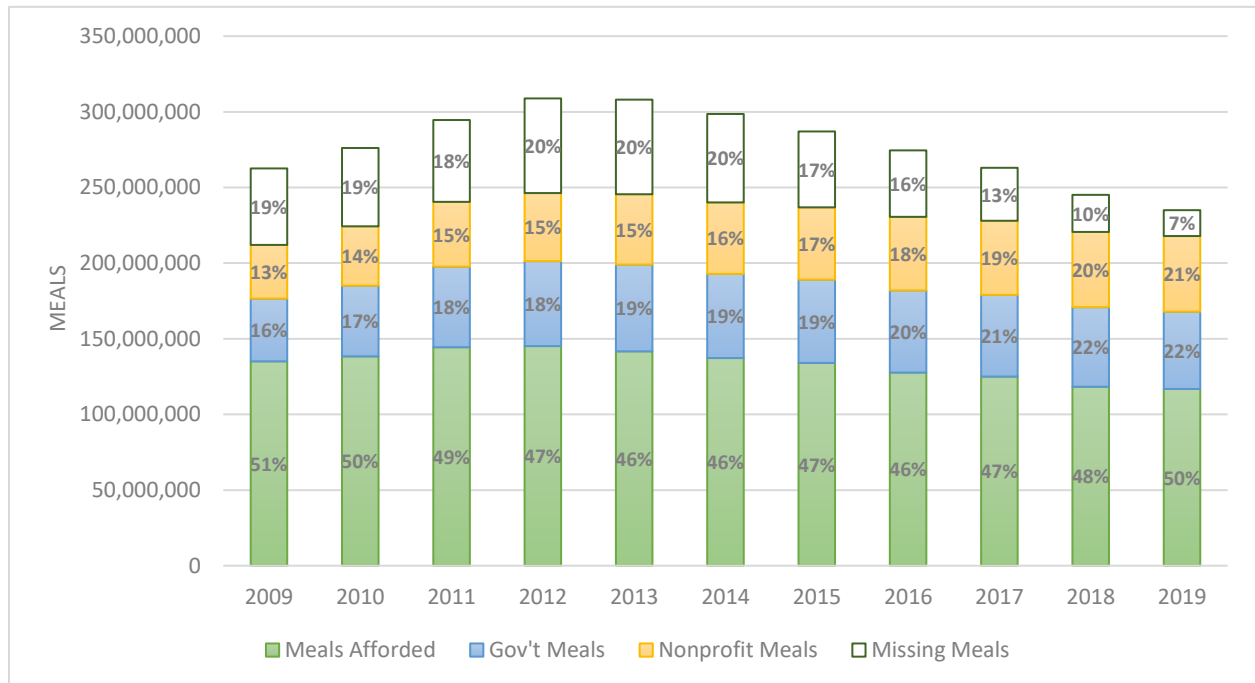
consists of 9.8 million missing meals in San Francisco and 7.3 million missing meals in Marin.

Graph 1 shows that the fraction of meals “missing” declined in San Francisco and Marin from 10% in 2018 to 7% in 2018. This also represents a historic low going back to 2009. Over time, government and nonprofit meals have grown as a share of total meals (to 43% in 2019), indicating that the food safety net in San Francisco and Marin is doing well by historical standards. Graph 2 simply depicts the breakdown of meals in 2019 in both counties. The government provided 51 million meals, followed closely by the food bank and its partners at 50 million, leaving 17 million meals “missing,” or unaccounted for.

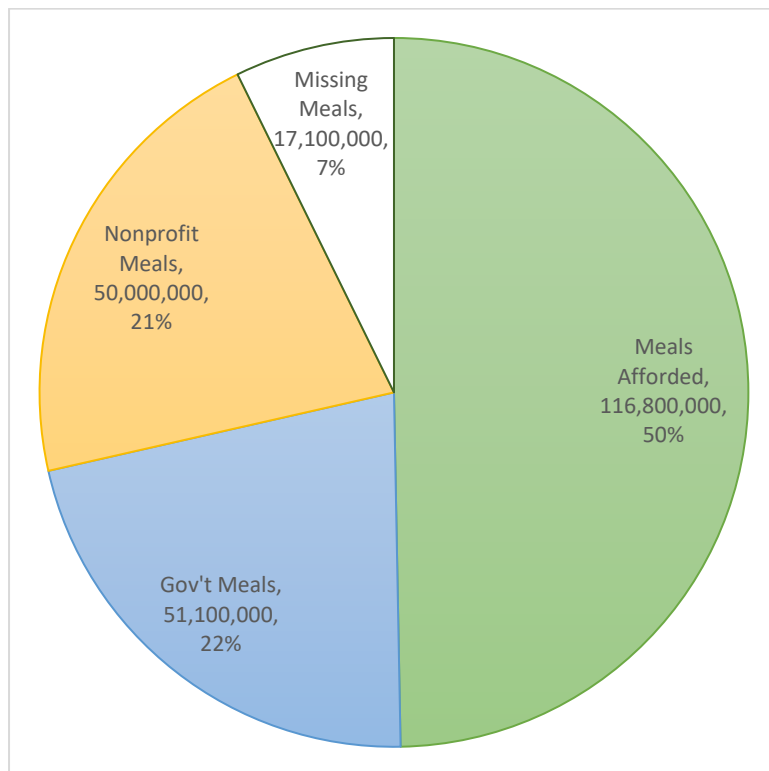
Graph 3 and 4 depict the same statistics but for San Francisco only. Graphs 5 and 6 depict the same statistics but for Marin only. Lastly, Table 2 provides the full array of data from 2009 to 2018 for those interested in specific numbers across all years.

In future years, we will continue to monitor these trends. COVID-19, which hit California in 2020, has obviously thrown all elements of our missing meals equation into question. We won’t know until the data is available, and it is also possible that through a robust government and non-profit response a sharp uptick in need may wind up being mitigated or at least buffered. Our missing meals methodology will be uniquely suited to capturing such effects given its ability to zero in on the food landscape as it exists in both counties.

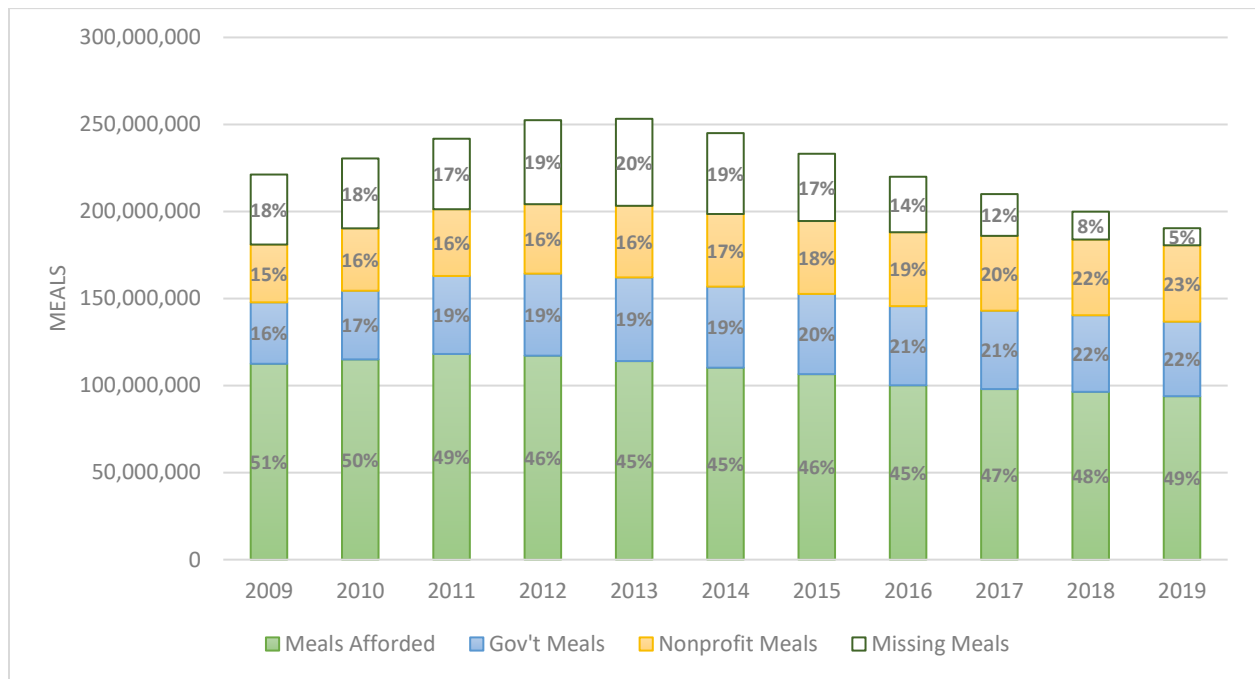
Graph 1: Missing Meals in San Francisco and Marin, 2009-2019



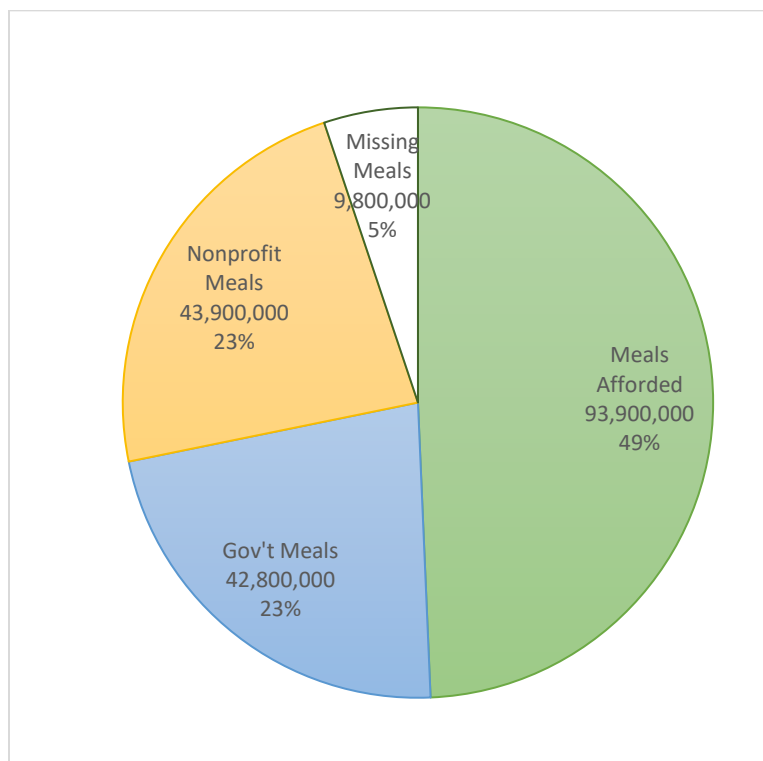
Graph 2: Missing Meals in San Francisco and Marin, 2019



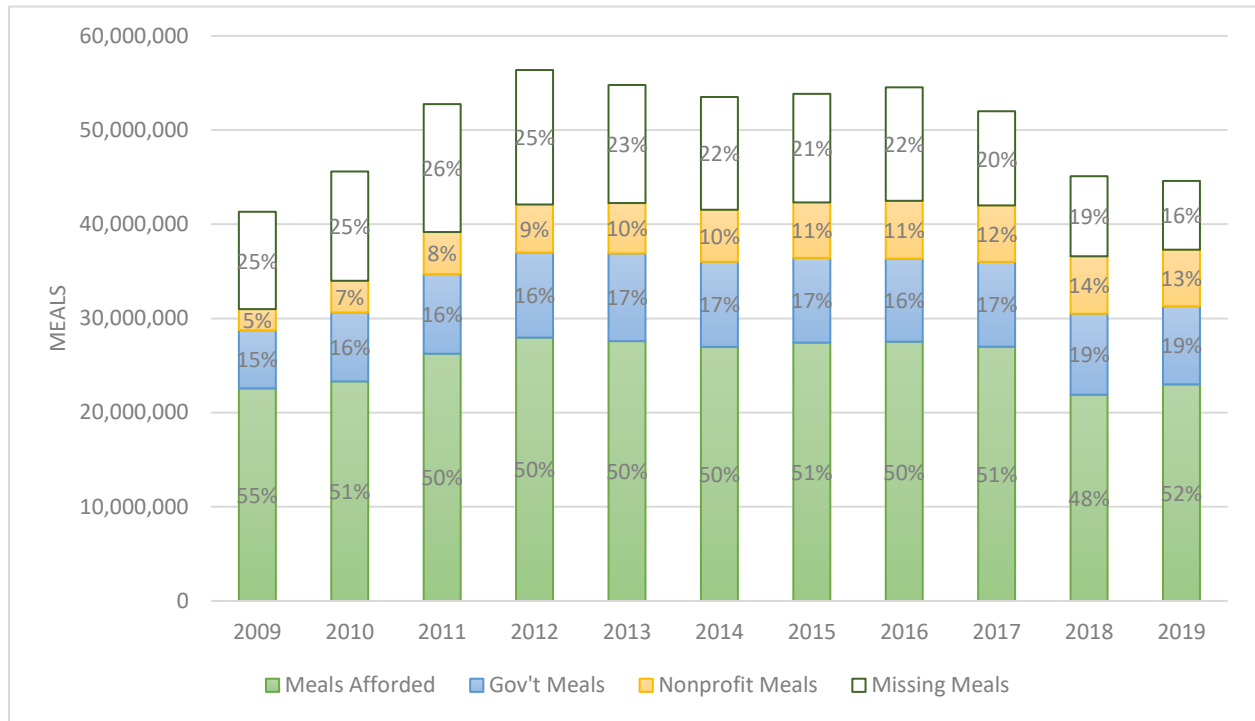
Graph 3: Missing Meals in San Francisco, 2009-2019



Graph 4: Missing Meals in San Francisco, 2019



Graph 5: Missing Meals in Marin, 2009-2019



Graph 6: Missing Meals in Marin, 2019

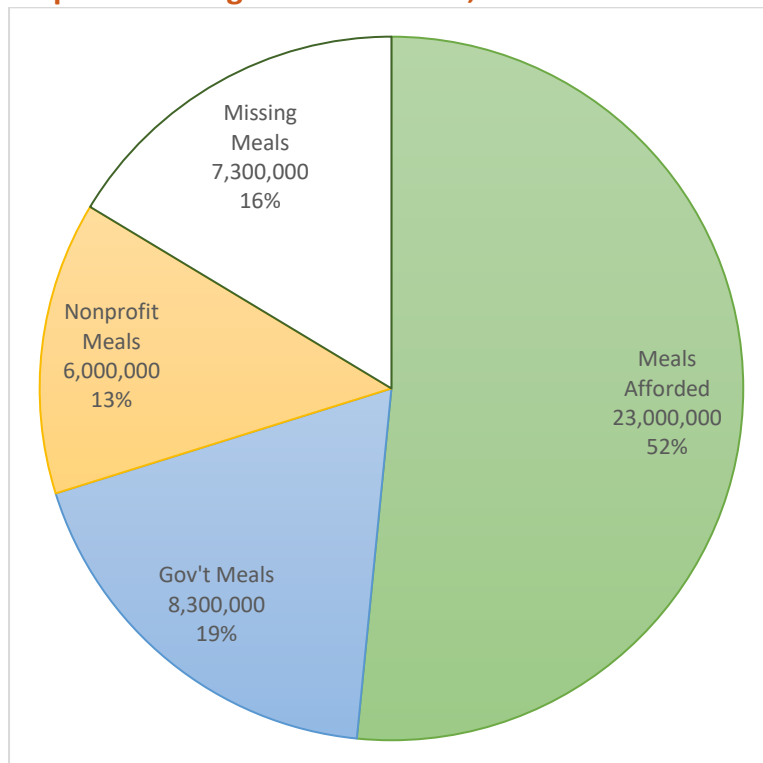


Table 2: Meals in San Francisco and Marin, 2009 – 2019

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total (San Francisco and Marin)											
Total # people < 200% FPL	245,322	256,217	269,903	283,581	285,105	278,153	265,667	251,553	240,354	224,081	214,631
Meals needed	268,745,485	280,683,540	295,684,310	310,666,830	312,334,515	304,711,125	290,995,155	275,489,955	263,187,630	245,369,060	235,021,310
Meals afforded	140,197,232	143,453,154	148,257,743	149,704,974	147,009,957	143,403,091	137,903,127	128,955,681	124,769,822	118,286,274	116,836,919
Gov't meals	41,259,934	46,851,270	52,999,359	56,030,857	57,290,220	56,993,706	56,393,487	55,362,266	54,119,505	52,626,572	51,123,343
Nonprofit meals	35,468,813	39,205,442	42,821,553	45,003,265	46,497,974	47,252,051	47,785,152	48,594,267	49,157,368	49,677,646	49,953,404
Missing meals	51,819,506	51,173,674	51,605,655	59,927,733	61,536,362	57,062,276	48,913,388	42,577,742	35,140,935	24,778,568 ³	17,107,645
San Francisco											
Total # people < 200% FPL	206,730	216,288	226,805	236,342	235,171	227,832	215,342	202,662	192,607	182,911	173,899
Meals needed	226,474,835	236,949,605	248,474,480	258,915,305	257,629,775	249,585,905	235,873,585	221,946,645	210,904,300	200,287,910	190,419,405
Meals afforded	117,202,240	120,310,143	124,109,662	123,595,738	119,219,830	115,074,589	109,157,154	101,514,984	98,148,095	96,426,546	93,861,156
Gov't meals	35,116,827	39,539,643	44,552,135	46,985,026	47,955,727	47,630,776	47,084,380	46,227,173	45,208,594	44,003,651	42,780,700
Nonprofit meals	33,221,248	35,843,298	38,348,222	39,894,333	41,143,062	41,720,266	41,887,827	42,452,629	42,903,456	43,534,200	43,930,772
Missing meals	40,934,520	41,256,521	41,464,461	48,440,209	49,311,155	45,160,274	37,744,224	31,751,860	24,644,154	16,323,513 ³	9,846,777
Marin											
Total # people < 200% FPL	38,592	39,929	43,099	47,240	49,935	50,320	50,325	48,891	47,747	41,170	40,732
Meals needed	42,270,650	43,733,935	47,209,830	51,751,525	54,704,740	55,125,220	55,121,570	53,543,310	52,283,330	45,081,150	44,601,905
Meals afforded	22,994,992	23,143,011	24,148,081	26,109,236	27,790,127	28,328,503	28,745,973	27,440,697	26,621,726	21,859,729	22,975,763
Gov't meals	6,143,107	7,311,627	8,447,224	9,045,832	9,334,493	9,362,930	9,309,108	9,135,093	8,910,910	8,622,920	8,342,643
Nonprofit meals	2,247,565	3,362,144	4,473,331	5,108,932	5,354,911	5,531,785	5,897,325	6,141,638	6,253,912	6,143,446	6,022,632
Missing meals	10,884,986	9,917,154	10,141,193	11,487,524	12,225,207	11,902,002	11,169,164	10,825,882	10,496,782	8,455,055 ³	7,260,867

³ We have updated results for 2018 after making an adjustment to our calculation of Senior Meals received through the CACFP program.