"Missing Meals" in San Francisco and Marin

January, 2019

Christopher Wimer, *Columbia University*
Sophie Collyer, *Columbia University*
Lucas Manfield, *Independent Consultant*

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Introduction

This document provides an update to the San Francisco and Marin 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 2014, and how that compares to prior years' estimates.

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

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[1] Steven Ruggles, J. Trent Alexander, Katie Genadek, Ronald Goeken, Matthew B. Schroeder, and Matthew Sobek. Integrated Public Use Microdata Series: Version 5.0 [Machine-readable database]. Minneapolis: University of Minnesota, 2010.

households residing in either San Francisco or Marin Counties in a given year. In 2014, we decided to construct Marin estimates using a 3-year moving average. This was due to observed year-to-year sampling variability that appeared too large given the relatively small sample size of low-income families in Marin in any given sample year. The three-year averaging helps smooth this year-to-hear variability, providing more stable estimates over time.

Methods

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

Missing Meals = Meals Needed – Meals Afforded – Government Meals – 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 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 $47,700 in 2014. After estimating the number of people falling under this threshold in each county, we simply

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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 blanch, 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 2008 Consumer Expenditure Survey (CEX) – our main data source on people's expenditure patterns – shows that people making between $5,000 and $10,000 annually spent nearly 39 percent of their income on food. If we accepted this 39 percent 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, $8,214, 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, the Child Tax Credit, and San Francisco's Working Families 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.

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. 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.

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 WIC Program Coordinators in San Francisco and Marin Counties.

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 Aging and Adult Services in San Francisco and the Division of Aging & Adult Services in Marin County. For San Francisco, where many of the meals provided by DAAS are funded by CBO's, we use data provided by DAAS on this funding breakdown to apportion some meals to the government side of the ledger and some to the nonprofit side of the ledger.

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). SFMFP provided us with the total number of pounds of food that they sent out of their doors in 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-SFFB meals are provided by network members, which becomes our estimate of non-governmental food provision by nonprofit organizations other than the Food Bank.

Results

2017 saw a substantial reduction in the number of "missing meals" relative to 2015. Missing meals dropped from about 49 million in 2015 to 35million meals in 2017 across the two counties combined. This was driven by a large reduction in the total number of meals needed, from 291 million to 263 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 266,000 low-income individuals in 2015 to 240,000 low-income individuals in 2017. The largest drop in the number of low-income families took place in San Francisco (215,000 to 192,000 in San Francisco, as opposed to 50,000 to 48,000 in Marin), which we will discuss further below. 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. In 2015, government and non-profit assistance combined to fill about 37% of the total meals needed among the low-income population in SF and Marin. In 2017, this jumped to over 40 percent of the total needed meals. Our analysis suggests that the roughly 35 million missing meals in the two counties consists of 24.4 million missing meals in San Francisco and 10.5. million missing meals in Marin.

When we originally updated our numbers for 2016, we observed a large drop in Missing Meals in San Francisco, which subsequently continued into 2017. However, as we describe here, we believe that the original 2016 data in San Francisco may be misleading and that the real change we observe is from 2015 to 2017, and we have adjusted the 2016 results to apply what we see as a correction to the underlying survey data in the ACS. Note that the results from Marin show very little change from 2015 to 2016 and from 2016 to 2017, either in the total Missing Meals estimate or in its major components.

For San Francisco, if the low-income population is shrinking, one might also expect government programs to shrink. For example, we might think that fewer people would need CalFresh benefits and therefore government meals might drop along with the low-income population. But this does not seem to be the case. Instead, the first real drop in government meals occurs in 2017. Thus, the 2016 data provided a bit of a puzzle, showing a large drop in the low-income population but really no drop in government benefits tied to low-income status. This led us to investigate further.

More specifically, the results from 2016 led us to consider various hypotheses about whether real world conditions may be driving the drop. One hypothesis was that the homeless population may be increasing, and this would show up in government and food pantry meals but not show up in the Census data since the Census data is based on household surveys. However, homeless counts do not show a rapidly expanding homeless population in San Francisco. A second hypothesis is that the city/county may be doing a better job at helping San Franciscans keep their benefits rather than churn off and on the program. Peri Weisburg, at the San Francisco CalFresh county office noted the following for context, as to why we might see government meals not decline:

1.   Intensive outreach that countervails the decline in SF's low-income population. There are several pieces to our outreach strategy, all of which were implemented at different times – but the timing of this data corresponds nicely to key outreach/marketing efforts and community outstations.

2.   When the low-income population declines, the people who exit tend to be those who are most marginal – i.e., those who are closest to middle income. (They may "exit" by virtue of a move out of county or an increase in income. Very often it's

the former, and it is much easier to move if you have some cash flow than it is if you

are dependent on local community organizations for services, food, shelter, and

medical care.) These are precisely the people who have low takeup of CalFresh in

the first place. The number of CalFresh households with income at or above 100%

FPL is very small. More and more, the caseload here in SF is composed of those who

are indigent or extremely vulnerable.

A third hypothesis is that, with gentrification on the rise in San Francisco, perhaps some

low-income San Franciscans were being pushed out of the city, while their CalFresh and

other benefits may still be recorded in San Francisco until recipients have to recertify.

Lastly, if more San Franciscans are "doubling up" – or living with other family members

because of their low incomes or high rental costs, this choice may make them appear higher

income in our data. For example, if a 24-year-old struggled to find or hold a job, so moved

in with his or her parents, the Census data would count them as a family of 3 and count the

parents' income as part of the family income of the 24-year-old. But the 24-year-old may

still be receiving programs like CalFresh because of their personal economic situation and

struggles. Each of these hypotheses may explain part of the drop in 2016, but in our

investigation of each we found no overwhelming evidence that any was a main culprit in

producing the odd result in 2016 for San Francisco. Instead, the most powerful evidence we

found for a major change in 2016 related to the quality of the underlying Census data.

As mentioned earlier, the ACS, which we use to calculate the number of low-income

individuals each year, records a large drop in the number of such individuals from 2015 to

2016. To investigate the discrepancy between this drop and the lack of a drop in SNAP data,

we took a look at reports of household SNAP receipt in each year of the ACS data since the

Missing Meals study has existed. First, it is important to understand that the ACS question on SNAP is simply a yes or no question about whether anyone in the household received SNAP in the past 12 months. It doesn't ask how much or who received the SNAP. It is also substantially underreported in the ACS, as it is across many large household surveys. Nevertheless, what we saw in 2016 that was different than in any other year was that the ACS recorded a much larger fraction of SNAP households above 200% of the Federal Poverty Level than in any other year. In 2017, just one year later, this fraction returned to pre-2016 levels. This pattern can result from one of two (or a combination thereof) actual county-level changes: (1) The pattern is real, in which case for some reason the SNAP caseload really did shift to higher-income households; or (2) there is something off about the 2016 data and San Franciscans who are actually low-income (under 200% of FPL) are for some reason being recorded in the ACS as over 200% FPL. Given the pattern in every other year of the data, including 2017, we believe that while the low-income population may have begun declining in 2016, that there is something incorrect being recorded in that year's San Francisco sample of the ACS. We have asked the Census Bureau to look into this. But for the purposes of this report, since the 2017 data conforms to historical expectations, we have focused the analysis in this report on the 2015 to 2017 change. We also have examined the same fractional analysis across all counties in California and saw no major evidence that what we were seeing in San Francisco was broadly occurring across counties.

Despite our focus on 2015 to 2017 change, we do apply a "correction" to 2016 that is important when using three-year moving averages for the ACS data, which we do in all the results below. That is, we wouldn't want to include an observably flawed year into three year average measures. Our correction is to recalculate the number of low-income

San Franciscans in 2016 based on historical data in other years on the size of the SNAP population below and above 200% of FPL. Using these ratios, we can back out a more appropriate and expected number of low-income San Franciscans, and then recalculate meals afforded in the 2016 data, before averaging within the three-year moving averages. We now turn to the results for 2017 and trends up to 2017.

Graph 1 shows that the fraction of meals "missing" declined in San Francisco and Marin from 17% in 2015 to 12% in 2017. This also represents a historic low going back to 2007. Over time, government and nonprofit meals have grown as a share of total meals (to 40% in 2017), 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 2017 in both counties. The government provided 54 million meals, followed closely by the food bank and its partners at 49 million, leaving 35 million meals "missing," or unaccounted for. Thus, after accounting for meals afforded, government and nonprofit meals combined to reduce the remaining gap by over 75% (103M/138M meals).

Graph 3 and 4 depict the same statistics but for San Francisco only. The results largely follow the overall story, with missing meals here comprising just 11% of all meals in 2017, and government and non-profit meals providing 42% of total meals. Graphs 5 and 6 depict the same statistics but for Marin only. Here, missing meals still represent 20% of total meals, though this too is down since the beginning of our historical series. Government and non-profit meals combine to represent 29% of total meals. Overall, Marin appears to be moving more gradually over time, with more room to further reduce missing meals than in San Francisco. Lastly, Table 1 provides the full array of data from 2007 to 2017 for those interested in specific numbers across all years.

In future years, we will continue to monitor these trends, and continue to examine new data for outliers such as we found in 2016 in San Francisco. We will also continue to provide moving 3 year averages going forward, which helps smooth the impact of year-to-year changes that may partially be driven by underlying issues in sample-based Census data in comparison to administrative data used for other components of the missing meals analysis.

Graph 1: Missing Meals in San Francisco and Marin, 2007-2017

Missing Meals in San Francisco & Marin

	2009	2010	2011	2012	2013	2014	2015	2016	2017
Missing Meals	19%	19%	18%	20%	20%	19%	17%	14%	12%
Nonprofit Meals	13%	14%	15%	15%	15%	16%	17%	18%	19%
Gov't Meals	16%	17%	18%	18%	19%	19%	20%	21%	21%
Meal Afforded	51%	50%	49%	47%	46%	46%	47%	47%	48%

■ Meal Afforded   ■ Gov't Meals   ■ Nonprofit Meals   □ Missing Meals
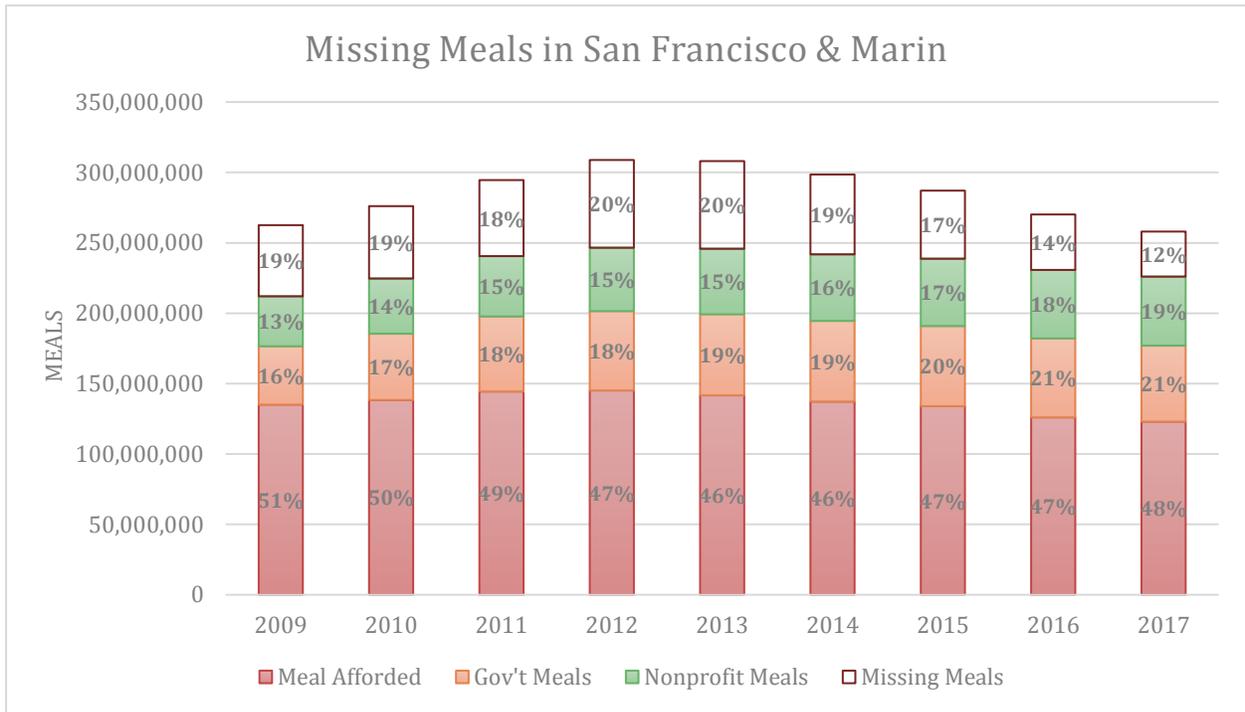
Graph 2: Missing Meals in San Francisco and Marin, 2017

Missing Meals in San Francisco & Marin (2017)

- Missing Meals, 35,000,000, 12%
- Nonprofit Meals, 49,000,000, 19%
- Gov't Meals, 54,000,000, 21%
- Meal Afforded, 125,000,000, 47%
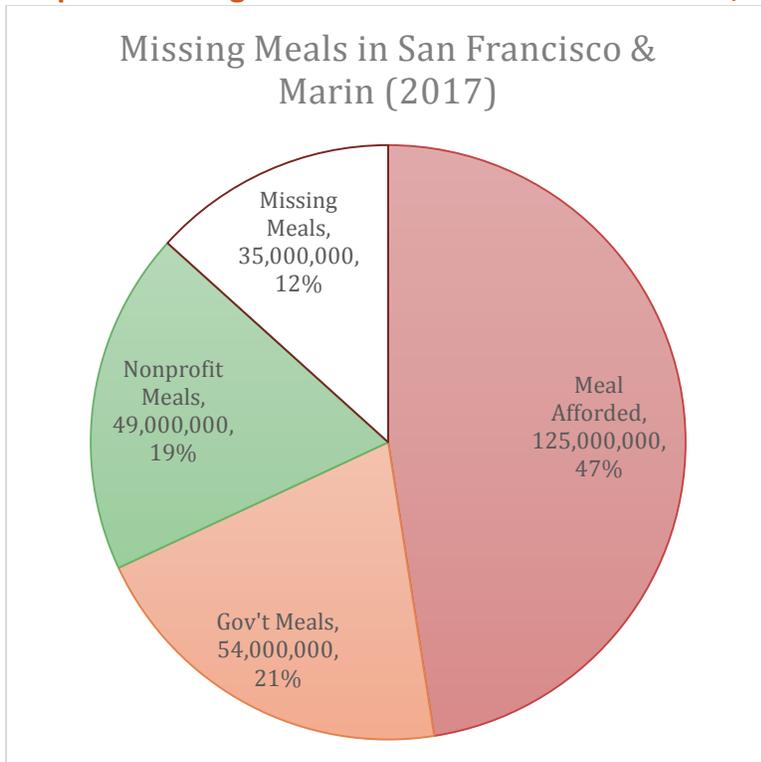
**Graph 3: Missing Meals in San Francisco, 2007-2017**

Missing Meals in San Francisco
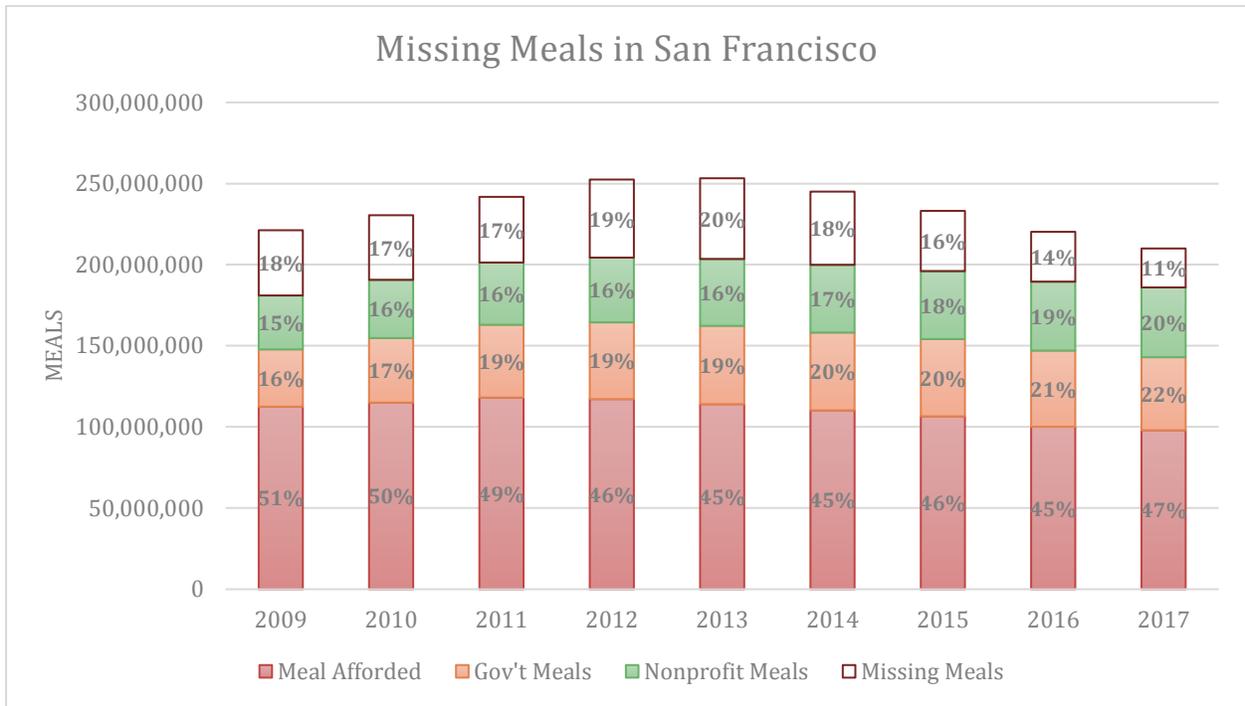
Graph 4: Missing Meals in San Francisco, 2017

Missing Meals in San Francisco (2017)
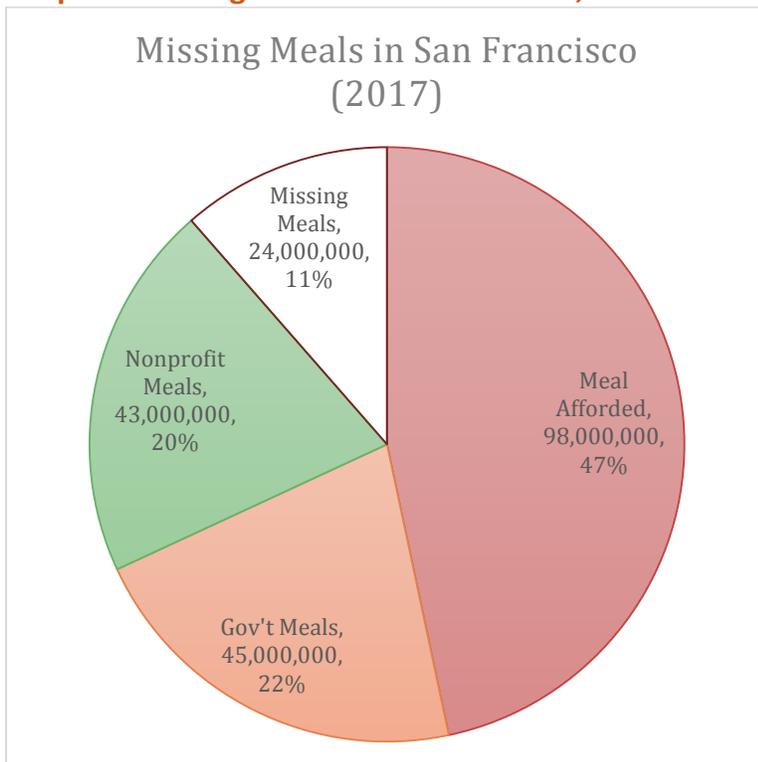
Graph 5: Missing Meals in Marin, 2007-2017

Missing Meals in Marin

	2009	2010	2011	2012	2013	2014	2015	2016	2017
Missing Meals	25%	25%	25%	25%	22%	22%	21%	21%	20%
Nonprofit Meals	5%	7%	8%	9%	10%	10%	11%	11%	12%
Gov't Meals	15%	16%	16%	16%	17%	18%	18%	17%	17%
Meal Afforded	55%	51%	50%	50%	50%	50%	51%	50%	51%

Meal Afforded   Gov't Meals   Nonprofit Meals   Missing Meals
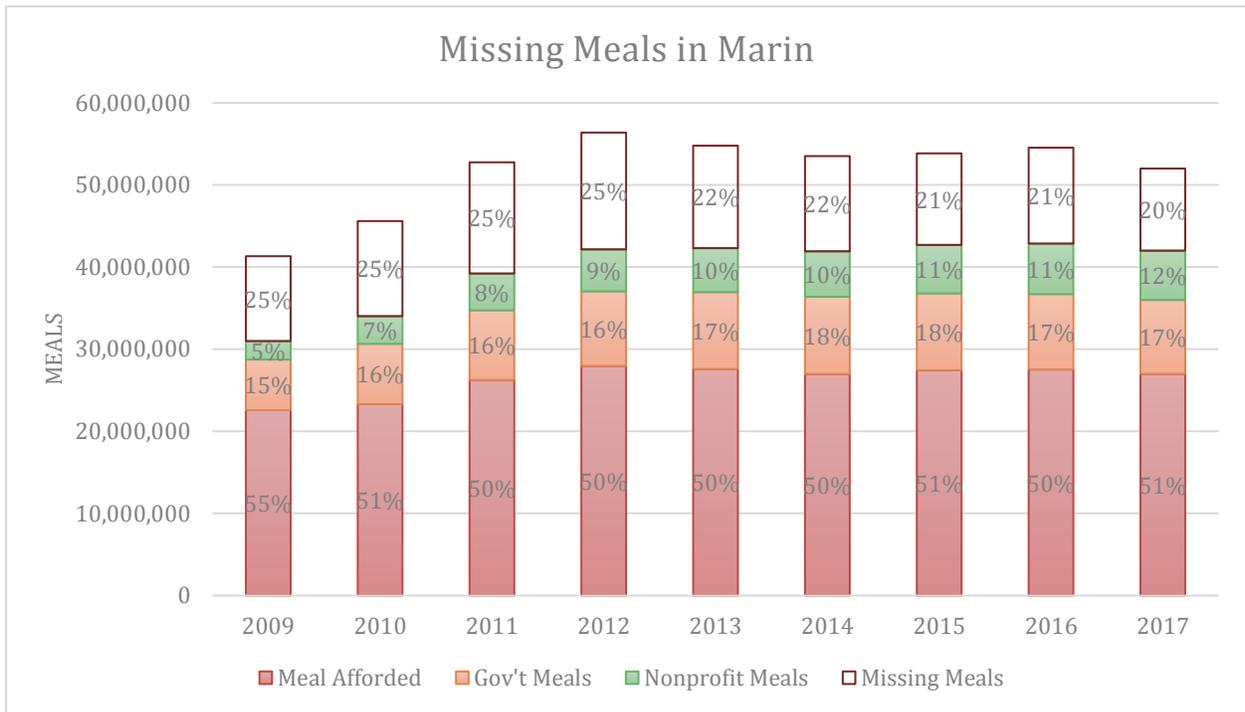
Graph 6: Missing Meals in Marin, 2017

Missing Meals in Marin (2017)

Missing Meals, 10,000,000, 20%

Nonprofit Meals, 6,000,000, 12%

Gov't Meals, 9,000,000, 17%

Meal Afforded, 27,000,000, 51%

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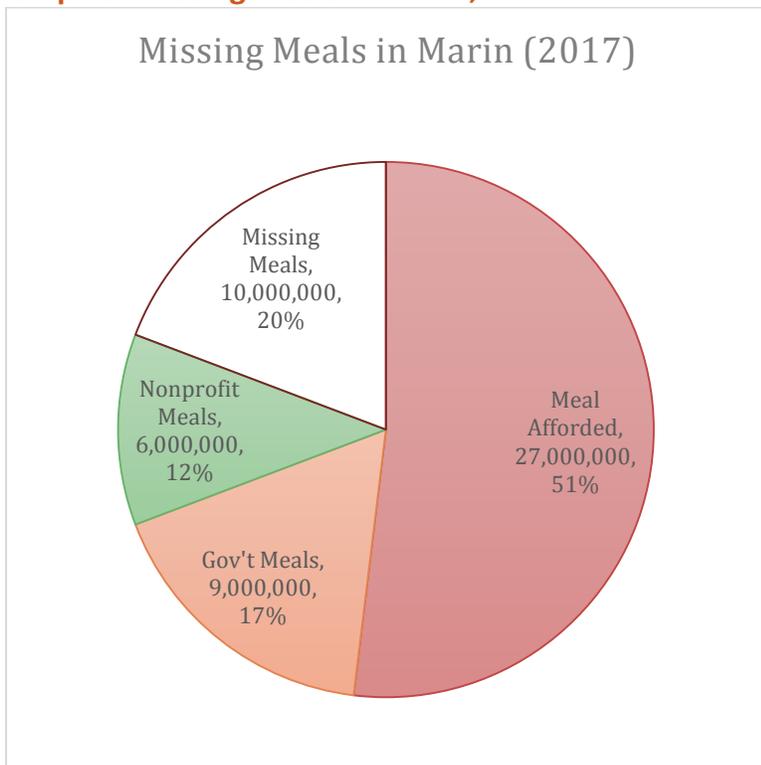
Table 1: Meals in San Francisco and Marin, 2007 – 2017

	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total (SF and Marin)									
Total # people < 200% FPL	245,322	256,217	269,903	283,581	285,105	278,153	265,667	251,553	240,354
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
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
Gov't meals	41,259,934	46,851,270	52,999,359	56,030,857	57,290,220	56,993,706	56,708,870	55,978,128	54,357,604
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
Missing meals	51,819,506	51,173,674	51,605,655	59,927,733	61,536,362	57,062,276	48,598,005	41,961,880	34,902,836
SF									
Total # people < 200% FPL	206,730	216,288	226,805	236,342	235,171	227,832	215,342	202,662	192,607
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
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
Gov't meals	35,116,827	39,539,643	44,552,135	46,985,026	47,955,727	47,630,776	47,380,726	46,815,026	45,437,797
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
Missing meals	40,934,520	41,256,521	41,464,461	48,440,209	49,311,155	45,160,274	37,447,878	31,164,007	24,414,951
Marin									
Total # people < 200% FPL	38,592	39,929	43,099	47,240	49,935	50,320	50,325	48,891	47,747
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
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
Gov't meals	6,143,107	7,311,627	8,447,224	9,045,832	9,334,493	9,362,930	9,328,144	9,163,101	8,919,807
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
Missing meals	10,884,986	9,917,154	10,141,193	11,487,524	12,225,207	11,902,002	11,150,127	10,797,874	10,487,885