

Are California Public Schools Scratch-Cooking Ready?

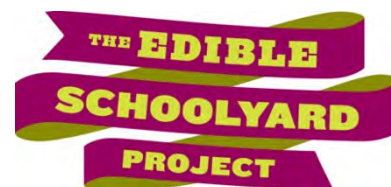
A survey of food service directors on the state of school kitchens



In collaboration with:



**CENTER FOR
CITIES+SCHOOLS**
UNIVERSITY OF CALIFORNIA BERKELEY



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Overview and Key Findings

One way to serve healthier school meals is by incorporating “scratch-cooking” techniques, whereby many or most of the ingredients are prepared onsite from a raw and/or minimally processed form, into school food service programs. However, the vast majority of public school kitchens across the U.S. and in California are not designed and/or equipped to scratch cook. Raw and/or unprocessed food ingredients have shorter shelf lives and fewer added preservatives, thus requiring specialized kitchen infrastructure and equipment for receiving, storing, and preparing. To understand the opportunities and challenges to increasing healthy school meals across California, this study investigates the scratch-cooking readiness of the state’s public schools’ kitchens. We conducted a web-based survey of food service directors in California public school districts. Two hundred directors from 200 school districts responded.

Key Findings

- Scratch cooking is happening in all types and sizes of public schools in California.
- Nearly one-third of all responding school districts report high levels of scratch cooking in their district while only 16% report that they do little-to-no scratch cooking currently.
- Rural school districts are more likely to report high levels of scratch cooking.
- Majority non-white school districts report less scratch cooking than majority white districts.
- Districts with high levels of scratch cooking employ more food service workers and more full-time employees compared to districts that do some or little-to-no scratch cooking.
- Key challenges to expanding scratch cooking are having skilled staff and the necessary facilities and equipment to scratch cook.
- School districts rely heavily on local funding for kitchen facility and equipment upgrades.
- More than one-quarter (29%) of school districts report serving at least some organic / pesticide-free foods; the highest income districts are more than twice as likely as the lowest income districts to report serving at least some organic / pesticide-free foods.
- An estimated \$5.81 billion is needed to make all California public school kitchen facilities scratch-cooking capable.

Recommendations

- **Invest to catalyze change.** Strategic investment is needed to build scratch cooking capability across the state, prioritizing areas where key funding barriers exist.
- **Establish a statewide task force on healthy school meals.** A concerted effort is needed to establish a plan for expanding access to healthy meals in California public schools.
- **Learn from existing ingenuity.** We need to better understand successful scratch cooking strategies already underway.

Introduction: Scratch Cooking for Healthy School Meals

I have wanted to build a central community kitchen that would prepare foods from scratch in a cook-chill environment. We would process our own fruits and vegetables. There would be a bakery and pizza preparation area. This central community kitchen would primarily produce these foods for the School District expanding to charter schools, churches, adult daycare centers, etc. [It] would be a teaching kitchen where we would offer work experience for young adults and older adults to learn about food preparation and service. At night this grand kitchen would re-purpose foods to be used to feed the hungry. As the internet takes over our lives and retail stores diminish, food will continue to have brick and mortar buildings for people to visit and eat and where food workers will be needed to prepare and serve. My dream is big but also much needed in my community. Thank you for taking the time to hear about my dream!

School District Food Service Director

Thirty million children living in the United States participate in the federally-funded National School Lunch Program each day at their school.¹ A significant portion of these students consume up to half of their daily calories at school.² Therefore, the food served by schools has a sizable impact on student nutrition and overall childhood health.³ Improving the nutritional value of foods served in public schools in the U.S. – and especially in California – has garnered significant attention from advocates and elected leaders in recent years.⁴

A child's diet greatly impacts their health and likelihood for future disease as well as their academic achievement. Reducing students' access to sugar-sweetened beverages and low-nutrient, energy-dense foods in schools has been shown to be a successful strategy for improving children's diets.⁵ School food also has an impact on academic performance; higher quality school meals are associated with test score gains.⁶ Well-nourished school children are also better able to focus on learning, less likely to miss school, and tend to have improved classroom behavior and attentiveness.⁷

One way to serve healthier school meals is by incorporating "scratch-cooking" techniques, whereby many or most of the ingredients are prepared onsite from a raw and/or minimally processed form, into school food service programs. As a result, the foods retain high levels of beneficial nutrients, while minimizing saturated fats, added sugars, and other unhealthy additives.⁸ Because these foods are raw and/or minimally processed (and thus contain fewer preservatives), scratch-cooked meals offer significant health benefits.⁹ A recent National Institutes of Health (NIH) study found that ultra-processed foods cause people to eat too many calories and lead to weight gain, in comparison to eating minimally processed diets.¹⁰

However, the vast majority of public school kitchens across the U.S. and in California are not designed and/or equipped to scratch cook. Instead, most are set up to prepare highly processed foods or simply to heat and serve already prepared and packaged foods cooked by a third-party vendor, rather than to support scratch cooking methods. The recent decades' trends toward increased processed foods and outsourced food labor left their imprint on the physical structures of California schools; many school kitchens are very small and have insufficient infrastructure and equipment to shift away from processed or prepackaged foods. The school districts that do incorporate scratch cooking are doing so despite these structural obstacles.

Using raw and/or unprocessed food ingredients that have shorter shelf lives and fewer added preservatives requires specialized kitchen infrastructure and equipment for receiving, storing, and preparing them. A recent report on making school meals healthier in California identified kitchen facility infrastructure and equipment to be a foundational challenge; 93% of local school food authorities (SFAs, which are typically school districts¹¹) reported needing at least one piece of kitchen equipment to properly procure, store, prepare, and serve healthy food.¹² Furthermore, 70% of SFAs reported needing kitchen infrastructure upgrades (e.g., plumbing, ventilation, additional space) for at least one school in order to successfully prepare school meals.

Studies have found that kitchen upgrades can result in healthier food service, particularly those that adhere to the Healthy Eating Design Guidelines (HEDG) for school architecture.¹³ The HEDG include the recommendation to design an "open commercial kitchen to facilitate the procurement, preparation, and storage of fresh, organic, whole foods that are prepared in a manner to preserve nutritional value." Though infrastructure upgrades alone cannot ensure a district's transition to scratch cooking, sufficient space and equipment is a pre-requisite to scratch-cooked school meals. A recent study in Northern California found that improvements to cafeteria infrastructure facilitated successful implementation of scratch-cooking and reduced sodium in school meals.¹⁴ Schools having inadequate kitchen equipment hinders adoption of school interventions that address healthy eating.¹⁵ Investing in equipment to build processing capacity and scratch cooking at schools was also identified as a strategy to increase the amount of food from local farms and improve the health of students across New York state.¹⁶

California has been a leader nationally on healthy foods in schools, and in particular, advancing more 'farm fresh foods' in schools. School kitchens equipped to scratch cook are better able to integrate local foods into their menus, as they are able to process whole, raw ingredients and adapt to sudden changes in product availability as may be needed in successful partnerships with small, local farms. Strong advocacy and

a growing awareness of the importance of connecting farmers to schools for both health and economic development objectives, prompted the state's Health in All Policies (HiAP) Task Force to work with the Department of Education, Department of Food and Agriculture, and Department of Public Health to launch the Office of Farm to Fork (OFtF) within the California Department of Food and Agriculture (CDFA) in 2014. The OFtF's charge is to increase access to healthy foods for underserved communities and schools across the state. In fiscal year 2020-21, the OFtF was granted a \$10 million budget allocation to build ongoing capacity and to support an increase in local, sustainable produce in schools.¹⁷

Food service programs inside public schools are an important vehicle for advancing equity in children's access to fresh, healthy foods.¹⁸ Hispanic/Latinx and African-American students are statistically more likely than their white counterparts to live in low-income households that suffer from food insecurity and these students have high participation rates in the National School Lunch Program (NSLP).¹⁹ Changes in federal legislation on school meals through the Healthy Hunger-Free Kids Act (HHFKA) (which increased nutrition standards) have shown potential beneficial health effects for low-income children in particular.²⁰

School food programs and their kitchens have increasingly been used on the front lines of crisis response in local communities. For example, during wildfires in California in recent years, school kitchens have prepared meals for emergency first responders and for evacuated or displaced families. The same has been seen in other parts of the country during floods, hurricanes, and other natural disasters. In spring 2020, when schools across the U.S. closed their buildings amidst the COVID-19 pandemic, millions of students lost access to daily meals. Many children across the U.S., especially low-income and non-white students, experienced rapid rises in COVID-related food insecurity.²¹ The age-adjusted COVID-19 hospitalization rates among Native Americans, Latinx Americans and Black Americans are four to five times that of white Americans.²² In June 2020, nearly 14 million children lived in a household experiencing child food insecurity – this is more than two and a half times more children experiencing food insecurity than at the height of the Great Recession in 2008.²³ In response, many schools quickly pivoted to ramp up food production for families struggling through the school closures and broader economic slowdown.²⁴ Upon school closures, USDA issued a series of waivers providing school food service directors flexibility to meet the needs of their communities. Schools were authorized to provide free meals to any student or their parents at multiple locations, including food banks, community centers and libraries, thereby becoming critical community food distributors and in some cases, outpacing food banks.²⁵ Many states, including California, followed suit in supporting schools during COVID service.²⁶

The COVID-19 pandemic has starkly illuminated the long-standing health inequities in the U.S. It has also highlighted the precarity of food access, especially for disadvantaged children and families. As a result, there is a spotlight on health, including strategies that increase access to healthy food in schools.²⁷

About Our Survey

To understand the opportunities and challenges to increasing healthy school meals across California, this study investigates the scratch-cooking readiness of the state's public schools' kitchens. We conducted a web-based survey of food service directors in California public school districts. Two hundred Food Service Directors (FSDs) from California public school districts responded to our survey. In 2019, California had 944 K-12 public school districts enrolling 6,065,420 students. Our responding 200 school districts represent 21% of the state's school districts and enroll 37% of the state's public school students. No charter schools responded to our survey. We report the results unweighted; each FSD (representing one district) is counted equally, regardless of district size. Some percent totals may not add up to 100 due to rounding. Unless otherwise indicated, all school district demographic data come from California Department of Education. Locale codes come from the National Center for Education Statistics. See Appendix for survey methods and response rates.

The survey focused on learning about food service directors' perceptions of the conditions and functions of their school kitchens as well as their opinions on barriers to increasing scratch cooking in their schools. The survey focused on key aspects of food service programs in schools: funding, facilities, equipment, and labor. Overall, our findings paint a picture of the current state of scratch cooking in California schools and describe pathways to scratch-ready infrastructure.

We conducted in-depth open-ended conversations with 16 individuals nationally working in the school meal field, including state agency employees, local school district employees, healthy school food advocates, and researchers. These sources informed our survey development, analysis, and interpretation of results. Because this research took place during the COVID-19 school building closures of spring 2020, we were not able to visit any school sites nor verify responses with additional information.




Survey Findings: The state of kitchen infrastructure in California public schools

We organize the survey findings as follows. First, we report responses on the current prevalence of scratch cooking across the state. Next, we report results on existing food service configurations and kitchen types. Then, we report results on budgets for kitchen facilities, equipment, and labor costs. In each section, we quantify the results and draw on open-ended qualitative responses from FSDs.

Prevalence of Scratch Cooking




To gauge the current prevalence of scratch cooking by California school districts, we asked FSDs a series of questions about their current food service program practices and utilization of scratch cooking techniques. We define scratch cooking as: “food service in which the preparation of 75% of all meals and snacks takes place on a daily basis at or near the site of consumption with ingredients in their most basic, minimally-processed form.” In open ended responses, many food service directors noted that they used “speed scratch” techniques even though the term was not in the survey instrument itself. The term is common in the food industry field and generally refers to cooking with both fresh, raw, whole ingredients and ready-made products (which may be frozen and/or highly processed).²⁸

Based on the responses, we categorized responding districts into three categories:

-  **High levels of scratch cooking.** Based on responses, we estimate that 75% or more of the school district’s food served is scratch-cooked.
-  **Some scratch or speed scratch.** Based on responses, we estimate that that more than 10% but less than 75% of the school district’s food is scratch-cooked and/or the majority of food is prepared through speed scratch methods.
-  **Little-to-no scratch cooking.** Based on responses, we estimate that 10% or less of the school district’s food served is scratch-cooked.




Nearly one-third of all respondents report high levels of scratch cooking in their district while only 16% report that they do little-to-no scratch cooking currently, as shown in Figure 1.

Figure 1: Prevalence of Scratch Cooking Among California School Districts

	Responding School Districts	Enrollment at Responding School Districts
 High levels of scratch cooking	31% (49)	225,134
 Some scratch or speed scratch	53% (83)	802,301
 Little-to-no scratch cooking	16% (25)	234,657
Total	100% (157)	1,262,092




While scratch cooking appears to be occurring in districts across the state, rural school districts are more likely to report high levels of scratch cooking than their urban, suburban, or town peers, as shown in Figure 2. Nearly 60% (22 of 38) of rural school districts report high levels of scratch cooking. Suburban districts report the lowest prevalence of scratch cooking.

Figure 2: Prevalence of Scratch Cooking Among California School Districts by Locale Type

	Urban	Suburban	Town	Rural	Total
 High levels of scratch cooking	24% (7)	22% (11)	22% (9)	58% (22)	49
 Some scratch or speed scratch	62% (18)	55% (27)	66% (27)	29% (11)	83
 Little-to-no scratch cooking	14% (4)	22% (11)	12% (5)	13% (5)	25
	100% (29)	100% (49)	100% (41)	100% (38)	157




Wealthier districts report slightly more scratch cooking compared to lower-wealth districts. Looking at the prevalence of scratch cooking by school district student poverty levels (the percent of the student body eligible for Free and Reduced Priced Meals (FRPM)), we find that about 35% of the wealthiest districts are currently doing mostly scratch cooking, compared to 28% and 33% of middle-income and low-wealth districts, respectively. Over a third (35%) of high-wealth districts reported little-to-no scratch cooking in their kitchens, significantly more than the 18% of middle-income and 9% of low-wealth districts, as shown in Figure 3.

Figure 3: Prevalence of Scratch Cooking Among California School Districts by Family Income Levels

	Low Wealth School Districts (>66% FRPM)	Middle Income School Districts (33% - 66% FRPM)	High Wealth School Districts (<33% FRPM)	Total
 High levels of scratch cooking	33% (23)	28% (19)	35% (7)	49
 Some scratch or speed scratch	57% (41)	54% (36)	30% (6)	83
 Little-to-no scratch cooking	9% (6)	18% (12)	35% (7)	25
Total	70 (100%)	67 (100%)	20 (100%)	157

Majority non-white school districts report less scratch cooking. Forty percent of school district that are majority white enrollment report high levels of scratch cooking, compared to only 27% of majority non-white school districts, as shown in Figure 4.

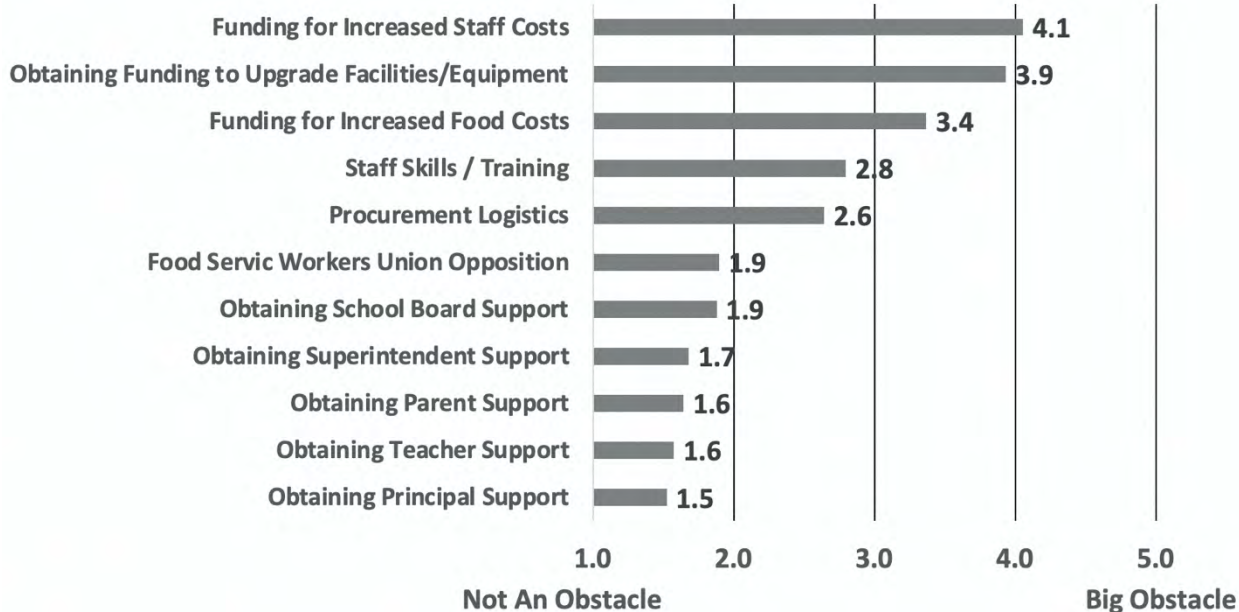
Figure 4: Prevalence of Scratch Cooking Among California School Districts by Share White and Non-White Students

	Majority White School Districts	Majority Non-White School Districts	Total
 High levels of scratch cooking	40% (21)	27% (28)	49
 Some scratch or speed scratch	42% (22)	59% (61)	83
 Little-to-no scratch cooking	19% (10)	14% (15)	25
Total	100% (53)	100% (104)	157

Our FSD respondents overwhelmingly cited funding limits for staff and facility/equipment upgrades as the biggest obstacles to expanding their ability to incorporate scratch cooking, as shown in Figure 5. Staff training and procurement logistics were also reported to be strong obstacles to scratch cooking. FSDs were asked to rate each obstacle from 1 (“Not an Obstacle”) to 5 (“Big Obstacle”).

Figure 5: Food Service Directors’ Rating of Obstacles to Incorporating Scratch Cooking

“In thinking about expanding your district’s ability to incorporate scratch cooking, how would you rate the severity of each obstacle?” (n=146)



One Food Service Director respondent who reported their district recently made the transition to scratch cooking commented,

We do scratch cooking. Initial costs are very expensive. You have more control over the quality of food (less sodium, fat, waste, etc.) so your dollar goes further. We purchase all proteins from commodities, so these ingredients are [of] less quality. The rate of reimbursement has not kept up with cost of living - cost of labor and cost of food - and in fact may decrease from year to year.

Another survey respondent stated,

Lack of budget has been our greatest challenge. The reimbursements are adequate to purchase the food, but not to cover consistently increasing staff costs.

Notably, our respondents did not consider obtaining local community and political support as strong obstacles to scratch cooking in their schools. This indicates that FSDs

perceive principals, teachers, parents, superintendents, school boards, and food service workers (FSW) and their unions to be potential allies in increasing scratch cooking in schools.

School Kitchen Infrastructure Types

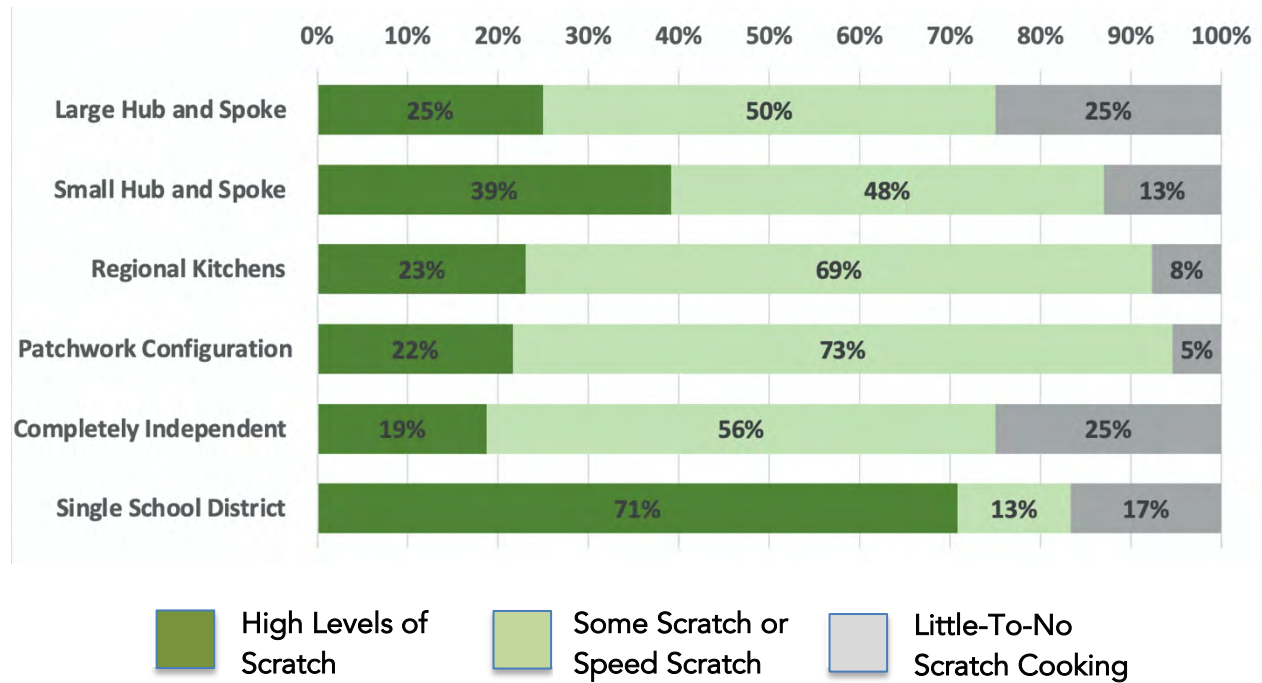
To understand how school districts in California operate and conduct their food service in relation to their physical kitchen infrastructure, we developed a typology of district-level school kitchens. The typology was derived from reviewing existing literature and obtaining advice from statewide school food practitioners. We asked FSDs a series of questions, including describing the kitchens and foodservice spaces in their school district, how food is cooked, and how food is transported between sites. Based on these responses, we categorized responding districts into 6 categories of school kitchen configurations. This typology incorporates both the district's kitchen facility infrastructure and its districtwide method of distributing food to and between schools. The categories range from highly centralized configurations (large or small hub and spoke models) to more diffuse operations that include completely independent kitchens doing all food preparation at their site. Figure 6 shows the kitchen typology and the distribution of kitchen types across our responding school districts.

Figure 6: Distribution of School Kitchen Types Among California School Districts

Food Service and Kitchen Infrastructure Type	Responding School Districts
<p>Large Hub and Spoke One central kitchen (often with a warehouse) serves all other school sites (15 or more sites).</p>	8%
<p>Small Hub and Spoke One central kitchen (sometimes with a warehouse) serves all other school sites (1-14 sites).</p>	15%
<p>Regional Kitchens A few cooking kitchens serve a few other kitchens. (Rather than one single central kitchen, a more diffuse but still highly interconnected configuration).</p>	8%
<p>Patchwork Configuration One or a few kitchens may serve a few other sites, while some sites are independent. (A highly diffuse configuration, some loose interconnection).</p>	24%
<p>Completely Independent Every kitchen in the district fends for itself and does not receive partially or fully cooked food from another site (though deliveries may be centralized).</p>	31%
<p>Single School District A district with only one school.</p>	15%
Total Percent	100%
Total	157

Next, we look at prevalence of scratch cooking across the school kitchen typology. As shown in Figure 7, scratch cooking occurs in all kitchen types. Small, single school districts are by far the most likely to serve mostly scratch-cooked food, with 71% of responding single-school districts reporting mostly scratch cooking. Highly centralized large school districts operating with a central kitchen and districts where each school’s kitchen operates independently are the most likely to serve no scratch-cooked food. Nearly all school districts (95%) with a patchwork configuration have at least some scratch cooking, more than any other kitchen-type category.

Figure 7: Distribution of District Kitchen Configurations by Prevalence of Scratch Cooking

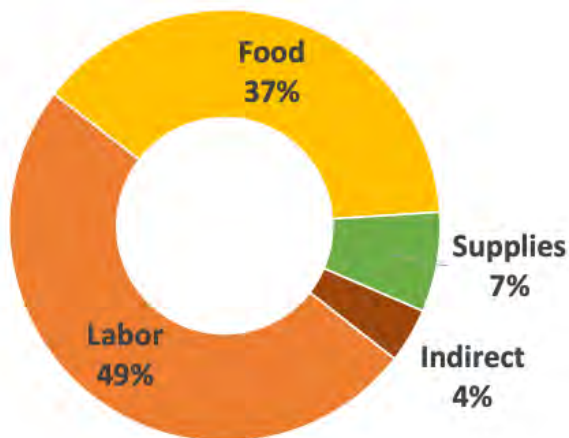


School Kitchen Budgets

Next we turn to the findings on school district budgets and expenses. In particular, our questions focused on sources of funding and expenditure categories related to kitchen facilities, kitchen equipment, procurement, and food service workers (labor). What we find is that understanding school district scratch cooking capability requires looking both at food service operational budgets as well as additional, external funds that are often used for kitchen facilities and equipment expenditures.

California school districts report their food and nutrition budgets in four main categories as required by the State of California under the Standardized Account Code Structure (SACS): Food (SACS code 4710), Labor (SACS codes 2208, 2209, and 2213), Supplies (SACS code 4790), and Indirect (SACS codes 7210-7350). FSD respondents report labor and food as overwhelmingly the main expense categories, as shown in Figure 8

Figure 8: School District Food Service Budgets by Category (N=92)



Kitchen Facilities and Equipment. Both kitchen facilities themselves and the equipment they contain are important to enabling or expanding scratch cooking in schools. As one survey respondent noted,

Focusing on the infrastructure of school meals and funding rather than just equipment needs is necessary to make school food service scratch made.

We asked FSD respondents a series of questions about budgets for kitchens and equipment.

FSDs report a number of funding sources for school kitchen facilities and equipment. Local funding sources (local school bonds and district operating budgets) are used for the vast majority of school kitchen infrastructure and equipment improvement costs, as shown in Figure 9. One FSD respondent pointed to the limits and downsides of relying so heavily on local funds, raising the possibility for federal and state funding to play a larger role in school nutrition. This FSD also highlighted the difficulties of funding school food through reimbursements, which may come too little, too late:

Locally, districts are taking on the costs independently; taking resources from the classroom to fund scratch made-meals, fresh produce options, and more. Greater advocacy for fresh-made meals need to be [directed] at the federal and state level for adequate funding first, not the other way around.

Figure 9 also shows where funds from various sources are directed in kitchen infrastructural improvements. The top expenses were kitchen renovation, internet connectivity, electrical upgrades and plumbing upgrades.

Figure 9: Funding Sources for Kitchen Facility Upgrades

"Which of the following funding sources are you currently utilizing for kitchen facility modernization and/or upgrades (not equipment)?" (Note: Numbers indicate count of responding districts using indicated funds for indicated expense.) (N=104)

	Plumbing Upgrades	Electrical Upgrades	Gas Upgrades	Internet Connectivity	Kitchen Renovation	Building a new kitchen where there wasn't one	Other
Local School Bond Funds	19	19	15	15	30	7	4
District Operating Budget	21	22	18	28	13	1	3
State School Bond Funds	9	8	7	6	12	3	4
Individual or Foundation Philanthropy	4	5	3	2	5	0	5
Corporate Philanthropy	2	3	1	0	1	0	2
School Discretionary Funds	1	1	1	0	3	0	1
Soda Tax Revenues	1	1	1	0	1	0	2
PTA Funds	0	0	0	0	0	0	2
TOTAL	57	59	46	51	65	11	23

Next, we look at kitchen facility funding sources used by districts with different reported rates of scratch cooking. Schools that mostly or partially scratch cook utilize a wider array of funding sources for kitchen infrastructure improvements than districts with little or no scratch cooking, as shown in Figure 10. Schools that do little-to-no scratch cooking rely mostly on local school bond funds, followed by the district operating budget and state school bond funds. Conversely, schools with at least some scratch cooking reported drawing additionally on philanthropy and foundation funds, soda tax revenues, PTA funds, and school discretionary funds.

Figure 10: Funding Sources for Kitchen Facility Upgrades by Scratch Cooking Prevalence

"Which of the following funding sources are you currently utilizing for kitchen facility modernization and/or upgrades (not equipment)?"

	High levels of scratch cooking	Some scratch or speed scratch	Little-to-no scratch cooking
Local School Bonds	37%	32%	60%
District Operating Budget	29%	32%	30%
State School Bond Funds	16%	15%	10%
Individual or Foundation Philanthropy	5%	12%	0%
School Discretionary Funds	3%	4%	0%
Corporate Philanthropy	5%	2%	0%
Soda Tax Revenues	3%	2%	0%
PTA Funds	3%	1%	0%
Total Percent	100%	100%	100%
Total (N=130)	38	82	10

When asked about funding sources for kitchen equipment, survey respondents once again report that local funding, especially from the district operating budget, is the primary source, as shown in Figure 11. Federal funding through USDA equipment grants are also a common funding source, according to our respondents.

Figure 11 also shows how FSDs report using funding for kitchen equipment. The top expenses were point of sale (POS)/cashier station upgrades, refrigerators/freezers, and warming or rethermalization cabinets.




Figure 11: Funding Sources for Kitchen Equipment Upgrades

"Which of the following funding sources are you utilizing to source new kitchen equipment in this current (2019-2020) school year?" (Note: Numbers indicate count of responding districts using indicated funds for indicated expense.) (N=111)

	Refrigeration / Freezers	Ovens	Stoves	Warming or Retherm Cabinets	Milk Cooler	Salad Bars	Point of Sale / Cashier Stations	Other
District Operating Budget	20	16	9	17	15	11	21	6
USDA Equipment Grants	17	13	6	13	11	6	6	5
Local School Bond Funds	11	9	10	7	6	6	3	3
CDE Breakfast, Summer Start-Up Grants	5	3	2	7	7	2	4	3
State School Bond Funds	3	3	3	3	2	2	3	2
Share our Strength Grants	2	2	0	2	4	0	1	3
School Discretionary Funds	3	1	1	3	1	2	2	1
Soda Tax Revenues	1	1	1	1	1	1	1	2
Individual or Foundation Philanthropy	0	0	0	0	0	4	0	2
Corporate Philanthropy	0	0	0	0	0	0	0	1
PTA Funds	0	0	0	0	0	0	0	1
TOTAL	0	0	0	0	0	4	0	4

Next, we look at kitchen equipment funding sources used by districts with different reported rates of scratch cooking. Similar to the finding on funding sources for kitchen facility upgrades, schools that mostly or partially scratch cook utilize a wider array of funding sources for kitchen equipment compared to districts with little or no scratch cooking, as shown in Figure 12. Schools that do little-to-no scratch cooking rely heavily on USDA equipment grants. Conversely, schools with at least some scratch cooking reported drawing additionally on philanthropy and foundation funds, soda tax revenues, PTA funds, and school discretionary funds.

Figure 12: Funding Sources for Kitchen Equipment Upgrades by Scratch Cooking Prevalence Classification

	 High levels of scratch cooking	 Some scratch or speed scratch	 Little-to-no scratch cooking
District Operating Budget	29%	35%	22%
USDA Equipment Grants	17%	23%	33%
Local School Bond Funds	17%	12%	11%
CDE Breakfast, Summer Start-Up Grants	13%	8%	11%
State School Bond Funds	8%	3%	11%
School Discretionary Funds	8%	4%	0%
Share our Strength Grants	4%	6%	11%
Individual or Foundation Philanthropy	4%	5%	0%
Soda Tax Revenues	0%	3%	0%
PTA Funds	0%	1%	0%
Corporate Philanthropy	0%	1%	0%
Total Percent Total (N=111)	100% 24	100% 78	100% 9

Food Service Labor. As shown above in Figure 8, labor costs are a significant share (49%) of school district food service budgets. One survey respondent stated that for their district, “Labor hours are the biggest obstacle” to scratch cooking. Districts employ an array of full-time (40+ hours/week), half-time (20-40 hours/week), and/or

part-time (fewer than 20 hours/week) employees to order food, prepare food, serve food, and clean kitchens and eating areas. Some of these employees work in centralized district offices, while others work at individual school sites. As shown in Figure 13, we find that:

- The overwhelming majority of food service workers at school sites are half-time or part-time employees.
- On average, there is one full-time school site food service employee for every 676 students and one full-time centralized office food service employee for every 1,129 students.
- On average, there is one half-time school site food service employee for every 337 students and one half-time centralized office food service employee for every 1,067 students.
- On average, there is one part-time school site food service employee for every 509 students and one part-time centralized office food service employee for every 594 students.

Figure 13: Number of Food Service Employees by Type and Location

How many Full-time employees, Half-time employees, and Part-time employees work in nutrition / food services in your district? (1) School or site, (2) Centralized office?"

	Average Number of Food Service Employees		Average Student to Food Service Employee Ratio	
	At School Site	At Centralized Office	At School Site	At Centralized Office
Full-Time	11	4.2	676:1	1,129:1
Half-Time	327	1.0	337:1	1,067:1
Part-Time	340	0.6	509:1	594:1

To compare relative employment across districts' varying degrees of scratch cooking, we examined the numbers of students per employee, considering first employees working on-site at schools (Figure 14a) and then employees working at centralized offices, often in administrative positions (Figure 14b).

Within these figures, the number of students per employee indicate relative employment levels: lower numbers (of students per employee) represents more employees. These findings suggest that districts with higher levels of scratch cooking employ more workers. Furthermore, 64% of employees in districts with high levels of scratch cooking are full-time workers, compared to 47% in districts with some scratch cooking and 36% in districts with little-to-no scratch cooking.

Figure 14a: Number of Food Service Employees at School Sites by Scratch Cooking Prevalence

Average Student to Food Service Employee Ratio at School Site







	 High levels of scratch cooking	 Some scratch or speed scratch	 Little-to-no scratch cooking	All Districts
Full-Time	641:1	917:1	1,107:1	676:1
Half-Time	304:1	407:1	746:1	337:1
Part-Time	473:1	591:1	1,157:1	509:1

Figure 14b: Number of Food Service Employees at Centralized Office by Scratch Cooking Prevalence

Average Student to Food Service Employee Ratio at Centralized Office

	 High levels of scratch cooking	 Some scratch or speed scratch	 Little-to-no scratch cooking	All Districts
Full-Time	919:1	1,624:1	1,843:1	1,129:1
Half-Time	513:1	2,256:1	43:1	1,067:1
Part-Time	557:1	999:1	318:1	594:1

Comparing Funding Sources, Expenses, and Scratch Cooking Practices

Next, we look at the relationship between funding sources, expenses, and scratch cooking practices.

We find that districts that do more scratch cooking have slightly higher labor costs as a share of their food service budget than districts that do less scratch cooking, as shown in Figure 15. Increased labor costs associated with increased scratch cooking was a common concern among survey respondents. As one respondent commented,

We don't have the labor; with every year, the labor costs go up, and the reimbursement barely moving, we just cannot afford the labor that it takes to prepare meals. I can have a beautiful kitchen and baking [sic], but if I can't afford for someone to make meals, it doesn't matter if I have an oven or not.

However, food costs as a share of food service budget are slightly less in districts that do more scratch cooking. This is likely because raw ingredients are less expensive than processed ingredients or fully prepared meals, which have vendors' labor costs baked in. In fact, combined labor and food costs comprise very similar percentages of total food service budgets regardless of scratch cooking prevalence: labor and food costs combined percent of the total food service budget amounts to 87% in districts with high levels of scratch cooking, 85% in districts with some scratch or speed scratch, and 87% in districts with little-to-no scratch cooking. Supplies and indirect costs in responding districts appear to be similar across districts.

Figure 15: School District Food Service Budgets by Category and Scratch cooking Prevalence

What percent of your entire annual districtwide food and nutrition budget falls into each category: (1)Food (4710), (2)Labor (2208, 2209, and 2213), (3)Supplies (4790), (4)Indirect (7210-7350)? (N=92)

	High levels of scratch cooking	Some scratch or speed scratch	Little-to-no scratch cooking	All Districts
Labor	51%	48%	47%	49%
Food	36%	37%	40%	37%
Supplies	8%	8%	5%	7%
Indirect	4%	4%	4%	4%

Looking at food service program budget categories by relative wealth in Figure 16, poorer districts' foodservice budgets allocate more resources to food, whereas high-wealth districts spend more on labor. This outlay correlates with Figure 3's depiction of higher scratch cooking prevalence in higher-wealth districts.

Figure 16: School District Food Service Budgets by Category and Family Income

What percent of your entire annual districtwide food and nutrition budget fall into each category: (1)Food (4710), (2)Labor (2208, 2209, and 2213), (3)Supplies (4790), (4)Indirect (7210-7350)? (N=92)

	Low Wealth School Districts (>66% FRPM)	Middle Income School Districts (33% - 66% FRPM)	High Wealth School Districts (<33% FRPM)
Labor	44%	51%	56%
Food	39%	37%	35%
Supplies	7%	8%	7%
Indirect	5%	3%	4%
Total	39	41	10

Looking at food service program funding sources by scratch cooking prevalence, districts with higher levels of scratch cooking source a greater percent of their budget from their school's general fund than districts with some or little-to-no scratch cooking.

Figure 17: School District Food Service Budgets by Category and Scratch Cooking Prevalence

What percent of your budget is funded by the following sources: (1) Federal, (2) State, (3) Local (including catering, student and adult payment, a la carte), (4) Schools' General Funds, (5) Other? (N=86)

	High levels of scratch cooking	Some scratch or speed scratch	Little-to-no scratch cooking	All Districts
Federal	63%	72%	59%	68%
State	8%	13%	10%	11%
Local	17%	8%	23%	13%
General Fund	9%	5%	3%	6%
Other	1%	3%	2%	2%
Total	20	52	13	86

Across all districts, federal funding provides the bulk of foodservice funding (averaging 68%). Districts enrolling more low-income students (over 66% FRPM) rely to an even greater extent on this federal support for their foodservice budget: 77%. Wealthier districts' foodservice budgets receive far more local support, with four times the share of the budget coming from local sources, and twice the support from district general funds compared to poorer districts.

Figure 18: School District Food Service Budgets by Family Income

	Districts with FRPM >66%	Districts 33% and 66% FRPM	Districts with FRPM <33%	All Districts
Federal	77%	66%	38%	68%
State	12%	13%	4%	11%
Local	5%	12%	46%	13%
General Fund	4%	8%	6%	6%
Other	1%	1%	8%	2%
Total	41	35	10	86

Discussion and Policy Implications

Our survey findings provide a new and detailed look at food service setup and kitchen infrastructure in public school districts across California. The findings reveal encouraging trends for healthy eating among California's 6 million public school students. But they also identify challenges to expanding scratch cooking across districts. The findings also suggest inequities exist in access to scratch-cooked food in schools – we found that wealthier and majority white districts report more scratch cooking compared to lower-wealth and majority non-white districts, respectively.

Our findings reveal that scratch cooking is possible, and is indeed already taking place, in schools across California and in schools of every demographic and kitchen configuration:

- Urban, suburban, town, and rural school districts
- Large, medium, and small school districts
- School districts serving high-, middle-, and low-wealth communities
- Majority white and majority non-white school districts
- Districts with a wide variety of kitchen and food service configurations (from small independent sites to hub and spoke and regional kitchens to highly centralized district operations)

Overall, we found that nearly one-third (31%) of California school districts report high levels of scratch-cooked food service. While these results are promising from the perspective of healthy scratch cooking, it is likely these findings overstate scratch cooking practices across the state. There are two reasons for this. First, the survey was promoted to FSDs as a study of scratch cooking. Thus, it is possible that FSDs already interested in or engaged in scratch cooking were more likely to respond than those not interested in the topic. Second, respondents are self-reporting their own perception about their district's scratch cooking. Scratch cooking advocates who work with school districts with whom we spoke frequently noted that they observe FSDs claiming to do scratch cooking but who actually do, in their observation, speed scratch cooking. These terms do not have universal definitions, which muddles the distinction in self-reporting studies like ours. Scratch cooking is loosely defined and somewhat open to interpretation of exactly what is and what is not scratch cooking. Further supporting this notion, we found that the open-ended responses from FSDs reveal much nuance in actual practice. In short, there is no shared understanding among practitioners about precisely what scratch cooking is. Thus, the field should aim to improve the definitions of these terms and researchers should both use more specific descriptions and include

field observation in their studies. Observations could verify food service techniques, labor configurations, menu planning and ingredients used (including procurement strategies) to establish a more precise understanding of practice.

Though scratch cooking is taking place in all sorts of districts, some district demographic characteristics are more associated with scratch cooking than others, according to our survey results. Rural districts are leaders in scratch cooking. Although most rural districts are small and located far from the larger food distribution centers, many are finding ways to prepare and serve scratch-cooked food to their students. Wealthier districts also scratch cook more than poorer districts, and majority white districts scratch cook more than majority non-white districts.

While our findings show that districts with a variety of school kitchen and food service program configurations can and are serving scratch-cooked food already, it is clear that in many school districts, scratch-cooking is occurring against the odds and in spite of funding and facility/equipment challenges. As one survey respondent noted, nutrition services teams are often forced to work in facilities poorly equipped and outfitted for scratch cooking – but many find a way to make scratch cooking happen despite these difficulties:

What the boom of food trucks and pop up kitchens have proven in the last decade is that skill sets, innovative spirit, and good culture can provide good scratch cooked food in the most unlikely kitchen situations.

In open ended responses, respondents frequently pointed to the need for more space to incorporate scratch cooking techniques. As one respondent noted, “Space is our major problem.” One stated, “I would like to... have the space to actually do more scratch cooking on site.” Another wrote, “We have updated much of our equipment, what needs to be updated is the facility itself. We desperately need more space.”

Infrastructural and equipment updates are critical in supporting FSDs in their scratch cooking efforts, and should be of primary concern to scratch cooking advocates. [See our calculation of estimated statewide costs in the next section.]

Next, we turn to a brief discussion of the specific issues of budget and funding, kitchen types, and labor.

Budget and Funding

Clearly, funding is necessary to upgrade kitchen facility infrastructure and build workforce skill sets. Funding is the biggest obstacle to scratch cooking according to our survey respondents. As one food service director responded, “Major funding is needed to make this wonderful thought a reality.” When asked to rank the obstacles they would encounter in incorporating scratch cooking to their districts’ food service, our respondents chose funding as the top three obstacles: 1) funding for increased labor costs, 2) funding for kitchen upgrades and equipment, and 3) funding for increased food costs. As another respondent noted, “The mindset is that there is no money, so we cannot change anything.”

Notably, although our respondents reported concerns that food costs would increase with more scratch cooking, our survey findings suggest this may not always be the case. Districts that reported higher levels of scratch cooking reported food costs comprising on average a *lower* percentage of their total nutrition services budgets. This finding is consistent with other studies.²⁹ This finding could unveil a key precondition for advocates seeking to increase local and organic food in schools, because food dollars may go further using scratch cooking techniques.

Proponents of increasing scratch cooking in schools (and thus, healthier in-school food options) should prioritize securing financial support for that transition. A 2013 study of California found a need for more than \$100,000 in kitchen equipment per school and that only 25% of local school food authorities (SFAs) have a kitchen equipment replacement and upgrade plan for their schools.³⁰

Our findings show that kitchen infrastructure improvements in California are overwhelmingly funded from local sources. Local school bond funds and district operating budgets (including cafeteria funds) are the most common funding sources for school kitchen infrastructure improvements, according to our survey results. This finding raises equity concerns – wealthier communities are significantly advantaged in raising dollars for school expenditures, including to make kitchen infrastructure improvements. This fact has already been clearly demonstrated on the topic of school facility funding in general in California.³¹

How is school food funded in California?

Meals served to students in California public schools are funded by a variety of local, state, and federal sources. Local school districts operate food service programs and submit meal counts to the federal and state government for reimbursement. Meals that meet specific nutritional standards are reimbursed at varying rates depending on the family income of students.

Federal funding plays a significant role through United States Department of Agriculture (USDA), which administers the National School Lunch Program (NSLP) and the School Breakfast Program (SBP).¹ School districts may also seek reimbursement for serving snack and supper, and for serving meals over the summer from various federal programs. School districts also receive additional federal support in kind in the form of commodity foods, which are purchased by the federal government and made available to qualifying schools. States and school districts can purchase fruits and vegetables through the Department of Defense (DoD) Fresh Fruit and Vegetable Program.² Farm to School grant programs are also offered by the USDA and in many states, to support planning, developing and implementing farm to school programs. Federal reimbursement rates for each federal program are adjusted annually.³

In California, the federal school meal programs are mostly administered through the California Department of Education's (CDE) Nutrition Services Division (NSD). The NSD runs the state's School Nutrition Program (SNP)⁴ State reimbursement rates are adjusted annually.⁵

School meal programs are also funded in part by student purchases (the student's payment for either full-price or reduced-price lunches) and a la carte sales (snacks and sides, which do not nutritionally qualify for reimbursement). Some school districts allocate money from their general fund, but meal programs are typically expected to be self-funded.

There have been federal grant programs to assist school districts with the cost of kitchen equipment needed to prepare healthier meals. Most notably, these have been NSLP's Equipment Assistance Grants, which aid school districts in purchasing equipment to serve healthier meals that meet the updated meal requirements. State agencies must award these grants via a competitive grant process.⁶ The American Recovery and Reinvestment Act of 2009 also allocated \$12.8 million for the purchase, renovation, and replacement of food service equipment in California schools.⁷

¹ Bhatia, R., P. Jones, and Z. Reicker. 2011. Competitive foods, discrimination, and participation in the national school lunch program. *American Journal of Public Health* 101(8): 1380-1386. doi:10.2105/AJPH.2011.300134

² USDA, Food and Nutrition Service. 2016. USDA Foods in the National School Lunch Program. https://government.report/Resources/Whitepapers/50fe5f56-3535-4ec1-ad2b-c1898ba77837_NSLP-White-Paper1.pdf

³ In 2020-21, the NSLP reimbursed school districts at least 33 cents for a full-price meal, \$3.11 for a reduced-price meal, and \$3.51 for a free meal. <https://www.fns.usda.gov/cn/rates-reimbursement>

⁴ <https://www.cde.ca.gov/ls/nu/sn/>

⁵ <https://www.cde.ca.gov/ls/nu/rs/rates2021.asp>

⁶ <https://www.fns.usda.gov/nslp-equipment-assistance-grants>

⁷ Gaddis, J. E. 2019. *The Labor of Lunch: Why we need real food and real jobs in American public schools*. Berkeley: University of California Press.

As further evidence of inequity in California school food, we found that districts serving lower-wealth students rely more on federal funding, including NSLP reimbursements, for their food service programs. These districts receive far less local financial support than wealthier districts. The result is that poorer districts are at a disadvantage in efforts to upgrade kitchens for scratch-cooking capability or other functionalities. What this suggests is that lower-wealth students will be less likely to have healthier, scratch-cooked food options at their schools compared to wealthier students. When local wealth determines the budget available to FSDs to feed students, an equity gap will persist in school food.

This disparity reinforces educational disadvantages already borne by those students, since food-insecure children are also the most reliant on school meals. It also means that investing in scratch cooking capabilities in disadvantaged communities could be viewed as a critical underlying condition to solve for some of the educational equity gaps faced by our most vulnerable children.

Our research also demonstrates the low level of corporate funding and private philanthropy in funding school infrastructure and equipment. Given our findings, capital investments in school kitchen infrastructure and equipment could be viewed as a direct pathway for private philanthropists, community foundations and businesses seeking to improve equitable access to healthy food, reduce health and education disparities in children, and increase jobs in local communities. These investments can also serve to build community resilience in the face of future disasters based on experiences of schools that were able to pivot quickly during COVID-19.

Kitchen Types

Scratch cooking occurs in all kitchen types, but small, single school districts are the most likely to serve mostly scratch-cooked food. Districts with “patchwork” kitchen facility configurations are the most likely to serve some scratch-cooked food in California. Nearly all school districts (95%) with a patchwork kitchen configuration have at least some scratch cooking, more than any other kitchen-type category. Districts with “regional kitchen” models are close behind (92%). Highly centralized large school districts operating with a central kitchen and districts where each school’s kitchen operates independently are the most likely to serve little-to-no scratch-cooked food.

A few factors might explain these findings. First, patchwork configurations are likely a result or cause (or both) of a district having multiple foodservice strategies (i.e., scratch cooking in some schools and third party vendor contracts in others). Some of our interviewees labeled this configuration an ‘inefficient’ model because there is no single

way of getting students fed in that district. Our finding suggests that when there are multiple foodservice strategies at work (i.e., a “patchwork”), there is a *higher* likelihood that at least one of them will be scratch cooking. Second, districts that are working to transition to (or away from) scratch cooking may be doing so in a piecemeal fashion across their district, which would result in a patchwork district classification.

Respondents with “completely independent” kitchens report the lowest (19%) prevalence of scratch cooking. This runs counter to the assumption that each site operating completely independently would enable more, not less, experimentation (e.g., scratch cooking) at the site level. For example, an FSD so inclined could start pilot transition projects in one or more of the on-site kitchens. To better understand why completely independent kitchens seem to do less scratch cooking, we need to understand the kitchen facility and equipment situations in these districts. For example, do they have the facilities/equipment to scratch cook, but lack the labor to do so? Future research should include site visits to answer this question.

Overall, future research needs to better understand the nuances occurring from district to district and the relationship between kitchen types, equipment available, and scratch cooking prevalence. For example, centralized kitchens tend to operate as distribution hubs for food receiving, pre-portioning, and packaging foods for the other schools in the district. Additional research should look at how central kitchens are used whether they are doing pre-plated/pre-portioned meals or sending food out in bulk for onsite finishing and cafeteria style service. Others have found that centralized kitchens have been critiqued for perpetuating ‘airline-style’ food production.³²

In addition to further developing typologies, future studies should also consider how various scratch cooking models impact participation rates, consumption, and student perception of the food. For example, a 2018 study found that even where schools employed scratch cooking in a central kitchen, if school sites were ill-equipped to offer some onsite food preparation and food arrived from the central kitchen pre-packaged, this contributed to negative perceptions of the food by students, reducing participation and consumption of the food by students and thereby negating some benefits of scratch cooking.³³ Stories of successful scratch cooking kitchen configurations and service strategies, with sample prototypes would be a useful addition to the field.

Finally, given that the need for more physical space was the most frequent challenge cited in open-ended questions about obstacles to scratch cooking, further studies could explore and highlight regional scratch cooking initiatives and spatial redesign

possibilities. Future investigations should also seek to uncover existing equipped kitchen facilities that may have unused capacity, creative new partnerships, and other community-based solutions in instances where physical space is a limiting factor. (Several innovative regional food systems initiatives already underway are highlighted in the Recommendations section.) New school construction should prioritize dedicated equipped kitchen space during early planning stages.

Labor

Just as school kitchens need to have the equipment to do scratch cooking, they also need skilled workers who can scratch cook. FSDs rated Funding for Increased Staff Costs as the most significant obstacle to scratch cooking. Adequate infrastructure and labor are both necessary to start or expand scratch cooking.

Our findings suggest that labor costs go up (although not very much as a percentage of overall budgets when districts do higher levels of scratch cooking. Thus, it is not surprising that Food Service Directors perceive labor as the top barrier to scratch cooking expansion. Food Service Directors and experts in the field shared their concerns about increasingly tight food service budgets reliant on low reimbursement rates that do not reflect real world cost increases. These findings suggest that statewide investment in foodservice labor (skills development and enticing workers to the field) would potentially relieve a bottleneck for many districts wishing to incorporate scratch cooking. Perhaps a cost-effective statewide strategy would be to provide additional funding for skilled labor first in districts that already have scratch cooking kitchen facility infrastructure.

Proponents of scratch cooking often claim that more full-time (and therefore “better”) jobs are possible in a scratch cooking model. Our findings support this claim. Of issue here, of course, is whether or not districts can afford more of these positions. While the relative increase in labor costs as a share of department budgets in districts that do high levels of scratch cooking is small (3-4%; Figure 15), unlocking ongoing dollars needed for recruiting, training and sustaining skilled public food service labor to enable scratch cooking in schools across the state may require a shift in thinking about the potential for school food to solve a number of competing crises that our state is currently grappling with. For example, viewing food service labor as an accessible “good food job,” and thus as an equity and economic development strategy, which *also* supports student health, and begins to address stark health disparities revealed during COVID-19, can help build a case for public support for more full time jobs in school food service, as well as for partnerships with culinary schools and community colleges to create a pathway into this vocation. This type of narrative shift paired with

calls for urgently meeting the moment to transform our food system in the US, could help move the needle.³⁴

As Bertrand Weber, a food service director in Minneapolis and scratch cooking leader shared with us, “This transition [to scratch cooking] has increased the labor pool immensely - meaning more jobs in the community. And the level of job satisfaction has gone way up.”

Beyond the need to fund more food service jobs, FSDs rated staff skills and training as the fourth biggest obstacle to expanding scratch cooking. Comments about staff issues in the open-ended responses suggest this is a formidable challenge. Even with the right equipment, a skilled staff is necessary to effectively scratch cook. Raising staff awareness, changing staff routines, generating staff motivation to do more scratch cooking, and perhaps do it for additional schools in the district, as well as paying for professional development and skill building can be a major challenge. Thus, transitioning to, for example, a more “centralized” kitchen or production kitchens that provide scratch-cooked food for other schools that may be equipped with “finishing kitchens,” may be difficult to implement. As studies have found, doing so takes a lot of coordination and communication with the food service team, often some reorganization of staff roles, additional staff training/hiring, as well as some staff moving to other schools and/or adjusting schedules to implement.³⁵ As one respondent described,

In our experience, FSD can be excited to make changes and will work through some of the logistics and cost barriers only to find out that they didn't build buy-in and ownership among their team – many of whom have gotten used to 'way things are'. This leads to inefficiencies and wasted costs as staff are not invested in to ensure they have the skills they need to safely, efficiently, and effectively handle scratch-made meals.

Additional research is needed to better understand the labor pool in school district food service, as well as pathways for culinary training and ongoing professional skills development. A better understanding of how scratch cooking might impact labor costs in districts of different types and sizes. Building on Gaddis's study of school lunch labor, more research is also needed on the job quality of food service employee positions in districts that do high and low levels of scratch cooking.³⁶ Does varying prevalence of scratch cooking result in different mixes of full- and part-time employees or different rates of employee turnover?

Relatedly, how many districts contract out their food service to food service management companies? For those that do, what are their scratch cooking rates? Similarly, what is the relationship between scratch cooking and whether or not food

service employees are unionized? Overall, we need a better understanding of the relationship scratch cooking prevalence has to food service contracts and unionization. We also need to understand the current capacity and needs related to cultivating school food service as a desirable vocation, to ensure an accessible and sustainable qualified labor pool.

Finally, to better understand the value of investing in skilled school food service labor in a larger context, researchers could build upon findings in New York City for example, where researchers found that cooks in public-sector food service settings play a key role in addressing food security through menu adaptations, and engagement with clients, leading to maximize the likelihood of consumption and enjoyment of food.³⁷ Given the likely need to identify new funding streams to expand and sustain scratch cooking in public schools, investigating how public investments in skilled labor impacts food security, school meal participation rates, and other social and educational goals such as increasing cultural competencies and sense of belonging in schools, as well as school climate and culture, could add to the understanding of potential measurable impacts from those investments.

Recommendations

At first, I asked the school board to do a feasibility study to transition away from pre-packaged toward fresh, scratch-cooked food. But as I learned more, I realized a feasibility study wasn't what we needed. It was time to act.

- Bertrand Weber, FSD, Minneapolis Public Schools

Expanding scratch cooking in California's public schools will support schools' efforts to serve healthy meals, source ingredients from local farms, and create good jobs in their communities. The findings from our survey make it clear that kitchen facility infrastructure, equipment, and skilled labor are necessary components of expanding scratch-cooked school meals. Improving the nutritional value of school meals can be a strategy to improve childhood health and to promote health equity. In the current COVID-19 era and its economic downturn, investing in school kitchens can also be part of economic recovery strategies. As we emerge from the pandemic, interest will grow in revitalizing and building local infrastructure that provides jobs (such as in construction or in operation). Often, communities with the highest nutritional improvement needs are also the ones needing more good paying jobs.³⁸ Thus, upgrading school kitchen capabilities can be a tangible strategy that promotes economic recovery *and* health.

In times of emergency when schools can no longer operate, low-income children throughout the country face grave threats to their food security. As localities across the country increasingly engage in resilience planning and emergency response planning efforts, schools, and school food infrastructure in particular, are well-situated to operate as community assets that are capable of localized resource delivery in times of emergency.

Yet, even prior to the pandemic, most school district budgets were stretched brutally thin. Public school budgets in California are in even greater dire straits given state budget deficits as a result of the pandemic. It is improbable under these circumstances to expect larger carve-outs of local district budgets to improve school kitchen facilities or equipment, increase skilled labor, and expand scratch-cooked meal service. Therefore, identifying new funding seems necessary.

Based on the findings from our study we lay out the following framework of recommendations to increase scratch cooking and healthier food options in California public schools. California's Office of Farm to Fork (OFtF) could potentially be a "hub" to help lead and coordinate this work.

Recommendation #1: Invest to catalyze change.

Our findings show clearly that funding gaps are the primary barrier to making public schools in California scratch cooking capable. To catalyze action, the state should strategically invest in building scratch cooking capability across the state, prioritizing areas where key funding barriers exist: infrastructure, equipment, and skilled labor.

Though some funding for these infrastructural updates have typically come from local and state funds (especially bonds), the state should also look to leverage private sector funding sources, including private philanthropists, foundations, and businesses. Private philanthropy may be especially targeted towards up front capital investment costs, whereas longer term labor and ongoing equipment costs will require dedicated policy interventions.

To bolster the investment in infrastructural updates and to ensure scratch cooking transitions are sustainable, funding must also be secured for proper equipment, labor, and technical assistance.

In some cases, equipment upgrades may be enough to prepare a district to scratch cook, for instance in districts where adequate kitchens already exist but are inhibited by outdated or unfunctional equipment. Increased equipment grants, from federal or state

bodies, are the most likely sources of this funding, including, for instance, the California Fresh School Meals Grant Program.³⁹

As our survey respondents made clear, labor costs are perceived to be a significant barrier to scratch cooking. Providing funding for additional labor in districts that already have kitchens and equipment to scratch cook would be a quick starting point for expanding scratch cooking. Furthermore, any plans to upgrade infrastructure or equipment to scratch-cooking capability must include sustainable financial provisions for labor costs.

To address the gap in skilled workers and accelerate a pipeline of trained school food service workers, state investments could include incentives for state colleges and universities to incorporate school nutrition and culinary offerings in their curriculum.

Given that scratch cooking provides processing capacity that can increase the amount of food purchased from local farms, the state and local farm to school advocates should also look towards harnessing potentially underutilized federal programs towards school kitchen infrastructure, such as USDA's Office of Rural Development and USDA's Office of Urban Agriculture and Innovative Production. The state might also consider how school kitchen infrastructure loans could be prioritized within the California Infrastructure & Economic Development Bank.

Our findings point to the need for knowledge sharing and training to expand and operationalize scratch cooking programs. The state should develop training and technical assistance (TA) offerings for food service directors and their staffs. TA can help schools understand their gaps and needs, and where facilities, equipment, and/or labor are inadequate. TA can assist districts in identifying interim or small steps that can be taken to increase scratch cooking capacity, as well as applicable local, regional, state and federal grants. TA could also include kitchen design and architectural support. Our findings indicate that TA is especially critical in lower-wealth districts which have fewer sources of funding or other support. County Offices of Education could collaborate with the state as schools embark on their journeys, serving as hubs for regional working groups; for example, offering a dedicated space to highlight innovative ways FSDs are making do with lacking infrastructure, sharing best practices, relevant policy updates and grant opportunities, and prompting opportunities for collaboration.

What Would it Cost to Make all California Public School Kitchen Facilities Scratch Cooking Capable?

Outfitting all public schools in California to scratch cook will require investment. Based on our survey findings and interviews with professionals in the field who have led school kitchen upgrades for scratch cooking, we estimate the facility improvements needed across California public school kitchens to make them capable to support scratch cooking.

In their survey responses, Food Service Directors (FSDs) from 149 school districts described the state of the kitchens in their district and what infrastructure and equipment they would need in order to scratch cook all school food. Based on their responses, we categorize these 149 districts by the type of kitchens they reported across their schools and by the amount of facility improvement work they report needing to accommodate scratch cooking (“no significant facility upgrades needed,” “kitchen renovation needed,” or “new kitchen construction needed”). We then assign estimated improvement costs per site type for each category, based on costs reported by interviewees. Using the estimated costs for our 149 responding districts, we estimate needs statewide.

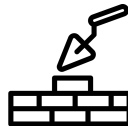
Because we are estimating based on self-reporting survey responses and making cost assumptions for individual kitchens, we consider our estimates to be both conservative and represent minimum investment (on kitchen facilities only) to ensure widespread scratch cooking capability. Many school kitchens will also need equipment and labor investment.

FINDINGS



School districts ready to scratch cook in their current kitchen facilities (N=63)

42%



School districts requiring new kitchen facilities (N=22)

15%



School districts requiring renovated kitchen facilities (N=64)

43%

Among our 149 responding school districts, 42% appear able to transition to scratch cooking without significant facility investment.

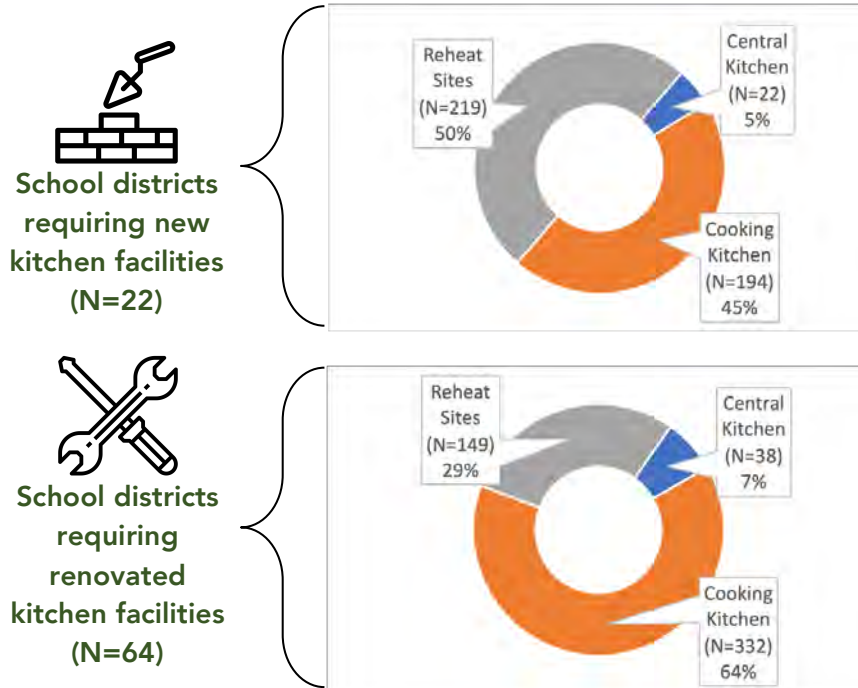
However, the rest – 58% – will likely need kitchen facility upgrades to scratch cook.

Kitchen Types in Districts

To understand the types of school kitchens across the state, we enumerated the main types of kitchens in the 149 districts responding to our survey:

- **Central Kitchen** (a production kitchen that serves multiple school sites)
- **Cooking Kitchen** (a kitchen where cooking takes place on site, typically serving only one or two schools)
- **Reheat Sites** (where food that was scratch-cooked in a central kitchen, for example, is reheated and served at a school site).²

Below are the numbers of kitchens by type for the districts that need new kitchen facilities and the districts that need renovated kitchen facilities to be scratch cooking capable.





¹ Districts reporting they scratch-cook the majority of their food and/or have kitchen infrastructure in place to do so.

² In response to survey question: "How many of each of the following types of sites does your district operate? 1) Basic Site 2) Reheat Site 3) Finishing Kitchen 4) Central / Regional Kitchen 5) Cooking Kitchen 6) Central Warehouse." Central kitchens = central / regional kitchens for districts in each category. Cooking kitchens = cooking kitchens + finishing kitchens. Reheat sites = basic sites + reheat sites.

Estimating Kitchen Facility Upgrade Costs

Next we estimate costs by type of kitchen upgrade needed for our responding districts and then estimate the statewide need.

	Kitchen Upgrade Type	Estimated Cost per Site	Number of Kitchens in Surveyed Districts	Total for Surveyed Districts	Statewide Estimate	
 <p>School districts requiring new kitchen facilities</p>	Central Kitchen	\$10 million	22	\$220 million		
	Cooking Kitchen	\$1 million	194	\$194 million		
	Reheat Site	\$500,000	219	\$109.5 million		
	<i>Total for Surveyed Districts (N=22)</i>				\$523.5 million	
	<i>Estimated Total Statewide (N=944)</i>					\$3.32 billion
 <p>School districts requiring renovated kitchen facilities</p>	Central Kitchen	\$5 million	38	\$190 million		
	Cooking Kitchen	\$500,000	332	\$166 million		
	Reheat Site	\$250,000	149	\$37.25 million		
	<i>Total for Surveyed Districts (N=64)</i>				\$393.25 million	
	<i>Estimated Total Statewide (N=944)</i>					\$2.49 billion
				Total	\$5.81 billion	

Estimated Minimum Cost to Make all California Public School Kitchen Facilities Scratch Cooking Capable

\$5.81 billion

Icons from The Noun Project: Construction by Mello, Construction by nareerat jaikaew, Buildings by Flatart.

Recommendation #2: Establish a statewide task force on healthy school meals.

A concerted statewide effort is needed to establish a plan for expanding access to healthy meals in public schools across California. The State of California should establish and fund a statewide task force to chart a path toward improving school meals across the state.⁴⁰ To integrate this effort directly with state priorities and existing structures, the task force should include diverse participation of the executive branch (e.g., California Workforce & Development Agency, Governor's Office of Planning & Research), state agencies (e.g., Department of Education, Department of Public Health, etc.), local stakeholders, experts, philanthropists, and healthy food advocates from across the state. The task force should focus on the following:

- Identify statewide goals and objectives for healthy school meals
- Assess existing kitchen infrastructure and labor gaps
- Explore funding options, with a dedicated focus on closing the equity gap, including feasibility of new funding sources, creative funding partnerships, and food service program partnership opportunities (e.g., increasing scratch cooking capacity for schools in existing community kitchens or establishing new community kitchens designed to serve schools as part of their mission).
- Broaden the context for increasing school food funding in policy decision-making frameworks (e.g., explicitly consider social, educational, environmental and economic benefits of increasing investments in school food infrastructure and labor in cost-benefit analysis formulas).

Recommendation #3: Learn from existing ingenuity.

Scratch cooking is happening in a variety of districts across the state and country. Our research has uncovered anecdotal mention of a variety of innovative local and regional efforts underway to expand scratch cooking capacity in schools. We need to better understand successful scratch cooking strategies already underway in Californian communities, as well as approaches in other states. These should be further studied in order to highlight and share best practices and to inform a state plan and funding priorities.

Some promising examples uncovered through our research process include:

In **Santa Clara County, California** a comprehensive system-wide Food, Restaurants, Agriculture, and Health Access Initiative has launched. The county approved a contract on September 1, 2020 with UC Cooperative Extension to develop a multi-stakeholder countywide food systems work plan that will include partnerships with local schools.

In **Nevada City, California** a local nonprofit, Sierra Harvest, is collaborating with all nine school districts in Western Nevada County to bring fresh, scratch-cooked school meals to 10,000 students through a sustainable model that features local and regional foods and reduces waste. The first step will be an assessment conducted by the Chef Ann Foundation, a nationally recognized trailblazer in operationalizing scratch cooking in schools.⁴¹

In **Butte County, California** a needs assessment conducted by the County Office of Education following the devastating 2018 wildfires, followed by worsening hunger and food insecurity due to the pandemic has led local stakeholders to begin work to create a centralized hub that facilitates multiagency partnerships and provides warehousing and food-preparation capability at a regional scale. The hub will include office space for agencies focused on food insecurity, an industrial-grade kitchen and packaging facility that “enables a ‘farm to fork’ continuum,” as well as classrooms and learning spaces that will include certification programming for career pathways in culinary arts, food processing and logistics management, and related nutrition education including family cooking coursework.

Humboldt County, California offers an example of a regional food-focused hub that could be viewed as underutilized infrastructure with potential to support school district food service. Redwood Acres Fairgrounds is a regional event center and food service distribution center on county fairground land. The center supports “farming, livestock, fisheries, resource stewardship, and provide[s] a valuable resource for agricultural education and activities.”⁴²

The **State of Colorado**, in collaboration with partner LiveWell Colorado, has invested in making school meals healthier by establishing the School Food Initiative (SFI). The SFI ran from 2008-2018 and engaged with 55% of the state’s school districts, helping them transition to a scratch-food-focused program. SFI provided technical assistance, professional development training, and worked to promote local procurement of foods.⁴³

How Many California Public Schools Serve Organic and/or Pesticide-Free Foods?

Among scratch cooking advocates, there is often also a preference for using organic and/or pesticide-free foods. Organic food is certified to be produced without the use of pesticides or synthetic fertilizers, antibiotics, or GMOs (genetically-modified organisms). Pesticide-free food is grown without synthetic pesticides but is not third-party certified as "organic." In our survey, we asked California school district Food Service Directors (FSDs) if they serve organic / pesticide-free food to their students (143 FSDs responded).

29%

of California school districts
report serving some
organic / pesticide-free foods

Statewide, more than one-quarter (29%) of school districts report serving at least some organic / pesticide-free foods.

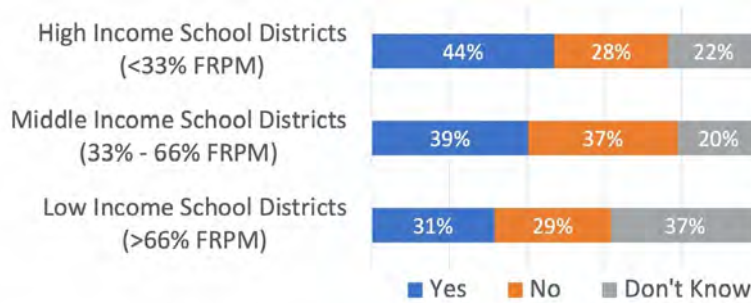
We also found that the highest income school districts (<33% FRPM) are more than twice as likely to report serving at least some organic / pesticide-free foods than the lowest income school districts (>33% FRPM).



Keep in mind though that districts can respond that they serve organic / pesticide-free foods even if only a tiny slice of their food is organic / pesticide-free. So, this finding likely greatly overstates the actual amount of organic / pesticide-free foods served by public school kitchens in California.

Do All California School Districts Have Access to Organic / Pesticide-Free Foods?

School districts can only serve organic / pesticide-free foods if they are able to order them from their food suppliers. Only about one-third (36%) of school districts responded that that organic / pesticide-free food options are on their distributors' ordering sheets. A third (32%) reported that distributors did not offer organic / pesticide-free food. High income districts report greater access to organic / pesticide-free foods from their distributors, as the chart below illustrates.



Appendix 1: Survey Methods and Response Rate

The survey instrument, designed to collect data from Food Service Directors (FSD) at California public school districts, was developed in late 2019 and early 2020 with input from academic, non-profit, and school-district stakeholders with knowledge of school districts food service programs. Email addresses of public school district and public charter school district Food Service Directors were collected from school districts statewide. In total 1,206 were obtained.

Multiple survey invitations were sent to the email addresses between February 11, 2020 and March 20, 2020. Our survey data collection coincided with the onset of the COVID-19 pandemic and shelter in place orders across California.

The online survey platform, Qualtrics, was used to create and distribute the survey and collect results. All survey responses were quantitatively analyzed using Microsoft Excel software and qualitative survey responses were recorded and analyzed using Quirkos Qualitative Data Analysis software. A copy of the survey instrument can be found here: citiesandschools.berkeley.edu/uploads/CC+S_School_Kitchen_Survey_Instrument_2020.pdf.

We received 268 responses to the survey and 200 of them were deemed complete enough for our analysis. In 2019, California had 944 K-12 public school districts enrolling 6,065,420 students. Our responding 200 school districts represent 21% of the state's school districts and enroll 37% of the state's public school students. No charter schools responded to our survey. We report the results unweighted; each FSD (representing one district) is counted equally, regardless of district size. Some percent totals may not add up to 100 due to rounding.

School district demographic data come from California Department of Education, 2018-2019 school year. Locale designations come from the National Center for Education Statistics (NCES) locale codes.⁴⁴

The demographics of our respondents reflect closely the distribution and demographics of school districts across California as shown in the figures below.

Figure A1. Survey Respondents by School District Type and Place Type

	School Districts					Student Enrollment			
	All California		Survey Respondents			All California		Survey Respondents	
	#	%	#	%		#	%	#	%
ESD	524	56%	76	38%	ESD	1,234,510	20%	255,012	11%
HSD	76	8%	20	10%	HSD	580,254	10%	140,965	6%
USD	344	36%	104	52%	USD	4,250,656	70%	1,858,822	82%
Total	944	100%	200	100%	Total	6,065,420	100%	2,254,799	100%
			<i>Response Rate</i>	21%				<i>Response Rate</i>	37%

Figure A2. Survey Respondents by School District Locale Type

	Locale Type			
	All California		Survey Respondents	
	#	%	#	%
Urban	149	16%	40	20%
Suburban	270	29%	63	32%
Town	161	17%	46	23%
Rural	364	39%	51	26%
Total	944	100%	200	100%

Appendix 2: Policy Reform Ideas

Recommendation by Category	Federal	State	Regional	Local
INTEGRATION WITH CURRENT STATE PLANNING EFFORTS				
California can investigate ways to support scratch cooking capacity in schools within its Health in all Policies Program (HiAP) framework, as part of the California Strategic Growth Council planning strategies.		✓		
INFRASTRUCTURE				
Harness potentially underutilized federal programs towards school kitchen infrastructure, such as USDA's Office of Rural Development and USDA's Office of Urban Agriculture and Innovative Production.	✓			
Explore how school kitchen infrastructure loans might be prioritized within the California Infrastructure & Economic Development Bank; consider other untapped low cost lending tools that could be blended or matched with philanthropic capital.	✓	✓		
State agencies can suggest standardized kitchen models and equipment lists and streamline the approval process via the Division of State Architect (DSA) when schools adopt these models.		✓		
EQUIPMENT				
Expand and extend state equipment grants, such as the California Fresh School Meals Grant Program, which was last offered in 2018. Grants can prioritize districts where kitchen infrastructure exists but scratch cooking is inhibited by outdated or unfunctional equipment.		✓		
Include ongoing training for all equipment grant recipients and simplify the application and grant reporting process.	✓	✓		
Districts can coordinate to purchase equipment collectively to bring per-unit costs down.			✓	✓
LABOR				
California could offer incentives for state colleges and universities to instigate school nutrition and culinary offerings in their curriculum to create a sustainable pipeline of skilled workers; school districts and local colleges and universities can form culinary partnerships, offering internships and other coordinated opportunities.		✓		✓
The state and federal government should provide dedicated grants for full time skilled labor to incentivize scratch cooking as well as professional development support, in addition to current reimbursement rates and/ or increase reimbursement rates to reflect labor costs that account for scratch cooking. Grants for additional labor and professional development in districts that already have kitchens and equipment to scratch cook can be prioritized initially.	✓	✓		
TECHNICAL ASSISTANCE (TA)				
The state should develop TA offerings for food service directors and their staffs. TA can (1) help schools understand gaps and needs, and where facilities, equipment, and/or labor are inadequate; (2) assist districts in identifying interim or small steps that can increase scratch cooking capacity, as well as applicable local, regional, state and federal grants; (3) provide kitchen design and architectural support as well as aligned menu design support.		✓		
TA should be particularly targeted towards lower wealth districts which have fewer sources of funding or other support.		✓		
WORKING GROUPS & COORDINATION				
Regions can support inter-district scratch cooking; for instance, the Stockton school district might purchase bread baked by the Lodi school district.			✓	
County Offices of Education could collaborate with the state, serving as hubs for regional scratch cooking working groups; for example, offering a dedicated space to highlight innovative ways FSDs are making do with lacking infrastructure, sharing best practices, relevant policy updates and grant opportunities, and prompting opportunities for collaboration.		✓	✓	
School kitchen scratch cooking capacity analysis should be integrated into regional food systems planning efforts currently underway.			✓	
EMERGENCY AND COMMUNITY RESILIENCY PLANNING				
Disaster related planning and emergency response efforts should include school kitchens as critical infrastructure; local, regional, state and federal efforts should be streamlined to ensure integration and that funding is adequate to meet community needs.	✓	✓	✓	✓

Endnotes

- ¹ USDA National School Lunch Program: <https://www.ers.usda.gov/topics/food-nutrition-assistance/child-nutrition-programs/national-school-lunch-program/>; School Nutrition Association: <https://schoolnutrition.org/AboutSchoolMeals/SchoolMealTrendsStats/>.
- ² United States Department of Agriculture, Food and Nutrition Service. April 2019. School Nutrition and Meal Cost Study. <https://www.fns.usda.gov/school-nutrition-and-meal-cost-study>.
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- ⁴ EdSource. January 13, 2020. "In his own words: Gov. Newsom explains his budget proposals for K-12 education." <https://edsource.org/2020/in-his-own-words-gov-newsom-explains-his-budget-proposals-for-k-12-education/622041>
- ⁵ Briefel, R.R., M.K. Crepinsek, C. Cabili, A. Wilson, and P.M. Gleason. 2009. School Food Environments and Practices Affect Dietary Behaviors of US Public School Children. *Journal of the American Dietetic Association* 109(2), S91-S107. DOI: 10.1016/j.jada.2008.10.059.
- ⁶ Anderson, M. L., J. Gallagher, and E. Ramirez Ritchie. 2018. School Meal Quality and Academic Performance. *Journal of Public Economics* 168, 81-93. DOI: 10.1016/j.jpubeco.2018.09.013.
- ⁷ Florence, M.D., M. Asbridge, and P.J. Veugelers. 2008. Diet Quality and Academic Performance. *Journal of School Health* 78(4): 209-215. DOI:10.1111/j.1746-1561.2008.00288.x; Nansel, T.R., T.T. Huang, A.J. Rovner, and Y. Sanders-Butler. 2010. Association of School Performance Indicators with Implementation of the Healthy Kids, Smart Kids Programme: Case Study. *Public Health Nutrition* 13(1): 116-122. DOI: 10.1017/S1368980009005898.
- ⁸ Trent, R., D. Ijaz Ahmed, and P. Koch P. 2019. Cooking Outside the Box: How a Scratch Cooking Pilot in The Bronx is Reshaping Meals in New York City Schools. Laurie M. Tisch Center for Food, Education & Policy, Program in Nutrition, Teachers College, Columbia University. <https://www.tc.columbia.edu/media/centers/tisch/Cooking-Outside-the-Box-Full-Report.pdf>
- ⁹ "Minimally processed foods are natural foods altered by processes such as removal of inedible or unwanted parts, drying, crushing, grinding, fractioning, filtering, roasting, boiling, pasteurization, refrigeration, freezing, placing in containers, vacuum packaging, or nonalcoholic fermentation." See: S.M. Alzamora, A. López-Malo, M.S. Tapia, and J. Welti-Chanes. 2016. "Minimally Processed Foods." Reference Module in Food Science, Encyclopedia of Food and Health: 767-771. <https://doi.org/10.1016/B978-0-12-384947-2.00470-0>. For a discussion of degrees of food processing, see: Fardet, A. 2018. "Characterization of the Degree of Food Processing in Relation with Its Health Potential and Effects." *Advances in Food and Nutrition Research*. <https://doi.org/10.1016/bs.afnr.2018.02.002>.
- ¹⁰ Hall, K. D., A. Ayuketah, R. Brychta, P.J. Walter, S. Yang, and M. Zhou. 2019. Ultra-Processed Diets Cause Excell Calorie Intake and Weight Gain: An Inpatient Randomized Controlled Trial of Ad Libitum Food Intake. *Cell Metabolism* 30(1): 67-77. DOI: <https://doi.org/10.1016/j.cmet.2019.05.008>.
- ¹¹ School Food Authorities (SFAs) are entities responsible for the administration of one or more schools and have legal authority to operate the National School Lunch Program or School Breakfast Program. In California, local school districts or county offices of education are SFAs.

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- ¹² Larsen, J., M. Jhavar, S.K. Urahn, A. Coukell, J. Hall Ratliff, and S. Promislo. 2014. Serving Healthy School Meals in California: The Tools Needed to do the Job. The Pew Charitable Trusts, the Robert Wood Johnson Foundation, and The California Endowment. <https://www.pewtrusts.org/-/media/assets/2014/11/kitscaliforniareport111214final.pdf>.
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- ¹⁶ Levy, S., K. McPeters. 2020. Growing Opportunity for Farm to School: How to Revolutionize School Food, Support Local Farms, and Improve the Health of Students in New York. American Farmland Trust and Farm to Institution New York State. https://s30428.pcdn.co/wp-content/uploads/sites/2/2020/03/AFT_NY_GrowingOpportunity_FINAL_web.pdf
- ¹⁷ <https://cafarmtofork.cdfa.ca.gov/CaFarmtoSchoolProgram.htm>
- ¹⁸ Zimmerman, F.J. and N.W. Anderson. 2019. Trends in Health Equity in the United States by Race/Ethnicity, Sex, and Income, 1993-2017. *Journal of the American Medical Association* 2019(2), e196386. DOI:10.1001/jamanetworkopen.2019.6386.
- ¹⁹ Danielson, C. 2020. Low-income student and school meal programs in California. San Francisco: Public Policy Institute of California. <https://www.ppic.org/publication/low-income-students-and-school-meal-programs-in-california/>
- ²⁰ The Healthy, Hunger-Free Kids Act (HHFKA) of 2010 increased nutritional requirements for school meals including: mandating the inclusion of more fruits, vegetables and whole grains into school menus, updated nutrition standards to improve the diet quality of school meals and students' diets to prevent chronic illness, added the requirement that students must choose at least a half cup of fruits or vegetables in order for school meals to be eligible for federal reimbursements, and introduced nutrition standards for 'competitive foods' (e.g., foods not forming a part of the reimbursable meals) sold in school cafeterias and vending machines. See: <https://www.fns.usda.gov/cn/healthy-hunger-free-kids-act>. See: Kenney, E.L., J.L. Barrett, S.N. Bleich, Z.J. Ward, A.L. Cradock, and S.L. Gortmaker. 2020. Impact of Healthy, Hunger-Free Kids Act on Obesity Trends. *Health Affairs* 39(7). <https://doi.org/10.1377/hlthaff.2020.00133>
- ²¹ <https://www.usnews.com/news/healthiest-communities/articles/2020-06-16/coronavirus-heightens-threat-of-child-hunger-food-insecurity>
- ²² https://www.nejm.org/doi/full/10.1056/NEJMp2021264?mc_cid=76bd138fa2&mc_eid=3317ede6bd; <https://www.nytimes.com/interactive/2020/06/04/opinion/coronavirus-health-race-inequality.html?referringSource=articleShare>
- ²³ In the third week of June 2020, 13.9 million children lived in household experiencing food insecurity. In 2018 it was 2.5 million and at the peak of the Great Recession in 2008 it was 5.1 million.

<https://www.brookings.edu/blog/up-front/2020/07/09/about-14-million-children-in-the-us-are-not-getting-enough-to-eat/>

²⁴ <https://www.nytimes.com/2020/04/19/us/politics/coronavirus-school-meals-relief.html>. The Laurie M. Tisch Center for Food, Education & Policy in the Program in Nutrition at Teachers College Columbia University has an online national database of school districts operating meal programs during the COVID-19 school closures: <https://www.tc.columbia.edu/tisch/blog/news/how-school-districts-are-feeding-students-during-closures/>.

²⁵ <https://thecounter.org/usda-school-lunch-free-meals-sonny-perdue-covid-19/>

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²⁷ For example, see: Stephen and Ayesha Curry. June 24, 2020. "California Must Take Bold Action to Support Schools and Feed Children" *San Francisco Chronicle*.

<https://www.sfchronicle.com/opinion/openforum/article/California-must-take-bold-action-to-support-15361616.php>. Rockefeller Foundation. July 2020. Reset the Table Meeting the Moment to Transform the US Food System, Rockefeller Foundation. https://www.rockefellerfoundation.org/wp-content/uploads/2020/07/RF-FoodPolicyPaper_Final2.pdf

²⁸ Definition of speed scratch taken from a 2017 USDA blog: <https://www.usda.gov/media/blog/2015/04/30/chef-leverages-usda-team-nutrition-grant-develop-healthy-menus-students>

²⁹ Gail Woodward-Lopez, G., J. Kao, K. Kiesel, M.L. Miller, M. Boyle, S. Drago-Ferguson, E. Braff-Guajardo, and P. Crawford. 2014. Is Scratch-Cooking a Cost-Effective Way to Prepare Healthy School Meals with US Department of Agriculture Foods? *Journal of the Academy of Nutrition and Dietetics* 114(9): 1349-1358. <https://doi.org/10.1016/j.jand.2014.05.002>

³⁰ Larsen, J., Jhavar, M., Urahn, S. K., Coukell, A., Hall Ratliff, J., Promislo, S., et al. (2013). Serving healthy school meals in California - the tools needed to do the job.

³¹ Brunner, E. and J.M. Vincent. 2018. Financing School Facilities in California: A 10-Year Perspective. Getting Down to Facts. Palo Alto: Stanford University.

<https://gettingdowntofacts.com/publications/financing-school-facilities-california-10-year-perspective>

³² Gaddis, J.E. 2019. *The Labor of Lunch: Why we need real food and real jobs in American public schools*. Berkeley: University of California Press.

³³ <http://iurd.berkeley.edu/uploads/Economic-Contribution-Report-White-Paper.pdf>

³⁴ Rockefeller Foundation. July 2020. Reset the Table Meeting the Moment to Transform the US Food System, Rockefeller Foundation. https://www.rockefellerfoundation.org/wp-content/uploads/2020/07/RF-FoodPolicyPaper_Final2.pdf

³⁵ Tsui, E.K., J. Deutsch, S. Patinella, and N. Freudenberg. 2013. Missed opportunities for improving nutrition through institutional food: the case for food worker training. *Am J Public Health* 103(9): e14-20. DOI: 10.2105/AJPH.2013.301293

³⁶ Gaddis, J.E. 2019. *The Labor of Lunch: Why we need real food and real jobs in American public schools*. Berkeley: University of California Press.

³⁷ Tsui, E.K. and A. Morillo. 2016. How cooks navigate nutrition, hunger and care in public-sector foodservice settings. *Public Health Nutr* 19(5): 946-54. DOI: 10.1017/S1368980015002086; Cohen J.F., S. Richardson, S.A. Cluggish, E. Parker, P. Catalano, and E.B Rimm. 2015. Effects of choice architecture

and chef-enhanced meals on the selection and consumption of healthier school foods: a randomized clinical trial. *JAMA Pediatr* 169(5): 431-7. DOI: 10.1001/jamapediatrics.2014.3805

³⁸ Gaddis, J.E. 2019. *The Labor of Lunch: Why we need real food and real jobs in American public schools*. Berkeley: University of California Press.

³⁹ See: <https://www.cde.ca.gov/ls/nu/sn/mbsnp142017.asp>. This California Department of Education grant program was last offered in 2018 and could be re-instigated and/or expanded.

⁴⁰ As of Fall 2020, a Farm to School Advisory Board and Interagency Working Group has been established by Jennifer Siebel Newsom, the First Partner of California and Karen Ross, Secretary of the California Department of Food & Agriculture. The proposed statewide task force can build upon this foundation.

⁴¹ <https://www.chefannfoundation.org>

⁴² <https://www.redwoodacres.com>

⁴³ <https://livewellcolorado.org/healthy-institutions/school-food-initiative/>

⁴⁴ https://nces.ed.gov/programs/edge/docs/LOCALE_CLASSIFICATIONS.pdf