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Failure to launch: An analysis of an attempted central kitchen pilot program to serve childcare meals

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Abstract

The majority of children ages 0–5 consume most of their meals in early care and education (ECE) settings, prompting interest in the nutritional quality of childcare meals and snacks as a vehicle for improving dietary-related health outcomes for this vulnerable population.[1] Our team has identified central kitchens that serve prepared meals to childcare centers as a potential model to improve meal quality for children, while also relieving childcare providers of the burdens of meal preparation and paperwork associated with federal meal reimbursements, and aggregating local food purchases to create a larger market for farmers than purchases by individual centers. Our team partnered with a

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[1] We define children as vulnerable based on the fact that they are completely dependent on adults for decision-making that affects their health and well-being, which is especially true for children in the 0–5 age group (Bagattini, 2019).

funder, a church, and community organizations to attempt a pilot that would replicate this central kitchen model in a rural area. Unfortunately, the pilot project was never fully realized, leading us to conduct a process evaluation to identify the generalizable factors that impeded its success. We identified four key factors, including the underlying power dynamic between the funder and recipient, reliance on a single project champion, lack of buy-in from community stakeholders, and failure to involve the county health department early in the planning process. In this paper, we construct a timeline of the project to help identify key factors that led to the project's failure to launch, explain our four key findings, and provide a set of recommendations that funders and other communities can take into consideration as they consider the viability of this timely intervention.

Keywords
central kitchen, caterer, farm to early care and education, child and adult care feeding program (CACFP), rural food access

Introduction and Literature Review

This reflective essay provides a detailed analysis of a pilot central kitchen that was designed to serve prepared meals to children ages 0–5 in rural early care and education (ECE) sites, but which failed to progress beyond the initial stages of the project. We begin with a review of research surrounding the emergence of local food infrastructure as a contributor to building regional food systems and supporting both farmer profitability and consumer health. We contextualize the growth of interest and investment in local food infrastructure in the mainstream food system and explore the challenges that are specific to social enterprises, rural local food projects, and the ECE sector more generally, before turning to the case of catered meals for the ECE sector and lessons learned from the pilot central kitchen project.

Structural Barriers: Rural Food Access, Local Food Infrastructure, and the ECE Sector

The early local food movement focused on direct sales between farmers and consumers, with farmers markets and community supported agriculture (CSAs) as its hallmarks (Brown & Miller, 2008; Hinrichs, 2000). As local food systems developed beyond direct markets, researchers and scholars identified a need for local food intermediaries, and the corresponding infrastructure, to scale up local food systems by improving farmers' access to markets and meeting increasing consumer demand (Friedmann, 2007; Jablonski et al., 2011). The first of these intermediary infrastructural developments were food hubs, which aggregate local products among multiple farmers to recreate the economies of scale and distributional efficiencies observed in mainstream food systems. Usually, food hubs have the social mission of fair returns on farmers' investments and increasing low-income consumer access to healthy food (Barham et al., 2012; Feenstra et al., 2019; Jablonski et al., 2011; Lyson et al., 2008; Rysin & Dunning, 2016).

More recently, the interest in local food products has sparked growth in small-scale businesses focused on value-added local food products, especially in metro- and metro-adjacent areas (Bowser & Holcomb, 2018; Freake & Godfrey, 2017; Low et al., 2021). This trend has included the growth of commercial kitchens with the goal of fostering local food systems. Commercial kitchen models include "on-farm kitchens, incubator kitchens, licensed kitchens at farmers' markets, and larger-scale food processing establishments" (Bowser & Holcomb, 2018, para. 2). Community-based shared use kitchens have also grown in popularity, often with the dual purpose of creating new markets for farmers' products, while also increasing consumer access to healthy foods. Sometimes these kitchens result in added benefits to the local workforce through professional development, increased job opportunities, and incubation of new food businesses (Fitzsimmons et al., 2023; Freake & Godfrey, 2017).

Local food infrastructure, such as shared use kitchens and small-scale food processors, is often heralded as part of a regional food system development strategy to bring community economic development to rural areas (Barham et al., 2012; Jablonski et al., 2011; Low et al., 2021). However, the potential for these efforts to contribute to rural economic development and thrive as local food businesses may ultimately be restricted by the fact

that they are often operating at a smaller scale and purchasing local food from smaller-scale farmers, which goes against the prevailing logic of the mainstream food system (Bloom & Hinrichs, 2011; Feenstra et al., 2019; Fitzsimmons et al., 2023; Lyson et al., 2008). Following World War II, the mainstream food system was characterized by increased industrialization, consolidation, and concentration (Hendrickson & Heffernan, 2002; Howard, 2016). As the food system industrialized, production and processing were concentrated in the operations of a small number of farms and food processors (Hendrickson & Heffernan, 2002; Howard, 2016; Lyson et al., 2008). These larger scale farms and food businesses can take advantage of economies of scale to lower costs and introduce efficiencies. As the local food movement matured across the 2000s, a major question emerged as to whether they could be "scaled up" in order to mimic the efficiencies observed in the mainstream food system (Friedmann, 2007; Jablonski et al., 2011; Lyson et al., 2008; Rysin & Dunning, 2016). Food hubs and commercial kitchens providing value-added processing opportunities are seen as re-introducing the infrastructure that was lost through the industrialization process and are part of a strategy to bring the local food system to scale (Feenstra et al., 2019; Jablonski et al., 2011; Lyson et al., 2008; Rysin & Dunning, 2016).

These recent developments in local food infrastructure are part of broader efforts in developing values-based supply chains. Values-based supply chains are distinct from traditional supply chains in that they focus on transparency, partnership across the chain, and fair returns on investment (Lyson et al., 2008; Stevenson & Pirog, 2008). Proponents of values-based supply chains believe they hold promise in countering the negative repercussions of the mainstream food system (Stevenson & Pirog, 2008). However, the businesses and nonprofit organizations participating in these chains struggle to meet buyer's low-price expectations and maintain consistent supply because of their comparative smaller size[2] (Bloom & Hinrichs, 2011; Jablonski et al., 2011; Feenstra et al., 2019). Research has also shown that many small enterprises struggle to purchase from local farmers due to these farmers' "inability to meet volume requirements, unreliable supply and lack of year round supply (Feenstra et al. 2019, p. 239). These challenges to local food procurement have also been seen in other local food initiatives that attempt to support local farmers while also increasing community food access, such as farm to institution programs (Boys & Fraser, 2019; Harris et al., 2012). To overcome these challenges, local food businesses, such as food hubs, commercial kitchens, and processors, often find themselves relying on grant funding to help them get started, and also over the long term as they work toward viability (Fitzsimmons et al., 2023; Freake & Godfrey, 2017; Jablonski et al., 2011; Rysin & Dunning, 2016).

There are several reasons why local food businesses, and commercial kitchens specifically, struggle with financial viability. First, there are many costs associated with starting up small-scale local food businesses, including those related to food safety (and other regulations), insurance, utilities, supplies, and labor, among others (Fitzgerald et al., 2024; Fitzsimmons et al., 2024). Many of these regulations require capital investments to bring buildings, facilities, and equipment up to code. In addition, research shows that small to very small processors are often unaware of the food safety regulations they need to follow, lack knowledge of how to implement them, and perceive costs to be a barrier to implementation (Fitzgerald et al., 2024). While the cited research is related specifically to compliance with Hazard Analysis and Critical Control Point (HACCP) and Preventive Controls for Human Food (PCHF) food safety regulations, it provides an indication of the challenges facing

[2] For a reference point on size of local food businesses, according to the U.S. Food and Drug Administration's Good Manufacturing Practice, Hazard Analysis, and Risk-Based Preventive Controls for Human Food (PCHF) Rule, small and very small processors are defined as "(1) very small businesses defined in the PCHF Rule as averaging less than [US]$1 million (adjusted for inflation each year) per year in both sales and unsold value of the food over a 3-year period or (2) facilities that have average annual sales over a 3-year period of less than [US]$500,000 (adjusted for inflation each year) and make at least half of the sales to consumers or to local retailers or restaurants within the same state or within 275 miles" (Fitzgerald et al., 2024, p. 161).

small-scale local food businesses related to regulations more generally.

In addition to the challenges of starting up new local food businesses, there are also general challenges associated with rural food access, as well as challenges that are specific to the early care and education sector. Food insecurity is defined as access to "enough food for an active, healthy life for all household members" (Coleman-Jensen et al., 2020, p. i). Food insecurity is consistently higher in rural areas than in urban areas and is higher both for people of color and those living in the South (Bowen et al., 2022; Haynes-Maslow et al., 2020; Byker Shanks et al., 2022). In part, this is due to the industrialization and consolidation of the food system, as described earlier. As the food system industrialized and farm size grew, fewer farmers were needed, leading to urban migration and the subsequent depopulation of rural areas (Blanchard & Matthews, 2007; Bowen et al., 2022; Morton & Blanchard, 2007). As a result, it became challenging for rural grocery stores to survive without a sufficient customer base (Blanchard & Matthews, 2007; Morton & Blanchard, 2007). Transportation, specifically, poses challenges to healthy food access in rural areas, due to the larger distances between population centers and sources of food (Bowen et al., 2022; Haynes-Maslow et al., 2020). Research has also shown that customers' ability to afford healthy food is critical to achieving food security (Bowen et al., 2022). Food prices are often higher in rural areas due to the long distances that food travels, while under- and unemployment is a serious issue, also contributing to higher rates of food insecurity (Bowen et al., 2022). At the same time, researchers note that rural areas possess unique assets, such as access to farms, gardens, and hunting and fishing, which are often used as food security strategies by rural residents (Bowen et al., 2022).

Finally, we consider the unique challenges facing the ECE sector. In the U.S., a majority (60%) of children under the age of six years old are enrolled in childcare programs (National Center for Education Statistics [NCES], 2019). On average, children spend 27 hours per week in childcare centers where they consume a significant portion of their daily meals. Childcare centers are a key source of meals for children ages 0–5, especially in communities of color. The Child and Adult Care Food Program (CACFP) is a federal food assistance program that provides reimbursements for centers that serve children living at up to 185% of the federal poverty guidelines (Gordon et al., 2011). It is essential that meals and snacks provided in this setting meet children's daily nutritional requirements for normal growth, development, and maintenance of healthy body weight. National guidelines recommend that half-day childcare programs (4–7 hours per day) provide at least one-third of children's daily nutrition requirements, and full-day programs (>8 hours per day) provide half to two-thirds of children's nutritional requirements (Benjamin Neelon & Brileyet al. 2011). However, extensive research shows that childcare meals and snacks at most childcare centers do not adequately contribute to children's daily requirements for calories and critical micronutrients, while also having too much sodium and saturated fats (Ball et al., 2008; Logan et al., 2021). The literature on this topic suggests that, in general, many childcare facilities struggle to prepare healthy meals due to staffing shortages, limited kitchen capacity, and the burden of applying for federal meal reimbursements through CACFP (Lee et al., 2022). While CACFP reimbursements are critical to supporting healthy meal preparation, a 2021 survey by the USDA found that "over half of child care [*sic*] centers and Head Start programs reported that they experienced challenges to participating in CACFP because meal reimbursement was inadequate" (Logan et al., 2021, p. 5). Based on this review of the literature, we believe it is possible that a central kitchen that caters meals to childcare providers could address the structural challenges of operating meal service in the ECE sector, while also serving as infrastructure to build the local food system.

The Case for Central Meal Preparation in Childcare

Some communities have developed central kitchens that cater meals for childcare centers as a strategy to provide healthy meals to children ages 0–5 who are in ECE facilities (Carpenter et al., 2017). A central kitchen that serves prepared meals to childcare facilities offers several potential benefits,

including commercial-grade equipment, labor, improved meal quality, support with CACFP paperwork, and increased volume of local food purchased (Carpenter et al., 2017).

A central, professional kitchen has the ability to house more robust kitchen infrastructure with industrial grade equipment than individual childcare centers. Currently, many childcare centers are short-staffed, and so meal preparation responsibilities often fall on teachers or childcare center directors (Salas Atwell et al., 2024). In a central kitchen model, trained food-service professionals can be hired, which frees up childcare staff to focus on the care and education of children, while also reducing the impact of frequent staff turnover on a center's ability to offer meal services. In addition, central kitchens have the potential to improve meal quality by increasing scratch cooking and reducing the reliance upon processed foods.

Central kitchens can also take on the administrative burden of following CACFP guidelines and submitting paperwork to receive federal reimbursement to support low-income families. Research has shown that childcare facilities that participate in CACFP serve meals that improve dietary quality, such as increased fruit and vegetable offerings, as compared to non-CACFP sites (Andreyeva & Henderson, 2018; Andreyeva et al., 2018; Erinosho et al., 2018; Lee et al., 2022). Improvements in meal quality may be especially evident when combined with farm to early care and education (farm to ECE) programming, which emphasizes the inclusion of local food in meals combined with experiential learning around cooking, nutrition, and gardening (Gibson et al., 2014). Previous research has shown improved meal quality in the context of farm to ECE programming, as well as evidence that children are more willing to try and like new fruits and vegetables (Gibson et al., 2014; Izumi et al., 2015). In part, these improvements are due to the inclusion of fresh fruits and vegetables, since most childcare centers rely on canned or frozen produce because they are more time- and cost-effective.

Central kitchens may also be an asset for local food sourcing as part of farm to ECE programs. Previous research by the authors has identified challenges with ECE local food procurement such as a low volume of produce ordered and decentralization of childcare centers (Bloom et al., 2022; Rutz et al., 2018). The low volumes that childcare centers order are due in part to the smaller serving sizes for children ages 0–5 compared to children served in K–12 school districts. In addition, many centers are hesitant to incorporate fresh produce and therefore may only order enough for snacks and not meals (Bloom et al., 2022). As a result, it can be hard for childcare providers to serve as a viable market for farmers, especially when they require delivery. In contrast, central kitchens order larger volumes of food, as they prepare meals for multiple centers. These kitchens act as aggregators, reducing the burden on individual centers to establish new ordering systems with local farmers or food hubs and increasing the market for local farmers. Given the capital investments needed to build a new facility (as outlined above), interest has grown in the potential to repurpose existing commercial kitchens to be used for catered meals or as shared-use kitchens, including the use of food bank and county fairgrounds kitchens (Carpenter et al., 2017; University of Arkansas Cooperative Extension Service, n.d.).

Despite the potential benefits of catered meals for ECE, research has indicated some key challenges, which mirror the challenges described earlier, related to shared use and commercial kitchens as local food infrastructure. For example, a pilot catered meal program through a food bank found that the increased cost of meals was a barrier to adoption, as were transportation, delivery logistics to individual classrooms, and lack of on-site storage (Carpenter et al., 2017).

North Carolina Central Kitchens and Prepared Childcare Meals

In North Carolina, successful central community kitchens that cater to childcare centers have operated for many decades in urban areas. The authors identified these kitchens and their potential benefits through the implementation of farm to ECE programming, and as a result, we formed a work group to explore the possibility of replicating this model. This work group's purpose was to explore the potential viability of a rural central kitchen as well as key factors for successfully incubating a

central kitchen that prepared meals for rural childcare centers.

The primary example of a successful urban central kitchen that we were familiar with is housed in a church. Some of the factors that contribute to its success include that kitchen staff are able to use the industrial cooking facility during the day without interfering with church activities, in addition to the benefits of central kitchens listed above. Since churches are often one of the major community institutions in rural areas, and their kitchens represent existing infrastructure that could be leveraged in many communities, we wondered if this collaboration could be replicated.

In 2019, our team received a small planning grant from the Funder,[3] which allowed us to collect data in order to inform the development of the rural central kitchen concept (see Methods section). In 2020, the Funder awarded two grants to support the development of a central kitchen preparing meals for childcare centers in a rural area. One grant was made to a church in a rural area (we will use the pseudonym Pilot Church) to fund the renovation of their kitchen and start-up central kitchen project. The other grant was made to our working group to provide technical assistance and evaluation. Originally, we planned to assess the project's financial viability, community impacts, and health implications for children served. However, the project we planned to evaluate faced a series of challenges and failed to progress, and Pilot Church ultimately returned its funds to the Funder. In response, after consulting with our program officer, we changed our evaluation's purpose to focus on the project's development process in order to derive a set of lessons learned to guide future projects. In the next section, we will briefly describe our research methods before we draw on semi-structured interviews and the researchers' own experiences with the project to create a narrative timeline. This allows us to identify critical leverage points where the project faced challenges that it was not able to overcome. We will then provide a set of lessons learned from this attempted pilot of a rural central kitchen serving childcare meals, as well as recommendations tailored toward funders and communities who may be interested in replicating this model.

Methods

This study used qualitative methods to conduct a process evaluation of the Rural Central Community Kitchen[4] project. The team of researchers conducted six semi-structured interviews with key stakeholders, including two pastors who had been involved with the project, a member of church leadership, the former kitchen director, a childcare center director, and a member of the technical assistance team. Our evaluation team developed a set of questions for each stakeholder category. Questions were designed to elucidate each person's role, their perspective on what went well, the challenges they faced, and advice they would give to other communities interested in starting a similar project. Two of our team members conducted the interviews, which were subsequently transcribed verbatim by a commercial transcription service. Four team members reviewed the transcripts to jointly identify themes, patterns, and key issues, which led to an abbreviated code book with a list of themes. One of the four members conducted a qualitative coding analysis using this code list and NVivo 12 qualitative data analysis software. The research team met to compare themes and identify issues and drafted a set of lessons learned and recommendations. This research was approved by the North Carolina State University Institutional Review Board (Protocol #24444).

We recognize that this study is based on a small sample size[5]; however, our sample represents the viewpoint of all parties involved. The value in telling this project's story, and the factors that impeded its success, is that there are important lessons for other communities interested in this type

[3] Please note that this is a pseudonym to maintain the confidentiality of participants.
[4] Please note that this is a pseudonym to maintain the confidentiality of participants.
[5] Our original evaluation plan included establishing control sites to be able to compare and draw conclusions about changes in fruit and vegetable intake, among other metrics. Since the project never launched, we were unable to establish control groups as points of comparison.

of project. In addition, the authors were all involved with the project from its inception, including identifying the pilot partner, providing technical assistance, and designing and implementing the evaluation. We draw on our experiences to also inform our understanding of why this project ultimately was unable to launch.

Project Background and Narrative Timeline

A multi-institutional working group[6] came together in 2018 after initial conversations among themselves and with the Funder about replicating this central kitchen model in a rural part of the state. These conversations generated a number of questions to address as project objectives. Could the central kitchen model operating in more urban areas work in rural communities? What key factors enable a community to take on this type of project?

In July 2019, the working group conducted a survey of North Carolina Smart Start[7] executive directors that indicated a need for a supply of healthier meals for childcare centers. At the same time, these survey responses also indicated a potential barrier in the need to convince childcare programs of the benefits from sourcing from a central community kitchen. Table 1 shows selected survey responses, which indicate respondents' perceptions related to inadequacies of current meals served in the ECE sector in North Carolina, as well as interest in a central kitchen model to address these challenges.

Our team used survey responses to select a pilot county for the rural ECE central kitchen project. We received responses from 53 organizations (72 individual responses) across the 67 rural counties[8] in North Carolina. To narrow the focus, the project team ranked 67 rural counties based on: (1) Smart Start director identifying child health as a high priority in the survey; (2) Smart Start director's interest in pursuing the central kitchen concept; (3) an index of Child and Adult Care Food Program (CACFP) participation in the county; (4) a measure of childcare program density in the county; and (5) the incidence of childhood obesity and overweight in the county. There were 17 counties identified as potentially a good fit for submission of a grant, based on these criteria. To help discern which counties were candidates for replicating the central kitchen model in a rural area, members of the working group visited county-level stakeholders and potential kitchen sites in six counties. These counties were chosen based on where our working group and the Funder had relationships with community groups, or where the county reached out to our team to express their interest.

Table 1. Selected Responses from the NC Smart Start Survey (*n* = 72)

What is your perception of the quality of the meals served by the childcare providers in your service area?	% response
All providers are providing healthy and nutritious meals utilizing scratch cooking	5
Some providers struggle to serve healthy and nutritious meals and often utilize processed heat and serve foods	42
Most providers struggle to serve healthy and nutritious meals and often utilize processed heat and serve foods	37
Do not have enough information to answer this question	16
Do you feel that the Central Community Kitchen model could be beneficial for your service area?	**% response**
Yes	52
No	5
Maybe	43

[6] The work group included the authors, as well as the Technical Assistance Organization (pseudonym), and another nonprofit organization that works closely with rural churches.

[7] Quasigovernmental Smart Start organizations work in all 100 North Carolina counties through the North Carolina Partnership for Children and 75 local partnerships. See https://www.smartstart.org/

[8] We defined rural counties based on USDA classifications: https://www.ers.usda.gov/data-products/rural-urban-continuum-codes.aspx

During these visits, the research team informally discussed the resources for and barriers to implementing a central community kitchen, and invited local county stakeholders to visit the kitchens in urban areas of the state so that they could observe a working model.

In consultation with the Funder, our team decided that Pilot County[9] provided the best fit for submission of a grant application. Pilot County was selected based upon: (1) interest from Pilot Church; (2) presence of an on-site childcare program run by the church that would provide an initial demand for meals; (3) easy highway access to numerous childcare programs in the northern suburbs of a nearby urban area; (4) expression of support from the Pilot County Partnership for Children; and (5) the Funder's established grantee relationship with Pilot Church. The Funder helped start Pilot Church, which was founded as a social enterprise centered around the on-site childcare center, which also made it an appropriate fit for this project. In terms of its rural classification, the U.S. Department of Agriculture's (USDA) Economic Research Service classifies Pilot County as Nonmetro-Urban population of 20,000 or more, adjacent to a metro area. According to the U.S. Census, Pilot County has approximately 225 residents per square mile, while the North Carolina Division of Child Development and Early Education and Anne E. Casey Foundation Kids Counts Database report there were a total of 1,856 children in childcare, across 64 childcare programs. The research team anticipated that the low population density in the county would pose challenges in creating this type of centralized food distribution due to the transportation challenges identified earlier.

In addition to the survey and site visits, our team conducted additional research to further support the development of this project. One team member identified and interviewed three central kitchens catering meals to childcare in North Carolina, as well as four additional kitchens nationally. The result was a white paper that was used internally to present key considerations identified by these seven model central kitchens catering meals to childcare centers. Based on these interviews, the team member conducted financial analyses to determine how many children the kitchen would need to serve in order to reach financial viability. For modeling the prices, he used a North Carolina urban central kitchen that caters to ECE sites, referred to by the pseudonym Technical Assistance Organization, as a model. Using food costs and labor staffing provided by the Technical Assistance Organization, in 2020 a member of our working group constructed a pro forma profit and loss (P&L) analysis for a central kitchen providing meals to 400 children (see Appendix for a simplified version). This P&L assumed that the central kitchen could prepare and deliver meals (breakfast, snack, lunch) to childcare programs at US$4.00 per child per day, which was consistent with the urban central kitchen pricing at the time and could be fully covered by CACFP reimbursements. This pro forma indicated that a central kitchen could break even within three years using these assumptions, excluding any capital that would be required to outfit a commercial kitchen. It was also clear that distribution costs to rural childcare programs had the potential to be higher than in an urban area, but were hard to estimate because we did not have a concrete case to use as an example, including estimates for travel time and delivery options. Determining delivery costs in a rural area was one goal of piloting a central kitchen concept in a rural community.

In 2020, Pilot Church was invited by the Funder to apply for a grant to start a pilot central kitchen to cater meals to childcare centers in Pilot County, and the grant was awarded in January 2021. The financial assessments described above were provided to the Pilot Church, and they used them to develop their proposal, project plan, and budget. The grant covered any necessary upgrades and expansions of the church's existing kitchen, as well as the costs of hiring and training staff and contracting the Technical Assistance Organization. The goal was to provide daily meals for the approximately 100 children who attended the Pilot

[9] We refer to this county as Pilot County, and the associated Church as Pilot Church, as pseudonyms to protect the identity of participants.

Church's existing on-site childcare center, as well as five to six additional childcare centers in the area, to reach the estimated 400 children needed to break even. A separate grant was given to NC State University, with subawards to Duke University and the Technical Assistance Organization. The University of North Carolina at Chapel Hill participated without any funding. This second grant was intended to provide technical assistance and conduct an evaluation of the new central kitchen.

Planning and remodeling the Pilot Church's kitchen was intended to begin shortly after funds were granted. However, when COVID-19 hit in March of 2020, Pilot Church's childcare program was forced to close. When the Pilot Church received the grant funds early in 2021, its staff consulted with the program officer and decided to put the project on hold. The Pilot Church's childcare site reopened in March 2021, but due to the ongoing difficulties caused by COVID, the childcare center closed permanently in June 2021. The church arranged for Pilot County Community Action Head Start/Early Head Start to lease the space in September 2021 and open a program in the now-vacant childcare space at the church. The Church leadership hoped that the new central kitchen could provide meals to the Head Start children on site, and perhaps some of the other Head Start programs managed by the Community Action Agency.

In March 2021, the pastor who submitted the grant application was informed that they would be reassigned to two new churches in another county. Before their departure, the pastor approached district-level leadership in the Pilot Church to inform them of the project and to request that either a pastor be assigned with the capacity to manage the project, or that they return the grant funding to the Funder. The replacement pastor of the Pilot Church arrived in July 2021. The outgoing and incoming pastors discussed the grant during their transition period, and also had conversations with lay church leadership. Ultimately, the incoming pastor decided to proceed with the grant because they felt that they had the experience needed for this type of project, as they had nonprofit work experience and an MBA. The construction to renovate the existing kitchen began shortly after the second pastor arrived. A church member was identified who had experience managing a large kitchen and could help advance the project. This church member began working on the project in August 2021 as a volunteer, and served as kitchen director from October 2021 until resigning in April 2022. In July of 2022, the second pastor was reassigned, and the Pilot Church—whose membership had dropped drastically post-COVID to only about 20 members—hired a part-time pastor to replace the second pastor. In addition to the issues facing the implementation of this project, the Church struggled post-pandemic due to the closing of the childcare center (which had been a major source of revenue) and internal conflict related to changes in pastoral leadership (including racial tension).

During the start-up phase of this pilot central kitchen, three issues arose that ultimately led the church leadership to terminate the project. First, there were a number of permitting and construction issues that arose during the upgrading of the kitchen. The most significant issue was that the existing septic system was judged to be inadequate by the Pilot County Health Department for the number of meals the Pilot Central Kitchen wanted to serve, and the resulting upgrades to meet code were cost prohibitive, so they were unable to obtain a permit. Second, the Head Start program also ran into licensing issues related to the change in the kitchen's classification from serving an on-site childcare center to being considered a caterer. The Head Start Program would have had to invest in renovations to install a modified kitchen in order to receive catered meals into their facility. These potential additional costs led them to decide not to open a location at Pilot Church. Finally, with the departure of the second pastor and the kitchen director stepping down, there was no one to lead the project. In September 2022, the leadership at the Pilot Church decided to terminate the project and return unused grant funds to the Funder.

Results: Key Findings

Through semi-structured interviews with key stakeholders involved in the attempted pilot of a rural central kitchen designed to cater meals to childcare centers, as well as the authors' own experiences with the project, we are able to identify a set of

issues that we believe other communities should be aware of before attempting to replicate this type of project. We also describe why stakeholders were originally interested in this project, and why we believe it has value for other communities to consider replication, despite the roadblocks faced in this particular attempted pilot project.

Key Findings: Identified Issues that Inhibited the Project

A number of issues inhibited the progress of the Rural Central Community Kitchen project, ultimately leading to Pilot Church's leadership's decision to cancel the project in September 2022. Some of these issues were unprecedented, such as the COVID-19 pandemic, which placed the pastor at the time under a great deal of stress and which led to the closing of the on-site childcare center. In this section, we attempt to focus on the issues that we believe are generalizable to other communities interested in this type of project, rather than those which were more specific to the Pilot Church and the period of time in which they attempted to launch the kitchen. These four central issues provide guidance for communities interested in pursuing similar projects and include (1) the power dynamic between funder and grant recipient, (2) the pastor as a project lead, (3) lack of buy-in from church leadership and community stakeholders, and (4) sanitation and permitting roadblocks.

1. Power dynamic between funder and grant recipient

The effects of the latent power dynamic between the funder and grant recipient need to be acknowledged and addressed. During the evaluation interviews, multiple stakeholders expressed that the former pastor felt pressured to pursue the project by the Funder's direct invitation to apply for the Central Kitchen Pilot grant. When the on-site childcare center closed and the pastor originally applying for the grant was reassigned, multiple stakeholders thought it was time to cancel the project and return unspent funds to the Funder. However, the Pilot Church continued with the project when the newly assigned pastor arrived, as the pastor believed the project was viable, in part because they were not yet aware of the issues with the sanitation and permit requirements.

2. Pastor as project lead

The potential success of the central kitchen project relied too heavily on the pastor as the sole project leader. In the case of Pilot Church, having the church pastor lead the project presented two major challenges that offer guidance for other communities interested in similar projects. First, in some denominations, pastors maintain their appointments for three years, but sometimes less. In the case of the Pilot Church, a new pastor was appointed one and a half years after the grant was awarded, and again after only one year. This regular reappointment structure within the church disrupted and destabilized the project progress because the pastors were the project's lead. Second, the former pastor expressed that having primary leadership reside with a pastor is not reasonable given the other wide-ranging pastoral responsibilities within the church. The pastor should maintain oversight of the project, but not be responsible for its daily management.

3. Lack of buy-in from church leadership and community stakeholders

The evaluation interviews indicated that the central kitchen project at Pilot Church did not have buy-in within the church (from church leadership and lay members) or outside of the church (from other community stakeholders). Without buy-in from these groups, the project lacked critical engagement and support. During evaluation interviews, stakeholders expressed that there was a lack of buy-in from the church leadership and congregation due to concerns over the capacity of the small, aging congregation to fully engage and support the project. Thus, these interviews indicate that the greater Pilot Church community never felt that the central kitchen project was a good fit for the church as a whole. The Funder and the technical assistance and evaluation team were unaware of these concerns and the internal church dynamics, as the research team had a relationship with the original pastor on whom we relied for building buy-in from the church community.

The pilot project leaders did not fully engage other community stakeholders, such as the local Health Department (Environmental Health) and Smart Start, early in the planning process. More

specifically, the Health Department was not consulted before the kitchen renovations were begun. The County Smart Start was initially engaged during the planning process, but due to COVID-19 and the subsequent delays of the project, there was a lapse in further engagement and partnership with them. Although the central kitchen project was canceled before beginning to serve meals, establishing necessary community relationships and engaging with stakeholders during the planning process of the project would benefit a planning team by allowing them to incorporate the stakeholders' guidance to address anticipated future project challenges. A larger team involving the community and invested stakeholders would allow for shared leadership, addressing the second issue we identified (relying too heavily on the pastor as the project champion).

4. Regulations

The Rural Central Community Kitchen was unable to meet the requirements of the county's health and sanitation codes, even after kitchen renovations were complete. Previously, the kitchen had been used to prepare meals for the Pilot Church's on-site childcare center. However, Environmental Health considers central kitchens to be caterers; when the use of the kitchen shifted from on-site meal preparation to a central kitchen (i.e., caterer), the applicable regulations changed accordingly. Specifically, the number of meals being prepared increased, and the capacity of the church's septic system was deemed inadequate to meet the new parameters of the caterer permit.[10] In addition, when the kitchen was reclassified as a caterer, the on-site childcare fell under new guidelines as well, and would have had to modify the childcare center site so that it could receive and store meals prepared by the Rural Central Community Kitchen. Thus, it is of great importance to engage the local departments responsible for granting health and sanitation licenses early in the process. As suggested by the earlier review of the literature, there are many regulations that new food processing businesses need to be aware of, including labor laws and zoning in addition to those related to food safety.

Identified Benefits of the Central Kitchen Concept

Despite the numerous roadblocks the Pilot Church faced, which led to the premature termination of the central kitchen grant, almost all of the stakeholders interviewed during the evaluation process agreed that a central kitchen catering childcare meals would be a beneficial addition to their rural community. They identified four major benefits of a central kitchen in a rural area:

1. There is a potential to serve fresh, local, and healthy meals by the central kitchen. Rural childcare centers may not be able to prioritize providing these types of meals on their own due to budgetary, personnel, and capacity considerations. For example, the childcare center director said: "When I think about the private childcare facilities, [this] would save them so much. It really would. And they would be getting quality. That's a big thing with us, we want quality meals for these kids. Sometimes these private centers do the bare minimum because it is expensive."
2. It would reduce the administrative burden on childcare centers in terms of reporting for the Child and Adult Care Food Program. Childcare centers purchasing from central kitchens in urban areas benefit from easier reporting. In general, CACFP administration has been documented to be challenging for small childcare centers (Lee et al., 2022).
3. Some centers, especially in rural towns, struggle with recruiting and/or retaining skilled kitchen personnel to prepare meals. A central kitchen, with its trained personnel, can serve multiple childcare centers, removing this potential burden from individual centers.

[10] These regulations can be found in 15a NCAC 18a .1949, of North Carolina's Department of Environment, Health, and Natural Resources regulations: http://reports.oah.state.nc.us/ncac/title%2015a%20-%20environmental%20quality/chapter%2018%20-%20environmental%20health/subchapter%20a/subchapter%20a%20rules.pdf

4. At least one respondent brought up the importance of bringing healthy nutrition and childcare into the forefront of the church community. This respondent felt that this focus on health and wellbeing for children aligned well with their rural ministry. Furthermore, they believed the increased focus and involvement by the church community in these operations would benefit their overall community.

Structural Issues

As described in the literature review, there are many challenges to developing a start-up business to create infrastructure in local food systems. Many of the challenges that the Rural Central Community Kitchen faced could have been anticipated based on the previously mentioned challenges of operating small-scale businesses in the mainstream food system, including those related to high costs, increased labor needs, and difficulties meeting regulations (Fitzgerald et al., 2024; Fitzsimmons et al., 202, 2024). Costs and labor requirements are especially challenging in a system that favors large-scale businesses that can reduce costs based on economies of scale, and that also relies on a low-wage economy to reduce labor costs (Lyson et al., 2008). Attempting to challenge this system by operating at a smaller scale and paying staff a living wage predisposes a project to facing challenges, which is why many commercial kitchen startups and other local food infrastructure with social missions find themselves reliant on grant funding (Fitzsimmons et al., 2023; Freake & Godfrey, 2017; Jablonski et al., 2011; Rysin & Dunning, 2016). There are other structural issues which this project would have faced if it had progressed beyond the renovation stage, in addition to financial viability. Figuring out the logistics of transportation for deliveries to individual centers, given the rural nature of the location, remains a challenge that we were not able to explore how to address, and which other communities should be aware of as they consider the appropriateness of a similar project.

Importance of Technical Assistance

Stakeholders also identified the technical assistance provided as a positive aspect of the project. The Technical Assistance (TA) Organization has been successfully running central kitchens serving multiple childcare centers in three different urban counties for over three decades. They were instrumental and essential in advising both in the feasibility study as well as after the Pilot Church started implementing their grant. The Technical Assistance Organization offered in-person and online services to the Pilot Church. Throughout the process, the Technical Assistance Organization traveled to visit the church kitchen and facilitated a tour to their kitchens in urban areas, which allowed Pilot Church pastors and kitchen manager to observe an example operation.

In addition, they offered a menu of TA options (Figure 1). Due to the timing of the need for specific TA services, some of these options were utilized and some were not needed (as the kitchen never became functional). One lesson that our TA team learned during the course of this project is that the Technical Assistance Organization was less prepared to offer guidance related to licensing and permits, for two primary reasons. First, the licensing and permitting for the three

Figure 1. Menu of Technical Assistance (TA) Options Provided by Technical Assistance Organization

a. Contract Development	g. Sanitation Compliance
b. Budget and Business Plan	h. Spreadsheets and Templates Package
c. Transportation Options	i. Staff Training After Opening
d. Staffing and Training Advice Before Opening	j. Menu Support and Design
e. Organizing the Kitchen Systems	k. Recipes
f. Licensing and Permits Assistance	l. Group Purchasing Contract

Technical Assistance Organization kitchens in urban areas had occurred before either of the technical assistance providers had joined the Technical Assistance Organization, and therefore they did not have firsthand knowledge about the process. Second, in North Carolina, while there are statewide public health regulations, each county health department has the flexibility to interpret how they implement these rules, which can sometimes lead to county-based differences. Because of this, we recommend that any community interested in starting a central kitchen work directly with their county health department to ensure that they understand the parameters of the regulations that they need to meet. In addition to the fact that our team should have been more prepared to offer food-safety technical assistance and support with complying with appropriate regulations (Fitzgerald et al., 2024; Fitzsimmons et al., 2023), in retrospect we also should have provided support to the church earlier in the process, and done more outreach to build a community coalition interested in supporting the process. We also recommend that technical assistance providers help conduct a financial viability assessment before entering a market, either by developing their own profit and loss assessment, as our team did, or by using tools that are publicly available (see Bowser & Holcomb, 2018; Fitzsimmons et al., 2023).

Recommendations

Since there is still a need to pilot the concept of a rural central kitchen for childcare meal preparation in order to identify barriers and facilitators, our recommendations are targeted toward funders who might be interested in funding a pilot project. We also believe that community groups who might be interested in understanding whether the model is a good fit for their community will also benefit from these recommendations.

Primary Recommendation

Our primary recommendation is to make funding available through an open-call, competitive request for applications (RFA), and to break the funding availability into three phases. Offering funding through an open call will address the funder–recipient power dynamic that we observed, while a phased RFA will allow a funder to set the requirements a community group needs to meet before accessing additional funding. The requirements can be designed specifically to address the issues we identified, while a phased approach gives both the community and funder the chance to assess project viability before committing to the project. TA should be available to the community during all phases of funding and may include visits to urban examples of childcare kitchens, as well as evaluation support. The research team proposes the following phases and respective requirements to address identified issues.

Phase 1: Planning

Any rural community group can apply for planning funding. At the end of this one-year, small grant, the lead Community group would need to demonstrate to the funder that they have completed the following steps in order to apply for continued funding:

1. Assembled a Leadership Team that includes representation from local childcare support organizations, the County Health Department (Environmental Health), Cooperative Extension, local food hub, and/or other relevant community organizations and groups.
2. Engaged with county or state food safety Extension agents or specialists, or hired a food safety consultant.
3. Conducted outreach (for example, survey, listening session) with childcare centers to assess demand for catering services.
4. Identified a potential site for the central kitchen.
5. Worked with their County Health Department to determine if the site can be renovated to meet all necessary permitting requirements.
6. Worked with an architect to develop a set of plans or kitchen renovation that meets all licensing and permitting requirements.
7. If working with a Church, engaged with the Church advisory council and congregation to build interest and commitment to the project.
8. Developed a budget, business plan and an estimate-based break-even analysis.

Once a county team has demonstrated that it has a shared leadership model, buy-in from community groups and childcare centers, as well as a site with a set of renovation plans that have been reviewed and approved by the County Health Department (Environmental Health), they could apply for Phase 2 funding to implement the central kitchen model.

Phase 2: Implementation

Phase 2 would include:

1. Hiring a project manager.
2. Renovating the site.
3. Identifying vendors, including local food suppliers.
4. Training staff.
5. Developing recipes and submitting CACFP paperwork.
6. Creating standard operating procedures.
7. Entering into contracts with childcare centers.
8. Designing delivery logistics.
9. Preparing and delivering food.
10. Offering farm to ECE programming to participating centers.

Phase 3: Evaluation

Phase 3 would overlap with Phase 2 so that a participating community can consult with the evaluation team to set goals and determine a set of metrics and tracking tools that it can use to assess the process and measure impacts. An evaluation framework would be used to evaluate:

1. Improved meal quality.
2. Economic impacts on centers.
3. Financial viability of central kitchen (including updating the estimates in the break-even analysis developed in Phase 1 with actual financial outcomes).
4. Community impacts of the central kitchen.
5. Process evaluation of project planning, implementation, and technical assistance.

Conclusions

There were several factors that impeded the success of this pilot central kitchen project, both externally and internally. We have identified those issues that we believe may be generalizable to other communities, although we recognize the limitation of our study with regards to the small sample size. While we realize that there are many factors that are unique to this project, we also think that there is value for other communities to consider the obstacles that this project faced if they are contemplating developing their own community kitchen project. In addition, we recognize that one limitation to this study is our team's involvement in both the technical assistance and the evaluation of the project, which may have introduced bias into our interpretation of the factors leading to this project's lack of success. To address this, we have made attempts to be as objective as possible and to rely heavily on primary data that was collected. Our primary commitment has been to prioritize the lessons learned from the project, without blaming or passing judgment. We believe that it is important and often overlooked to critically examine and share information from failed projects.

From the examination of this case, the authors' recommendations for rural communities interested in central kitchens are the following: First, ensure community buy-in and shared leadership, rather than relying too heavily on an individual champion to lead the project (especially a pastor). Second, engage the County Public Health Department (Environmental Health unit) early in the process. We believe that these two primary recommendations can be addressed through a carefully crafted request for proposals (RFP) issued by a funder, which would have the added benefit of addressing the latent power dynamic between the funder and recipient.

We believe that the concept of a central kitchen that caters healthy meals to childcare centers in rural areas continues to bear merit. While the COVID-19 pandemic negatively affected this Rural Central Community Kitchen project, our community partners across the state have expressed that the current labor shortages experienced by most childcare centers make the provision of prepared meals a timely intervention. This perspective is supported by post–COVID-19 research about the factors impeding applications to

the CACFP program, where centers were interested in learning more about how to outsource meal preparation (Lee et al., 2022).

As the childcare sector continues to recover from the pandemic and to feel the aftershocks of supply-chain disruptions and understaffing, catered meals that incorporate healthy, local food may provide an important strategy. This context makes it all the more important to move forward with determining the success factors for starting up a successful rural central kitchen. 

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Appendix. Pro Forma Costs for a Central Kitchen Supplying Meals for 400 Children per Day

(Pro Forma Generated in 2018)

Central Kitchen Revenue per Child Fed per Day

Breakfast	$0.75
Lunch	$2.10
Snack	$0.60
Delivery Revenue	$0.55
Total	$4.00

Central Kitchen Meal Cost per Child Fed per Day

	Ingredient Cost	Labor Cost	Total
Breakfast	$0.29	$0.26	$0.55
Lunch	$0.99	$0.71	$1.70
Snack	$0.24	$0.25	$0.49
Delivery Expense			$0.55
Total			$3.29

Central Kitchen Annual Fixed Expense

General & Admin	$24,000
Rent	$24,000
Repairs	$5,000
Insurance	$5,000
Other G&A	$5,000
Total	$63,000

Note: Capital expense dependent upon current kitchen infrastructure