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Anchoring Communities Through Crisis: Enhancing Anchor Institutions' Roles In Local Food Systems

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ANCHORING COMMUNITIES THROUGH CRISIS: ENHANCING ANCHOR INSTITUTIONS' ROLES IN LOCAL FOOD SYSTEMS

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ABSTRACT

Anchor institutions serve as economic and social anchors for the communities they are embedded within. These mission-driven institutions often leverage their purchasing power and hiring practices to support community development. Local food purchases are one crucial way institutions support local economies and contribute to the development of robust and resilient food systems. The relationships institutional buyers establish with local farmers and intermediaries frequently require more time and energy to facilitate but result in more direct, connected, and mutually beneficial relationships, which, based on the findings of this research, are a critical source of resilience.

The COVID-19 pandemic is the most recent event to demonstrate vulnerabilities within food systems and global supply chains. The pandemic caused shortages of everyday food items, employment disruptions, and rising levels of food insecurity. However, even before COVID-19, there was a growing interest and need to develop resilience within food systems, primarily to withstand the shocks associated with climate change.

This thesis uses interviews, focus groups, and survey data to explore anchor institutions' roles in local food systems. The first article looks at the impact of COVID-19 on institutional foodservice operations and examines how institutions acted as anchors for their communities. The findings suggest that anchor institutions played an important role in supporting food access during the pandemic. The second article defines two complementary paths to enhance local procurement efforts at institutions: supporting new policy initiatives as policy entrepreneurs or using the practical methods identified by focus group participants to enhance local procurement efforts at institutions. Overall, this thesis argues that the relationships between local suppliers and anchor institutions support food system resilience and enhance institutions' ability to respond to shocks. Although New England anchor institutions already contribute significantly to local communities, the potential of these institutions is not yet fully realized.

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CHAPTER 1. INTRODUCTION

Whether it is the gusting winds of a hurricane or the eerie quiet of empty streets during the COVID-19 lockdown, nature always presents unexpected challenges that humans must adapt to and overcome. 2020 was a year of challenges with the COVID-19 virus creating ripple effects throughout the world, economy, and food system. Developing resilience, “the capacity to recover quickly from difficulties,” in these systems is important not only to meet our current challenges but also to prepare for the challenges of the future (“Resilience,” n.d.; Tendall, 2015). Without adaptation, future shocks will likely become more difficult to recover from, as predictions suggest climate change will result in more severe and frequent natural disasters (Botzen & Van Den Berg, 2009). These shocks have the potential to disrupt supply chains and lead to spikes in food insecurity (FAO, 2008).

Food system resilience is "the existence, development, and engagement of community resources by community members to thrive in an environment characterized by change, uncertainty, unpredictability, and surprise" (Magis, 2010, p. 401). A systematic literature review on the topic found resilience to be associated with lower levels of food insecurity and childhood malnutrition (Ansah et al., 2019). Food insecurity has increased throughout the pandemic due partially to the initial employment disruptions many families experienced (Smith & Wessellbaum, 2020; Leddy et al., 2020, Feeding America, 2020). This has serious mental and physical health implications; food insecurity is both a "well-established determinant of chronic disease morbidity and mortality" and a potential contributor to mental health conditions like depression (Leddy et al., 2020, p. 1).

One often-overlooked opportunity to address issues like food insecurity is by leveraging the capacities of anchor institutions (AIs). As community hubs, AIs frequently act as community gathering spaces and have the potential to enhance social capital. Communities with high degrees of social capital are more resilient and better able to adapt to meet acute community needs, like food insecurity (Chriest & Niles, 2018). Furthermore, the development of social capital within a community may have additional benefits, as communities with high levels of social capital are more likely to adopt climate change mitigation or adaptation strategies (Macias & Williams, 2016). Additionally, AIs offer further opportunities to reduce food insecurity by bolstering local economies through their procurement choices and hiring practices.

AIs are sometimes referred to as “eds and meds” because schools, universities, and hospitals are two of the most common examples; however, the term also encompasses organizations like museums and municipal governments (Ehlenz et al., 2014). These organizations are typically non-profits embedded (or "anchored") within a specific area. Their embedded nature is due to substantial infrastructure, real estate, or other physical investments within their region coupled with a commitment to serving the local community (Vize, 2018).

These organizations are usually substantial employers and economic forces within their communities, causing them to be called ‘place-based powerhouses’ (Vize, 2018; Bartley, 2014). Powerhouse may be an appropriate term considering that at the national level, hospitals and universities alone account for 8% of the workforce and spend hundreds of billions of dollars annually on goods and services (Schildt & Rubin, 2015). Many AIs also have an ethos of promoting community health and development included

in some institutions' mission statement or as part of their community benefit program, "making them natural allies" in community development work (Schildt & Rubin, 2015, p. 3). Additionally, due to AIs' immobile nature, these organizations have a vested interest in strengthening their local economies and supporting local constituents to develop a robust and loyal customer base (Common Markets, 2014; Alexander et al., 2017).

One way to utilize these institutions' purchasing power is through local food purchases, which has numerous positive economic, environmental, and social benefits (Conner et al., 2008; Community Wealth, n.d., Roche et al., 2016). AIs already purchase a substantial amount of food. For example, Vermont schools spent $16 million on food in the 2013-2014 school year (Roche et al., 2016). In addition, the "relocalized" food systems, created in part through institutional purchases, can contribute to food system resilience; as one experienced foodservice director within our research summarized, "a local food system actually decreases your risk in an emergency."

The experiences of anchor institutions in Vermont and throughout New England will serve as the basis of this research. Vermont offers an interesting case study as Vermonters are highly involved with local foods, leading the nation with the highest per capita direct agricultural sales (Farm to Plate, 2015). Additionally, Vermont has a number of AIs successfully purchasing significant amounts of local food, including the University of Vermont Medical Center (UVMMC), which bought $1.784 million worth of local food in 2012 (Becot et al., 2016). Although Vermont has a robust local food system, there remain opportunities for the continued development of food system resilience, as highlighted by the ongoing COVID-19 pandemic, which led to a 32.3% increase in food insecurity (Niles et al., 2020).

While Vermont is an interesting case study, the inclusion of experiences throughout New England is essential in accounting for the difference in institutional procurement policies and the unique challenges faced in different areas of the region (Farm to Institute New England & Center for Agriculture and Food Systems at Vermont Law School, 2019). Additionally, AIs throughout New England are highly engaged in local procurement work. For example, as of 2020, seventy hospitals throughout New England (of the approximately 250 facilities) had agreed to initiate local procurement by signing the Healthy Food Pledge developed by Health Care Without Harm (Health Care Without Harm, 2019).

Research Questions

This research aims to aid in understanding the relationship between AIs' local procurement initiatives and food system resilience, in addition to what makes local procurement efforts successful at the institutional level. This research examines the following research questions which are not yet adequately addressed in the current literature:

1. How does local food procurement contribute to perceived food system resilience at anchor institutions?
2. In what capacities have anchor institutions supported their local food systems and communities throughout the COVID-19 pandemic?
3. What tools have been the most helpful in advancing local procurement work at anchor institutions? What challenges do they still face?

CHAPTER 2: COMPREHENSIVE LITERATURE REVIEW

Anchor Institutions Engagement in Community Development

In 2002, as manufacturing declined throughout the United States, Michael Porter coined the term anchor institution (AI) to highlight the growing importance of institutions for local economies (Community Wealth, n.d.; Rutheiser; n.d.). In fact, in many areas throughout the country, AIs have surpassed manufacturing to become the leading employer in their region (Community Wealth, n.d.). As this term gained popularity, practitioners adopted the concept to the food systems context, focusing on the impact of local procurement. Since this is a relatively new term, there are still significant gaps in our understanding of AIs' roles in community development. However, even before the concept existed, a growing body of literature pointed to these institutions' current and potential contributions to local communities. This includes substantial bodies of work looking at institutional procurement at schools, universities, and hospitals.

This literature review will primarily focus on AIs and local food procurement. However, there are several strategies AIs use to support community development. The three primary ways institutions engage in community development work are intentionally leveraging their hiring, real-estate development, and procurement practices (Living Cities, 2013). A robust strategic development plan at an institution might have components of all three.

Intentionally leveraging the substantial purchasing power of institutions can support community development and create positive social change. Strategic community development plans chart a way for institutions to engage with the community

intentionally. These efforts are mutually beneficial due to the "bi-directional and self-reinforcing" nature of the relationship between communities and AIs, which collaboration and partnerships enhance (Alexander et al., 2017; Koh et al., 2020).

In the past, institutions have successfully leveraged their purchasing power to support institutional goals like promoting diversity, creating local jobs, and supporting the regional food system (Becot et al., 2016). For example, in 2010, University Hospital (UH) successfully leveraged its purchasing power to increase procurement from minority-owned businesses, and support their local economy, contracting with at least 80% locally based companies (Dubb & Howard, 2012). UH developed a five-year strategic growth plan designed "to intentionally target and leverage its expenditures to directly benefit the residents of Cleveland and the overall economy of northeast Ohio" (Dubb & Howard, 2012, p. 13). The project was a great success exceeding all but one of their goals and resulting in the development of new business relationships with over 100 minority or female-owned businesses (Dubb & Howard, 2012).

Women and minority-owned businesses tend to be more adversely impacted post-disaster, have poorer recovery outcomes, and have been particularly hard hit by the COVID-19 pandemic (Marshal et al., 2015; Dua et al., 2020). For example, the number of black-owned businesses declined by 41% from February to April of 2020, while white-owned businesses only fell by 17% (Fairlie, 2020). There are concerns that "the negative early-stage impacts on minority- and immigrant-owned businesses, if prolonged, may be problematic for broader racial inequality because of the importance of minority businesses for local job creation (disproportionately for other minorities)" (Fairlie, 2020, p. 9). Yet, almost paradoxically, minority-owned companies are more likely to have

added new services to support their communities. A survey of over 1,000 small businesses throughout the U.S. found that 40% of minority-owned businesses reported adding new community services, while only 27% of the general population engaged in these efforts (Dua et al., 2020).

Institutions can also leverage their substantial purchasing power to support local food systems. At the national level, hospitals and universities spend billions on foodservice, an estimated $11 billion in 2010, for example (Institute for a Competitive Inner City, 2014). Local procurement efforts are a way to effectively redirect the purchasing power of these institutions to support their communities and local economies (Institute for a Competitive Inner City, 2014). Figure 1 shows a theoretical framework, adapted from Common Markets (2014), depicting AIs' role in supporting local food systems. The basic principle underpinning this model is that anchor institutions have a vested interest in supporting their local and regional economies due to their embedded, place-based nature. Thus, when local economies are strong, the institutions also benefit, creating the potential for a positive feedback loop and a type of symbiosis between AIs and their local communities and economies.

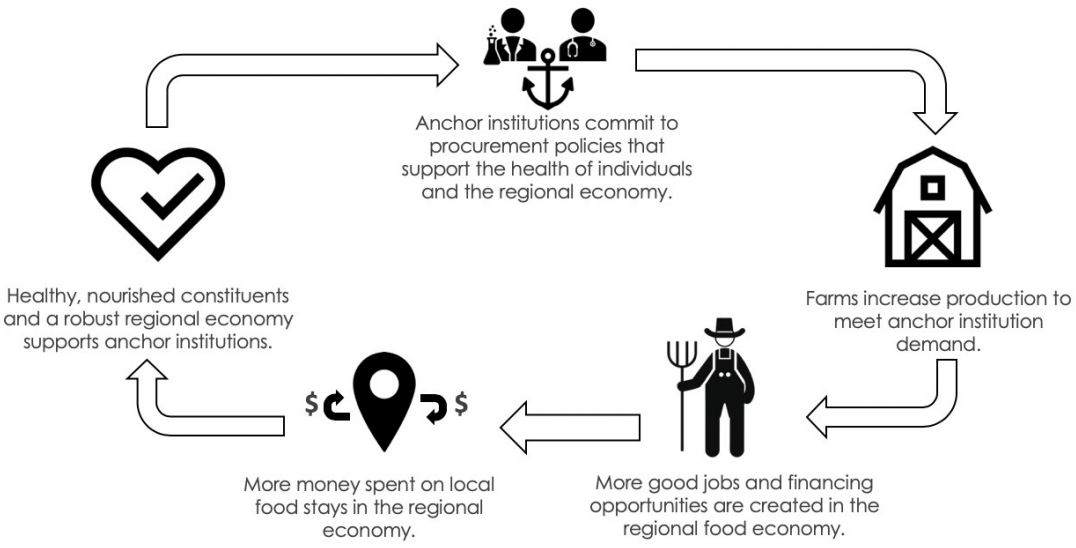

Figure 1. Anchor institutions role in regional food markets. Adapted from Common Market, 2014.

Local procurement efforts redirect money that would have left the local economy back into the community, which continues to have indirect benefits as this money continues to circulate within the regional economy. While the magnitude of the indirect effects varies with the context, the multiplier effects for local food purchases range from 1.25 to 2.4, meaning that for every dollar spent on local foods, another $0.25 to $1.40 stays in the local economy instead of leaving the region (Kane et al., 2011; Becot et al., 2016; Benedek et al., 2020; Roche et al., 2016). This is partially because farms with local food sales spend a higher percentage of their total expenditures in the local economy (Jablonski & Schmit, 2016; Christensen et al., 2019; Christensen et al., 2017; Henneberry et al., 2008). Common Market's model demonstrates this principle, showing that money spent on local food stays in the regional economy (Figure 1). These programs also create new jobs. For example, institutions often hire new employees to coordinate increased local purchases or process these food products, as do their local suppliers. Farms with

local sales have a higher reliance on local labor, leading to a greater employment effect (Jablonski & Schmit, 2016). Therefore, the economic benefits of FTI programs are two-fold, increasing both direct and indirect economic and employment effects.

Although local procurement provides an opportunity for economic development, numerous barriers hinder the adoption or expansion of institutional purchases of local foods. Each industry faces a unique set of challenges; however, there are common obstacles most institutions encounter. The most common barriers cited are pricing, labor challenges, costly liability insurance, inconsistent supply, seasonality, and the costs associated with maintaining multiple relationships with farms and vendors (Roche et al., 2015; Stahlbrand, 2016; Thompson & Gaskin, 2018). One of the overarching barriers to increased local procurement is a lack of 'infrastructure of the middle,' which refers to "the resources, facilities, and networks that create a critical mass, enabling alternative food producers to meet the needs of high-volume, high-profile foodservice clients" (Stahlbrand, 2019, p. 130). Infrastructure of the middle provides support to mid-size farms and helps to improve their economic viability by providing them access to resources that enhance the efficiency of their businesses, which then enables them to sell to the “high-volume, high-profile foodservice clients,” primarily composed of AIs.

Unfortunately, to support infrastructure of the middle, there must be a critical mass of mid-size producers within the region, which cannot thrive without this vital infrastructure. This creates a positive feedback loop and is one reason mid-size farms have been consistently declining in the U.S. since the 1950s (Conner et al., 2011; Brislen, 2018; Kirschenmann et al., 2004). Although this is true nationally, New England is home to some of the only states in the country that have an increasing number of farms, which

is likely due to the high demand for local foods in the region (Health Care Without Harm, 2014; United States Department of Agriculture (USDA), 2014; American Farmland Trust, Conservation Law Foundation & Northeast Sustainable Agriculture Working Group, 2014).

There are several reasons for this decline, "midsized farms are the most vulnerable in today's polarized markets, since they are too small to compete in the highly consolidated commodity markets and too large and commoditized to sell in the direct markets" (Kirschenmann et al., 2004, p. 1). Although mid-scale producers face significant challenges, they also have unique opportunities due to their size. Unlike smaller farms, they can produce unique products and benefit from economies of scale (Kirschenmann et al., 2004). Institutional markets allow mid-scale producers to take advantage of their strengths, providing farmers with consistent, bulk markets that offer a price premium without investing the time and energy to sell directly to consumers.

Food Value Chains

Collaboration and community partnerships strengthen AIs' ability to engage in community development work (Alexander et al., 2017; Perline et al., 2015). For this reason, AIs often utilize value-chains when engaging in local procurement efforts. Value-chains are a collaborative, strategic alliance between supply-chain partners that emphasize "transparency, working together, and providing fair returns to all partners under shared environmental or social values" (USDA, n.d.a, p. 1). The term originated in the business field but was adapted to the food systems context by Stevenson and Pirog to contrast the typical industrialized food supply chain (Bloom & Hinrichs, 2010).

Traditionally the modern, industrialized food supply chain has set up a competitive, profit-driven, "win-lose" buyer-seller relationship, which may be appropriate when working in undifferentiated commodity markets. The main features that distinguish value chains outlined by Stevenson and Pirog (2008) are product differentiation, information-sharing, strategic partnerships throughout the supply chain, and a commitment to all participants' welfare. The high levels of transparency among value chain actors foster stable, long-term relationships (Stevenson, 2009).

Heralded as a way to increase mid-size farm viability, value chains aid in the "scaling-up" of small to mid-size farms and provide access to new markets (Brislen, 2018; Stevenson & Pirog, 2008). One of the ways value chains contribute to increasing the viability of mid-scale farms is by providing a market for products with valuable embedded attributes like local, organic, and fair-trade (Kirschenmann et al., 2004). There requires a level of trust, either in the individual farmer or in the certifying agency, to leverage the economic value of embedded attributes, which are intangible to consumers (Marsden et al., 2000). Since local value chains are often shorter than traditional supply chains, they enable farmers to convey their value to end-users more accurately, either through direct communication with the consumer or through value-based labels (Marsden et al., 2000; Goodman & Goodman, 2009). These trusting relationships are present even in the larger, more complex local food systems when there are fewer direct-to-consumer relationships (Buckley et al., 2013).

Value-chain models may utilize food hubs, which are especially helpful in scaling up operations (Brislen, 2018). Previous research by Bloom and Hinrichs (2010) showed that food networks using existing infrastructure, used in conventional agribusiness, faced

more challenges with developing partnerships and coordinating supply. For this reason, the development of food hubs and other types of food infrastructure are valuable for supporting the value chain model. Food hubs fill several critical functions, including acting as a distribution hub, aggregating goods, and providing essential services like marketing and technical assistance (USDA, n.d.b). In addition, these resources allow farms to engage with institutional and other foodservice markets, which would otherwise be inaccessible (USDA, n.d.b).

Prominent barriers for institutions procuring more local foods are problems with consistent supply, coordinating multiple vendor payments, food safety concerns, and the labor required to prepare local foods (as they tend to have fewer processed options) (Gregoire et al., 2005; Braun et al., 2018). Food hubs alleviate some of these pain points for institutional purchasers. For example, they reduce problems with inconsistent product supply by acting as an aggregator and distributor. While the farm-direct model may work well for some small institutions and school districts, they are unmanageable for many larger facilities due to the substantial quantities of food demanded at that scale (Berkenkamp, 2006). For these reasons, school districts engaged with farm-to-school (FTS) efforts increasingly utilize intermediaries, like food hubs, within the value chain to deliver locally grown food (Izumi et al., 2010; Conner et al., 2012). As a result, value chains have been increasingly adopted as the procurement method in FTS and other types of institutional procurement programs, with promising results (Conner et al., 2012).

Contributions to Food System Resilience

Food system resilience has varying definitions, "the existence, development, and engagement of community resources by community members to thrive in an environment

characterized by change, uncertainty, unpredictability, and surprise" is one relatively comprehensive definition of this concept (Magis, 2010, p. 401). Broadly resilient systems have the capacity to overcome or withstand unpredictable disturbances, like the shocks associated with the COVID-19 pandemic (Tendall, 2015; Worstell & Green, 2017). This system-level approach to resilience recognizes that the capacity to withstand shocks results from the interactions between a system's component parts and is not a characteristic of one particular facet of the larger system (Ungar, 2018). Therefore food system resilience includes the ability of the entire food supply chain to adapt and overcome disturbances, including production, transportation, processing, and consumption (Bene, 2020).

Local procurement at AIs supports the development of community resources and fosters critical aspects of resilient systems. AIs support the development of 'hard' infrastructure like aggregation, distribution, and processing and 'soft' infrastructure like stable markets and local food champions (Stahlbrand, 2016; Becot et al., 2016). This infrastructure of the middle indicates the development of greater community resources, which support the development of more mid-size farms (Stahlbrand, 2016; Becot et al., 2016). This is particularly important, given, consolidation and increasing farm size are related to several negative social, economic, and environmental consequences, which have negative implications for the resilience of these communities (Kirschenmann et al., 2004).

Large-scale industrialized farms tend to be involved in commodity markets and rely less on local labor and inputs, resulting in money and employment opportunities leaving the region (Jablonski & Schmit, 2015; Kirschenmann et al., 2004). For these

reasons, the presence of large-scale industrialized farms is associated with numerous adverse economic and social outcomes, including increased crime rates, unemployment, and inequality (Lobao & Stofferahn, 2008; Kirschenmann et al., 2004). Additionally, large industrial farms lead to biodiversity loss and the degradation of critical ecosystem feedback loops, reducing the ecological resilience of these systems (Sundkvist et al., 2005; Lobao & Stofferahn, 2008). Summarized by Kirschenmann et al. (2004), "if present trends continue, these farms, together with the social and environmental benefits they provide, will likely disappear in the next decade. The 'public good' that these farms have provided in the form of land stewardship and community social capital will disappear with them" (p. 2). Therefore, AIs' ability to increase mid-scale farm viability can improve communities' social, environmental, and economic conditions, positively contributing to the region's resilience.

Additionally, local procurement at AIs foster critical aspects of resilience. Ungar's (2018) metasynthesis analysis of resilience identified principles of resilient systems, including functional redundancy, diversity, and connectivity. By engaging in local procurement efforts, AIs foster the development of short supply chains that align with these principles. Experiences during past crises indicate short supply chains are more resilient to a variety of disturbances (Fardkhales & Lincoln, 2021, Marocchino et al., 2020, Thilmany et al., 2020, Hardesty et al., 2014). AIs create functional redundancy in their food supply chains by engaging with both broadline distributors and local suppliers. Functional redundancy refers to how many system actors perform the same or a similar role; this ensures that if one actor fails or experiences a disturbance, there are others to fulfill the role (Fardkhales & Lincoln, 2021, Ungar, 2018). By engaging in local

procurement and developing relationships with local farmers, AIs reduce their reliance on a single food distributor.

These local procurement efforts also support a diversity of intermediaries and farm sizes. Institutional markets support the development of mid-size farms, which there are far fewer of in most communities. Diversity of farm size and intensity, in particular, has been shown to support resilience (Reidsma & Ewert, 2008). Diversity is critical to resilience because it ensures that a disturbance will not impact all system players in the same way, so when there is an extensive disturbance, it will not completely wipe out the capacity of an essential role within the system (Bullock et al., 2017; Ungar, 2018). For example, during the pandemic, when there were widespread transportation disruptions, having a variety of suppliers meant these disturbances impacted some businesses, especially local ones, to a far lesser extent.

Finally, the direct, personal relationships between AIs and local suppliers foster connectivity within the food system (Thilmany et al., 2020). As noted in the section on value chains, AIs often engage with local producers in transparent and mutually beneficial ways that cultivate trusting relationships (Buckley et al., 2013). The principle of connectivity suggests that collaborative networks are better able to come together to solve problems and adapt appropriately (Ungar, 2018).

Local Procurement at Common Anchor Institution Types

Farm-to-school initiatives

As one of the most prominent examples of an anchor institution, the literature on local procurement at schools is deserving of its own section, as they demonstrate some of the potential ways anchor institutions can contribute to local food economies and food system resilience. Additionally, while anchor institution is a relatively new concept, there is a rich body of literature studying FTS programs. FTS programs connect K-12 schools with local farms or distributors, typically with the intention of either increasing access to healthy foods, offering an educational opportunity to students, supporting the local food system, or some combination of these goals (Joshi et al., 2008). Thus, FTS initiatives provide a mutual benefit; for farmers, it offers a new market opportunity and revenue stream diversifier while benefiting the schools by providing them access to fresh, healthy foods (Vallianatos et al., 2004; Joshi et al., 2008).

Often FTS programs use a value-chain model to engage with their local food systems. According to Conner et al. (2012, pp. 110), "value chain partnerships can offer potential solutions to recurring barriers in farm-direct procurement that were found in previous research." For example, the logistics of coordinating with several local vendors is frequently a problem for FTS programs, but through alternative food networks created using the value chain model, these challenges can be reduced (Conner et al., 2012). Research has shown that partnership development was more effective than discounts or subsidies for increasing local procurement and that strategic relationship building within localized food systems aided in economic growth and increased local food availability (Roche et al., 2015; Conner et al., 2008). Outside of the FTS setting, research on hospital procurement has shown similar results, concluding that collaborative communication and

joint problem solving were essential capacity-building strategies at these institutions (Perline et al., 2015). If collaborative partnerships are the key to successfully engaging in more local procurement work, it makes sense that value chains would be well-suited to serve their needs, as collaboration and transparency are the values at its foundation.

Although there are numerous challenges FTS programs must overcome, they have substantial benefits that motivate schools to engage in this work. One of the primary motivations for the adoption of FTS programs is the potential health benefits for students. With these goals in mind, schools adopting FTS programs often seek to highlight the quality of fresh local fruits and vegetables (Schafft et al., 2010). Schools can accomplish this by showcasing local fruits and vegetables as individual items, part of the school meal, in a salad bar, or in a school garden. These efforts are not in vain, as research has shown that involvement with FTS programs is associated with stronger preferences for and higher intake of fruits and vegetables among students (Bontrager Yoder et al., 2014; Joshi et al., 2008; Graham et al., 2004; Ohmart & Feenstra, 2004). Engagement with FTS programs also reduces the number of students with no fruits or vegetables included as part of their lunch (Bontrager Yoder et al., 2014). These benefits may extend to staff and faculty, who report buying more school lunches and being more conscious of their dietary behaviors when involved in FTS programs (eXtension, 2020).

One potential reason cited for increased fruit and vegetable consumption was that students thought it was "cool" when foods came from farmers they knew (Izumi et al., 2010). These benefits extend outside of school; after participation in FTS programs, students are more willing to try new healthy foods (Ratcliffe et al., 2011). Teachers also felt FTS programs were more productive for teaching students about what is healthy than

just talking to them, especially when coupled with the ability to try new foods they wouldn't usually try (Vallianatos et al., 2004). The presentation of these new foods makes a difference in students' consumption; increased consumption is more pronounced when students have a variety of fresh options (Ohmart & Feenstra, 2004). For example, when a salad bar presented students with a wide variety of local fruits and vegetables, they consumed 111% of the minimum daily fruits and vegetable serving recommended by the USDA; students cited the element of choice as one reason for the popularity of this option (Ohmart & Feenstra, 2004).

A meta-analysis of 10 studies found a significant inverse relationship between vegetable intake and weight-related outcomes, with no apparent downside (Nour et al., 2018). This is significant because obesity is associated with several serious health risks, including cardiovascular disease, diabetes, certain cancers, and early mortality (Nour et al., 2018). Additionally, obese children and adolescents report lower health-related quality of life, affecting their ability to play and engage in normal social activities with their peers, like playing on the playground or participating in sports (Schwimmer et al., 2003).

These severe health implications also have serious economic consequences. To demonstrate the magnitude of this problem, in 2004, childhood obesity in 10-year-olds represented $14 billion in incremental healthcare costs (Finkelstein et al., 2014). Therefore, the potential health and economic benefits of FTS programs should not be undervalued. Additionally, FTS can help low-income and minority students who have poorer health outcomes than their more affluent peers and often receive lower-quality care (Gupta et al., 2007; Egede, 2006; Mays et al., 2007). FTS programs provide low-

income students access to fresh fruits and vegetables, which may otherwise be challenging to find due to a lack of availability in some communities local stores (Hendrickson et al., 2006). This may help reduce health disparities that African Americans, Hispanics, and Asian Americans face, improve their quality of life, and reduce the estimated $309 billion lost due to both direct and indirect costs associated with these disparities (LaVeist et al., 2009).

The COVID-19 pandemic may exacerbate these issues as students are out of school for a more extended period. Students tend to primarily gain weight in the months when they are not in school; these weight gains are particularly apparent for Hispanic, African American, low-income, and already overweight children who tend to have worse health outcomes (Wang et al., 2015; Franckle et al., 2014; Rundle, Park, et al., 2020; Von Hippel & Workman, 2016). Moreover, these weight gains are not temporary and have been shown to persist during the school year and accumulate from summer to summer (Von Hippel & Workman, 2016). These trends may even persist into adulthood since unhealthy weight gain in childhood is associated with higher weight in adulthood, especially for older children (Rundle, Factor-Litvak, et al., 2020). Unfortunately, students who receive free and reduced-price meals missed more than 1.15 billion school meals in just the first three months of the COVID-19 pandemic (Kinsey et al., 2020).

While health goals are one of the primary reasons for adopting FTS initiative, they also provide an added educational opportunity for students to learn more about their environment, nutrition and food system (Parmer et al., 2009; Roche et al., 2016). Most teachers agree that providing nutrition education is important and believe it would be feasible to incorporate more nutrition topics in the curriculum (Graham et al., 2004).

These educational opportunities are essential as children are increasingly unaware of their food's relationship to the ecosystem and land (Graham et al., 2004). Additionally, FTS programs improve students' enjoyment of school, leading to increased academic engagement (Wien, 2017). Due in part to these perceived benefits, there has been increased adoption of FTS programs, with 42% of schools participating during the 2013-2014 school year, spending $800 million on locally produced items (USDA, 2015).

In addition to these school-specific benefits, FTS programs support economic development within local communities and the opportunity for increased farm income (Kane et al., 2011; Becot et al., 2017). The primary motivation for farmers' participation in these programs was to diversify their marketing strategies and to contribute to the "social benefit" of the community (Izumi et al., 2010). The relationships created through FTS programs have also been resilient in the face of the COVID-19 pandemic. As many schools have taken on the role of feeding the community, almost one-fourth of schools serve local foods as part of their emergency feeding programs (School Nutrition Association, 2020).

Like other local procurement efforts, FTS programs have direct and indirect economic and employment benefits, typically measured by the multiplier effect. The magnitude of the multiplier effect varies with location, scale, and other factors. However, case studies looking at the employment multiplier effect show it typically ranges from 1.27-3.30 for FTS programs, meaning every new job created by a school district in local procurement leads indirectly to the creation of 0.27 to 2.30 jobs in the local community (Kane et al., 2011; Roche et al., 2016; Becot et al., 2016). FTS also leads to more money staying within the local economy instead of seeping out of the region (Christensen et al.,

2017). For example, in Georgia, for every $100 spent on FTS purchases, $3 extra stayed in the local economy (Christensen et al., 2017). While this may seem insignificant, it adds up if you consider that the schools in this study spent almost $230 million on food and $15 million on local food products (Christensen et al., 2017).

Farm to school programs have some unique benefits compared to local procurement efforts at other types of anchor institutions, but they also demonstrate some of the expected benefits. Although both schools and universities focus on education, the composition of their customer base and organizations may be substantially different, leading to different outcomes. The following section will examine some of the unique and similar characteristics of university procurement.

University Procurement

Universities or the "eds" in "eds and meds" are a principal example of an anchor institution. A survey of colleges throughout New England, which received responses from half of the universities in the region, found that universities spent nearly $57 million on local foods in 2016, accounting for, on average, 21% of a university's annual food budget (Farm to Institute New England, 2017). While this is substantial, most respondents believed that their university would increase local procurement in the next three years and only 5% of respondents were currently purchasing no local food products (Farm to Institute New England, 2017).

These efforts aren't just taking place in New England. Nationally over 40 universities have committed to the Real Food Challenge, setting targets for local, sustainable, and humane purchasing (Real Food Challenge, 2020). Part of the reason for this increase in local procurement might be a response to student preferences (Benson &

Fleury, 2017). To adjust procurement practices, universities must communicate these preferences to their foodservice operator, so it is unsurprising that external foodservice operations use less local foods than self-operated dining services (Farm to Institute New England, 2017).

Traditional K-12 school lunches are highly regulated, and students who cannot afford these lunches may have access through free and reduced lunch programs. On the other hand, universities are working with customers who are often making food purchasing decisions on a budget and are still developing connections and interests in specific brands and products. These college-aged customers are an influential consumer segment with awareness for social and environmental responsibility (Farris et al., 2002; Porter Novelli/Cone, 2019; Fromm, 2019).

Universities can leverage this awareness and desire for social and environmental responsibility to promote local foods on college campuses. According to Campbell et al. (2004, pp. 48), "discussing and promoting the benefits and attributes of local food (including better taste and freshness, support for the local economy, and minimized environmental impact) will work to increase the price/quality inference that customers make when evaluating a local product." Pointing to these benefits may also help students develop product involvement, a personal connection with a product or activity, which increases willingness-to-pay (WTP) for products like local foods (Campbell et al., 2014).

There are several ways universities can increase student involvement with local foods, highlighting their use in the cafeteria, holding events showcasing local food products, or through focused marketing campaigns (Campbell et al., 2014). While students are willing to pay more for sustainable, local products, they also valued welfare-

oriented qualities, like humanely produced or living wage, so it is important to highlight these qualities of foods as well (Feenstra et al., 2011).

Hospital Procurement

Hospitals have an inherent health and wellness mission in which local foods can play an integral supporting role. Hospitals across the country increasingly recognize the importance of the food options they provide for the health of their patients, employees, and communities. These programs can reach a significant portion of the population, given that at the national level, hospitals employ 5 million workers and see nearly 37 million patients annually (Institute of Food Technologists, 2012).Nationally the health care sector spends an average of $12 billion on food and beverages annually, and a single hospital may have an annual budget of $1-8 million (Food Service Director Magazine, 2011).

Many hospitals express an interest in adopting or increasing the use of local foods in their operations (Raison & Scheer, 2015). For example, 20 individual hospitals in New England reported communicating their preferences for more local food to their group purchasing organization (GPO) and distributors, and three (of the seven) states in the region have developed and sent formal letters to distributors as a collective (Health Care Without Harm, 2014). Additionally, of the more than 5,750 hospitals registered in the U.S., 596 hospitals signed the Healthy Food Pledge developed by Health Care Without Harm, agreeing to initiate local procurement, reduce waste, and educate their communities about local and sustainable procurement (Institute of Food Technologists, 2012; Health Care Without Harm, 2019). That is about 10% of hospitals nationally.

Although numerous hospitals already engage in improving the quality of food they serve, many hospitals still serve fairly unhealthy, unsustainable foods.

The prevalence of fast-food and unhealthy vending options at hospitals is one such example. Fast-food consumption is associated with several poor health outcomes (Poti et al., 2014; Odegaard et al., 2012; Jiao et al., 2015), which has caused many people to question whether it makes sense to be serving high-calorie fast food in healing spaces where we care for our most sick (Cram et al., 2002; Lesser, 2006, Lesser et al., 2012; Cohen, 2006). Others take it a step further, arguing that "wellness and nutrition education and training programs and in-house foodservice should arguably be as important as medical treatment for overall patient and employee health" (Raison & Scheer, 2015). This has led to some hospitals removing fast food options from their facilities (Lawrence et al., 2009). Additionally, we are increasingly seeing hospitals use their farm-to-hospital programs to promote health and responsible farming practices beyond their campuses (Cohen, 2006).

Although there is substantially more information on how FTS programs impact fruit and vegetable consumption, there are some promising initial results from hospitals. Hospitals are uniquely situated to support these types of markets because "there are opportunities for generating cross-subsidies for markets located in low-income areas, where relatively well-paid physicians and hospital employees may generate sufficient sales that low-income residents alone may not be able to provide to keep that market going" (Cromp et al., 2012, pp. 30). A survey of over 2,000 market-goers at 37 farmer's markets established on Kaiser Permanente hospital campuses found that 74% of market patrons report eating more fruits and vegetables as a result of their visit (Cromp et al.,

2012). Most market-goers felt that the increase in consumption was substantial, reporting eating “a lot” more (Cromp et al., 2012). Another valuable nutritional outcome is the variety of fruits and vegetables consumed (USDA & U.S. Department of Health and Human Services, 2010). This outcome was also improved, with 71% of patrons reporting eating a greater variety (Cromp et al., 2012). These benefits may be especially pronounced for employees as they are the most likely to be taking advantage of various farm-to-hospital programs (Cromp et al., 2012; Becot et al., 2016). This is mainly because employees find it convenient to access these resources, but many also cite healthfulness as a motivator (Becot et al., 2016).

Despite healthcare workers having a better understanding of the health consequences related to obesity, they are not immune to the rising rates of obesity and decrease in overall health in the U.S., actually suffering from “higher rates of heart disease and asthma than workers in all other sectors” (Marill, 2013, pp. 9). The FTS section outlines the potential health benefits of increased fruit and vegetable consumption. However, it is important to reiterate the magnitude of these health problems, as unhealthy diets are responsible for more preventable deaths per year than smoking (GBD 2017 Diet Collaborators, 2019).

Local procurement efforts at hospitals also support regional food systems and economies. The University of Vermont Medical Center (UVMMC) offers an excellent case study of the impacts of local procurement efforts. In 2012 the UVMMC spent 44.3% of its $4.03 million food budget on Vermont foods, resulting in $1.74 million spent in the local food economy (Becot et al., 2016; Health Care Without Harm, 2014). The spending on local foods by the hospital indirectly generated more than $625,000 in the local

economy, a multiplier effect of 1.38 (Becot et al., 2016). These local procurement efforts also have employment implications for the region. The total employment effects of this program led to the creation of 14.3 new jobs within the region, a multiplier effect of 1.72 (Becot et al., 2016).

One unique opportunity for hospitals to support their communities is through their community benefit program. The implementation of the Affordable Care Act (ACA), sometimes referred to as "Obamacare," offers an opportunity to increase the impact of hospitals on their local communities. Nationally nearly 60% of all hospitals are non-profits, and another 20% are government-owned, with the remaining 20% being for-profit organizations (Norris & Howard, 2019). Collectively it is estimated that hospitals benefit from $24 billion annually in tax exemptions (Rosenbuam et al., 2015). Changes in the laws required to claim tax exempt status now require hospitals to have an implementation strategy that demonstrates how hospitals' community benefit programs or charitable resources address health needs; this includes accessing social, environmental, and health factors (Norris & Howard, 2019). Before implementing this new rule, the majority of community benefit was spent on patient services, which provide a safety net to the uninsured, but did little to provide preventative care, proactive interventions, or develop community resilience (Young et al., 2013). This regulation aims to address community health issues proactively and develop community resilience. Unfortunately, this program is still in its infancy and has only led to a 0.5% increase in community benefit spending so far (Young et al., 2018).

While there is a wealth of literature detailing the barriers and benefits of local procurement efforts at anchor institutions, there are still some significant gaps in our

understanding of anchor institutions' role in community resilience. Since the COVID-19 pandemic is also ongoing, there is the opportunity to better understand how this disaster impacted local procurement at anchor institutions and what has made individual institutions more resilient to these shocks. Specifically, we will seek to address these gaps by asking the research questions outlined in the introduction section's concluding remarks. In addition to addressing these literature gaps, this research aims to develop a practical toolkit for anchor institutions to be published in English and Spanish on the Extension and Eden websites.

CHAPTER 3. BEYOND PROCUREMENT: ANCHOR INSTITUTIONS AND ADAPTATIONS FOR RESILIENCE

Abstract

Local food purchases at anchor institutions (AIs) support community development and food system resilience, according to prior research. These placed-based organizations, like schools, universities, and hospitals, support their communities by virtue of their mission. The COVID-19 pandemic presents a unique opportunity to examine how these institutions can

support food system resilience during a period of increasing food insecurity and supply chain disruptions. This study uses mixed methods, including interview and survey data, to investigate how foodservice operations at New England AIs adapted to COVID-19 and supported local food systems throughout the pandemic. The findings demonstrate that AIs experienced shortages of everyday food items among their broadline distributors, large, national distributors that carry a wide variety of food products. To adapt to these shortages, AIs utilized their mutually beneficial relationships with local producers to find alternative sources for these products. Having relationships with local and national distributors was an important source of functional redundancy within institutional food supply chains, reducing institutions' reliance on a single supplier and enhancing their resilience. This finding suggests a further incentive for AIs to engage in farm-to-institution programs, given that local purchasing relationships help AIs adapt to systemic disruptions. Another important theme identified by this research was AIs widespread adoption of food access initiatives, like pop-up grocery stores and serving free or reduced

price meals. These initiatives supported staff members and communities in response to food shortages and increases in food insecurity. We suggest that the diverse array of food access initiatives, both those founded in response to COVID-19 and those in place before the pandemic, are an accessible way for AIs to support food system resilience in capacities beyond procurement.

Introduction

The COVID-19 pandemic caused shocks throughout the global food system, with ripple effects creating supply chain disruptions, food shortages, and increases in global food insecurity (Leddy, Weiser, Palar & Seligman, 2020; Smith & Wessellbaum, 2020). Anchor institutions (AIs) are organizations, typically nonprofits, that are rooted in place and committed to supporting their communities (Birch, Perry & Taylor, 2013). The most common examples of AIs are universities, schools, and hospitals. They have been touted for their potential and realized contributions to community development and resilience (Birch et al., 2013). Many of these institutions include community health and development as a fundamental component of their mission statement, making them "natural allies" in community development work (Schildt & Rubin, 2015, p. 3). Extant literature has identified three primary avenues for AIs to contribute to community development: by providing employment opportunities to community members, through real-estate development, and by considering community development goals in their procurement choices (Living Cities, 2013).

Using survey and interview data from a wide range of New England AIs, this research investigates how AIs supported their local communities and contributed to food

system resilience during the first nine months of the COVID-19 pandemic. Many New England AIs are highly engaged in local procurement work, making this an interesting area to study AIs' contributions to food system resilience. For example, a survey of colleges throughout New England found that universities spent nearly $57 million on local foods in 2016, accounting for, on average, 21% of a university's annual food budget (Farm to Institute New England, 2017). Furthermore, as of 2020, seventy hospitals throughout New England (of the approximately 250 facilities) had agreed to initiate local procurement by signing the Healthy Food Pledge developed by Health Care Without Harm (Health Care Without Harm, 2019). Interviews included a wide range of AI types including, schools, hospitals, and universities. In contrast, the survey portion of this research comes from the Healthy Food in Health Care survey and provides hospital-specific data. A concurrent nested triangulation strategy was used to corroborate the results and identify themes relevant to all AI types.

Specifically, this study seeks to answer the following research questions: 1) how did anchor institutions adapt to the disruptions caused by COVID-19? and 2) were anchor institutions able to support local food systems and communities throughout the first nine months of the COVID-19 pandemic, and if so in what capacities?

Literature Review

Studies looking at the role of AIs in the food systems context have primarily focused on the impacts of institutions' purchasing and hiring practices (Becot, Conner, Imrie & Ettman, 2016; Kane, Kruse, Ratcliffe, Sobell & Tessman, 2011; Roche, Becot, Kolodinsky & Conner, 2016). AIs foodservice operations spend billions annually; in

2010, foodservice operations at hospitals and schools spent an estimated $11 billion nationwide (Institute for a Competitive Inner City, 2014). Thus, when AIs leverage their purchasing power and hiring practices to support their local food system, they can have significant economic and employment effects.

When institutions commit to purchasing large and consistent amounts of local foods through Farm-to-Institution (FTI) programs, they can contribute significantly to their local economies. Local purchases can have ripple effects beyond the money spent directly on food products: farms with local sales spend a higher percentage of their expenditures in the regional economy, meaning that money spent on purchases from these farms circulates locally longer (Christensen, Jablonski, Stephens & Joshi, 2017; Christensen, Jablonski, Stephens & Joshi, 2019; Henneberry et al., 2008; Jablonski & Schmit, 2016). For example, an in-depth study of local food purchases at the University of Vermont Medical Center (UVMMC) found that in 2012 UVMMC contributed as much as $2.75 million to the local economy (Becot et al., 2016). This number includes both the $1.64 million UVMMC spent directly on local foods as well as its ripple effects; the local expenditures of its vendors and jobs created as a result of this initiative generated between $625k (lower bound estimate) and $1.11 million (upper bound estimate) (Becot et al., 2016).

FTI programs can also create employment opportunities within local communities. In the UVMMC example, the hospital added two full-time positions to manage and coordinate the increased volumes of local foods, representing over $95,000 in labor income (Becot et al., 2016). UVMMC's local purchases directly created 8.3 new jobs spread between the hospital and their vendors (Becot et al., 2016). The total

employment effect was 14.3 new jobs spread throughout the region, a multiplier effect of 1.72 (Becot et al., 2016). Case studies looking at the employment effect of Farm-to-School (FTS) programs have shown similar results; various studies have found that FTS programs have an employment multiplier effect ranging from 1.27-3.30, demonstrating that local food purchases can create new employment opportunities within a region (Becot et al., 2016; Kane et al., 2011; Roche et al., 2016). Farms with local sales typically have a higher reliance on local labor, accounting, in part, for these significant effects (Jablonski & Schmit, 2016).

Contributions to Resilience

Food system resilience, broadly defined, is the capacity of a food system to withstand or overcome disturbances (Tendall, 2015; Worstell & Green, 2017). This systems-level approach to resilience examines shock's direct and indirect impacts on the entire food supply chain, including production, transportation, processing, and consumption, which have all experienced adverse effects related to the pandemic (Béné, 2020). Food systems are complex and dynamic, making it challenging to develop one cohesive measure of resilience. However, commonalities between different conceptual models of resilience suggest that resilient systems promote connectivity, demonstrate experimentation and learning, and include diversity and functional redundancy (Fardkhales & Lincoln, 2021; Ungar, 2018). Furthermore, Ungar (2018) asserts that the capacity to withstand shocks is not a trait of the food system itself, but rather the result of interactions between its components "that make it possible for a system or its parts to function well during and after a disturbance" (p. 22). This research will focus on how

interactions between AIs, producers, and communities hindered or supported food system resilience during the COVID-19 pandemic. We address two primary food system shocks: supply chain disruptions and challenges to food access (Béné, 2020).

Four markers of food system resilience identified in the extant literature are fundamental to understanding the novel context of COVID-19: functional redundancy, experimentation and learning, farm diversity, and connectivity (Fardkhales & Lincoln, 202; Ungar, 2018). To demonstrate how these concepts contribute to resilience, we will refer to a study conducted during COVID-19 in Hawaii which showed that local food hubs contributed to the food system resilience of the islands. This study highlighted how food hubs adapted to shortages of staple carbohydrates by sourcing locally grown breadfruit (Fardkhales & Lincoln, 2021). This is an example of experimentation and learning, which is essential to resilience because organizations need to learn new skills and apply new practices to adapt to novel contexts (Ungar, 2018).

Having multiple vendors sourcing products for the island, including food hubs, is an example of functional redundancy and diversity. Functional redundancy refers to how many system actors perform the same or similar functions so that if one fails, there are still others to fulfill that role (Fardkhales & Lincoln, 2021). In this case, when there were challenges with larger distributors, the food hubs were still able to distribute staple carbohydrates. While having multiple organizations to rely on is an essential source of resilience, diversity is also crucial in this context. COVID-19 did not impact the local supply chains in the same ways as the national supply chains that experienced transportation and other disruptions. Having a diverse array of food suppliers, local and national, increases the likelihood that some will be less affected by a particular

disturbance and will continue to function well; without diversity, an extensive disturbance can completely wipe out the capacity of an essential role within the system (Bullock et al., 2017; Ungar, 2018).

Another contributor to food system resilience is the existence of short supply chains, often characterized by direct relationships with local producers (Hardesty et al., 2014; Thilmany, Canales, Low & Boys, 2020). Even in the unique context of COVID-19, there has been some evidence that short local and regional supply chains were more resilient than their national and global counterparts (Marocchino et al., 2020; Fardkhales & Lincoln, 2021). This resilience is partly due to the nimble, connected, and flexible nature of short supply chains and the direct, personal relationships between local producers and buyers (Thilmany et al., 2020). Additionally, short supply chains often foster other critical aspects of resilience, namely connectivity and diversity (Hardesty et al., 2014; Ungar, 2018).

Institutional Benefits

While the majority of literature on AIs focuses on institutions' contributions to local food systems, institutions receive numerous benefits from FTI programs. Due to AIs' embedded, place-based nature, these institutions have a vested interest in supporting their local communities and economies. AIs indirectly reap the benefits of robust local food systems and economies due to the "bi-directional and self-reinforcing" nature of the relationships between communities and AIs (Alexander, Clouse & Austrian, 2017, p. 1; Common Markets, 2014; Koh et al., 2020). AIs indirectly benefit from strong local economies, which make institutions, like hospitals and universities, more accessible to

local customers (Common Markets, 2014; Jablonski & Schmit, 2016). A theoretical model of the role AIs play in local food systems, developed by Common Markets (2014), demonstrate the indirect benefits institutions gain from supporting the local food system, stating institutions benefit from "healthy, nourished constituents and a robust regional economy [that] supports anchor institutions" (p. 4).

Many institutions also use FTI programs to encourage healthy eating among their students, staff, or clientele. FTS programs, in particular, are used to encourage healthy eating behaviors and are associated with a higher intake of fruits and vegetables (Bontrager Yoder et al., 2014; Graham, Feenstra, Evans & Zidenberg-Cherr, 2004; Joshi, Azuma & Feenstra, 2008; Ohmart & Feenstra, 2004). Other types of institutions have seen similarly promising health effects with FTI programs. For example, a survey of over 2,000 marketgoers at 37 farmer's markets on Kaiser Permanente hospital campuses found that 74% of respondents reported eating more fruits and vegetables due to their visit to the market (Cromp et al., 2012). Many FTS programs also have an educational component, teaching students about the environment, nutrition, and the food system (Parmer, Salisbury-Glennon, Shannon & Struempler, 2009; Roche et al., 2016). Additionally, FTS programs are associated with an improvement in students' enjoyment of school and increased academic engagement (Wien, 2017).

COVID-19 Disruptions

The COVID-19 pandemic created significant challenges for the food system. The related disruptions provide an opportunity to better understand food system resilience or lack thereof in a unique and unprecedented context. Three critical issues that impacted

AIs and the communities they support were the increase in food insecurity, the widespread supply chain disruptions that led to shortages of everyday food items, and a rapid decrease in demand for institutional foodservice (Fardkhales & Lincoln, 2021; Feeding America, 2020; Katz, Jordan, & Ognyanova, 2021; Ramsey, Goodwin, Hanh & Holt, 2020). Many institutions experienced a precipitous decline in demand for their products as hospitals closed to the public, and educational courses transitioned online (American Hospital Association, 2021; Katz et al., 2021).

In addition, COVID-19 caused employment disruptions for thousands of families, making food insecurity an increasingly relevant concern (Feeding America, 2020; Leddy et al., 2020; Smith & Wessellbaum, 2020). At the national level, the number of food-insecure individuals grew by 17 million in 2020 (Feeding America, 2020; Gunderson, Hake, Dewey & Engelhard, 2021). These spikes in food insecurity impacted the regions covered in this study. For example, Vermont showed almost a third increase (32.3%) in food insecurity in the early months of the pandemic (Niles et al., 2020). In Maine, which already had the highest level of food insecurity in New England, there has been a 25% increase (Han, 2021). Nationally, these effects disproportionately fell on communities of color, exacerbating existing racial disparities (Wright & Merritt, 2020).

COVID-19 simultaneously led to supply chain disruptions and product shortages (Fardkhales & Lincoln, 2021; Ramsey et al., 2020). These disturbances worsened individuals' food access, as many products were widely unavailable at grocery stores during the early months of the pandemic. Institutional buyers experienced similar shortages and were unable to source common food products from their distributors (Brandon Williams, personal communication, June 30, 2021). The meatpacking industry

experienced particularly significant disruptions; wholesale meat prices fluctuated and increased significantly, affecting institutions' ability to source and pay for these products (Ramsey et al., 2020).

Applied Research Methods

This mixed-methods study intends to facilitate a greater understanding of how New England AIs' foodservice operations adapted to the COVID-19 pandemic, with a specific focus on local food systems and communities. Interviews included the most common types of AIs, including universities, schools, and hospitals, while survey data focused solely on hospitals. The authors worked closely with two partner organizations, Health Care Without Harm (HCWH) and Farm to Institution New England (FINE), to develop and implement the survey portion of this research. Due to the widespread disruptions related to COVID-19, especially in the healthcare sector, the research team predicted a low survey response rate. Therefore, the research team applied a concurrent nested triangulation strategy to integrate, confirm, corroborate, and cross-validate study findings (Terrel, 2012). The concurrent nested triangulation method prioritizes one data collection method, in this case, the qualitative data, which reflects the experiences of a wide variety of institutions. An advantage of this method is that it allows researchers to gain a broad perspective of an issue; for this study, it allowed for an understanding of AIs experiences during COVID-19 while providing some hospital-specific insights (Terrel, 2012).

Interviews

To develop an in-depth understanding of institutions' experiences during COVID-19, the research team conducted interviews between September and December of 2020. Interview questions focused on the changes in various aspects of institutions' management and operations. A team comprised of faculty and extension educators from the University of Vermont recommended research subjects based on the subjects' interests and efforts in local food systems. Interviews with five anchor institutions (hospitals or educational institutions) and two local intermediaries that regularly conduct business with AIs serve as the basis of the qualitative portion of this research. Researchers interviewed one foodservice administrator from each facility. Researchers choose to interview administrators based on their detailed knowledge of the institutions' foodservice operations and purchasing habits. Interviews lasted approximately 45-minutes to an hour. Since interviews were not audio-recorded, a minimum of two researchers, typically three, collected independent notes and quotes from the interview sessions. To compensate for the lack of audio recordings, notes from multiple independent notetakers were compiled and compared for accuracy to increase the reliability of the findings. These notes served as the basis of the qualitative analysis portion of this research.

Analysis Process

Thematic analysis identified themes and patterns in the qualitative data. Each stage of the analysis was conducted independently by two researchers to enhance the quality and reliability of the findings while reducing subjectivity. First, following the

principle of emergent thematic analysis, coders read the interview notes, compared them for accuracy, and combined the multi-sets of notes into a single coding document. Once this process was complete, researchers uploaded the documents into NVivo for analysis.

Once coders had familiarized themselves with the data, the process of open coding began. Open coding refers to the process of coding every passage with adequate themes. This iterative coding process continued independently until strong and recurrent themes emerged. The coders then met to discuss their codes, identifying the similarities and differences before collapsing related codes and expanding others. Next, the coders re-read and re-coded the data independently before meeting again to develop a single, consistent description of coding categories to aid in the collective coding process. The iterative process repeated until saturation, when no new themes emerged from the data. At this point, interviews and analysis ceased. The following process was axial coding, which involves reviewing open codes for recurrent and forceful themes or categories to identify the broader themes within the dataset. While more extensive quotes were challenging to include without interview transcripts, the results include short quotes to represent and honor participants' voices and support the identified themes (Owens, 1984).

Survey

In collaboration with HCWH and FINE, the research team developed a survey instrument consisting of 34 open and closed-ended questions in SurveyMonkey. This new iteration of the Healthy Food in Health Care Survey, first conducted in 2009 by HCWH, facilitated a better understanding of hospitals' dining programs, procurement choices, and how they had changed in response to COVID-19. This biannual survey tracks metrics

related to food purchases and helps HCWH make informed decisions about where to focus their resources and efforts to best support local food purchases at hospitals.

The 34 survey questions focused on hospitals' local food purchases, the impact of COVID-19 on their dining services, and the organization's role as an AI in their community, reflecting similar themes as the interview questions. However, while the interview questions were opened-ended, the survey consisted primarily of closed-ended questions to provide quantitative assessments of the research topics, complimenting the nuanced and longer qualitative responses. The survey was piloted and adjusted as necessary by the research team and an advisory group of Health Care Without Harm partner organizations.

The sampling frame included all health care facilities with a dining component located within the six New England states to be congruent with past iterations of this survey. Although the Healthy Food in Health Care Survey had always surveyed healthcare facilities in New England, this was the first iteration of the survey that was open to all hospitals in the region, regardless of their involvement with HCWH. Researchers sent invitations to participate in the survey to organizations via email and phone. The survey collected data from October to December of 2020.

Given the challenges within the healthcare sector, the response rate was understandably low; 30 participants completed the survey, representing around 12% of the 256 health care institutions within the region identified by HCWH (Table 1). Due to the low response rate, findings from this survey were not generalizable. However, researchers used SPSS to analyze survey data, calculating basic descriptive statistics like mean, percentage, and standard deviation. For more detailed analysis, institutions that

responded that “anchor institution was a new concept” or they “had not taken steps to become one” were considered not engaged in the AI role. On the other hand, institutions that responded that the AI role was “fundamental to their mission” or that they “had taken steps to become one” were considered engaged in the AI role.

Table 1
Facility Locations

State	Respondents
Connecticut	1
Maine	10
Massachusetts	4
New Hampshire	8
Rhode Island	1
Vermont	5

[a]1 non-response

Triangulation Strategy

Researchers applied a concurrent nested strategy to cross-validate study findings (Terrel, 2012). Thus, both the interview and survey phases of data collection occurred simultaneously. The concurrent nested strategy prioritizes one data collection method. This study prioritized interview findings because they encompassed a wide range of AIs. After analyzing the qualitative data, survey findings were integrated and used to corroborate, expand upon, or contradict interview findings. This method increases the reliability of findings and allows researchers to gain a "broader perspective than could be gained from using only the predominant data collection method" (Terrel, 2012, p. 270). In this case, the concurrent nested strategy provided a broad understanding of AIs' roles within their communities and more detailed specifics about hospitals' roles during COVID-19 (Terrel, 2012).

Results

This study aimed to expand on the current understanding of AIs. The themes identified by this research were 1) that relationships between AIs and local farmers contributed to resilience and adaptability, 2) institutions' supported local food systems in roles beyond procurement, and 3) institutions' supported staff throughout COVID-19 in novel ways. The result section presents the themes identified from the in-depth interviews, with information on how the survey results corroborate or expand upon the themes. These themes are followed by a more in-depth analysis of the survey results and hospital-specific findings.

Local Food Relationships: Reducing Supply Chain Disruptions

The COVID-19 pandemic caused widespread supply chain disruptions and panic-buying leading to shortages of everyday food items. Interviewees experienced shortages of food items like meat, potatoes, and pre-packaged foods. According to interviewees, most of these disruptions affected institutions' ability to get products from their broad-line distributors, with minimal disruptions to the local supply chain. The survey also corroborated that many institutional buyers faced shortages of common food items. Of the hospitals surveyed, 67% had experienced shortages, primarily of meat and dairy products.

The interviews found that to adapt to COVID-19 shortages, institutions leveraged their relationships with local farmers to source food items they could not procure from their primary distributor. Interviewees worked with local farms and intermediaries, like

food hubs, from throughout New England to source local food products. In New England, products are considered local if they come from or within 50 miles of any New England state. AIs' reliance on multiple suppliers was a crucial source of functional redundancy, reducing institutions' reliance on a single food distributor and the impact of COVID-19 disruptions.

The ability to source local products that were otherwise unavailable increased the stability of these institutions throughout the pandemic. For example, a hospital administrator explained the importance of relationships with local farmers during COVID-19: though 40 to 50 items per week were unavailable through their primary distributor, U.S. Foods, they never felt like they were in a "*pinch*" because of their reliance on and relationship with local producers. This hospital also highlighted their purchases of local meats as a particular source of resilience. Since they sourced all their meat locally, they were not dependent on the large meatpacking plants and did not experience the shortages in meat products or exorbitant price increases that many buyers did. This is a prime example of how institutions capitalized on existing relationships with local producers to adapt to the supply chain disruptions caused by COVID-19.

Other institutions adjusted to supply chain disruptions by establishing new relationships with local suppliers for food items they could no longer reliably get from their primary distributor. One hospital applied this method to source root vegetables, like potatoes, when they experienced a shortage. The relationship they established with this new local producer is one they plan to continue beyond COVID-19. This hospital foodservice director stressed the benefits of having a "*short supply chain*" which is less prone to systemic disruptions. One interviewee summarized this sentiment by expressing

how thankful they were for their "*relationship with local farms*" and how much they had supported and helped their institutions adapt to the challenges of COVID-19.

Food Access Initiatives: Beyond Procurement

For many interview subjects, local food purchases were still a priority. However, due to the substantial and sudden changes in many institutions' business models, maintaining local procurement levels may not have been financially viable. For example, an interviewee working at a Vermont hospital explained that cafeterias that were previously open to the public were closed, limiting their customer base to employees and patients. Hospitals also only offered essential and emergency care during the first months of the pandemic, further reducing their customer base. Many universities and schools also experienced a significant decline in the number of on-campus students as classes transitioned online, reducing their customer base as well. These changes led many institutions within our sample to reduce their overall and local food purchases.

Even though some institutions within the sample did reduce local purchases, most institutions still maintained a strong commitment to purchasing as much local food as was financially viable for their organization. One university explained how COVID-19 had really *"solidified [the institution's] commitment to sustainability and local purchasing*," demonstrating the values of the university and its strong support for local foods. According to interview subjects, the overall decline in local food purchases was proportionally much smaller than the total decline in food purchases. The experience of a Vermont hospital shows just how committed these institutions are to supporting local

agriculture; although the hospital started serving free meals, and the foodservice generated no revenue, the hospital maintained their local purchasing relationships sourcing local meats, baked goods, seafood, and cheese products, among others. The survey data also demonstrated institutions' commitment to local food purchases. For example, although 87% of hospitals reported a decrease in food sales, 40% of the institutions maintained about the same level of local purchases during COVID-19 as in 2019. This finding suggests that proportional to the overall decline, the decrease in local food purchases was small.

Although some institutions in our interview sample maintained local purchasing levels, food purchases declined at many institutions. Still, AIs found ways to support their food system in capacities beyond their typical role as purchasers. For example, identifying challenges with food access and growing food insecurity in many communities, institutions adopted various initiatives to support food access. These initiatives included offering or distributing free and reduced meals, food donations to nonprofits, and creating pop-up grocery stores.

AIs were highly engaged in these efforts, with all interviewees participating in a new initiative to support food access during the pandemic. For example, the aforementioned hospital that started serving free meals adopted this initiative to support food access among their staff and patients. An elementary school foodservice director summarized the importance of these efforts explaining that the school is the "*largest restaurant in town*," meaning that they regularly feed more people than any other organization in their community. When classes transitioned online, every student became eligible for free meals, and this experience expanded how schools thought about and

addressed food insecurity in their community. One school explained that they targeted their efforts to have the most significant impact by including more culturally appropriate language and foods, offering more staple food items, and having teachers and paraeducators encourage the use of this program.

Many of these programs, like pop-up grocery stores, were new solutions to the unique challenges COVID-19 presented. Institutions engaging in these innovative new programming efforts to support their communities demonstrate a crucial component of food system resilience, experimentation and learning. While many new programming efforts were temporary, institutions learned valuable lessons they may apply to future crises. For example, the school in the earlier example that switched to including more staple food items said this experience has caused them to rethink how they will address issues like food insecurity in the future, applying the valuable lessons they learned throughout the pandemic.

The survey also revealed that many hospitals engaged in food access work. Over half of the hospitals surveyed had launched at least two new food access initiatives since the start of the COVID-19 pandemic, with an overall mean of 1.6 new food access initiatives per hospital and a standard deviation of 1.1. The two most common new programs were pop-up grocery stores (53%) and free or reduced meals for staff, patients, or community members (37%). As shown in table 2, a wide range of programs were adopted in response to COVID-19.

Table 2
Food Access Initiatives Adopted in Response to COVID-19

Pop-up Grocery Store	Free or Reduced Meals	CSA Program	Donated Surplus Products	Summer Meals (National School Lunch Program)	Drive-up Food Box Distribution
64%	44%	22%	20%	12%	8%

The survey also demonstrated that many hospitals had food access and local food initiatives in place prior to the pandemic. Prior to COVID-19, hospitals had an average of 2.17 food access programs, with a standard deviation of 1.4. For example, before COVID-19, over half of the hospitals surveyed conducted food insecurity screenings with patients (53%), just under half hosted an on-site CSA (47%), and 27% used their community benefit program to perform food-based interventions. Table 3 shows the range of food access initiatives that were in place at hospitals prior to the pandemic.

Table 3
Food Access Initiatives in Place Prior to COVID-19

Food Insecurity Screenings	On-Site CSA	On-site Farm or Garden	On-site Farm or Garden	Food Access via Community Benefit Program	Fruit & Vegetable Prescription	Off-site Farm or Garden
62%	53%	31%	31%	27%	23%	19%

Supporting Staff: Beyond Employment

Many institutions' foodservice employees were considered essential workers, working in person during the most challenging times during the COVID-19 pandemic. Interviewees highlighted how the pandemic caused anxiety among staff, who had fears of

not only contracting the virus but potentially losing their jobs. To assuage these fears, institutions took various actions to support their foodservice and other employees.

An issue for essential workers was access to common food items. Interviewees reported that during the early months of the pandemic, it was challenging for essential workers to visit grocery stores, which also had issues keeping products stocked. Employers took various steps to address this issue; for example, while some of the food access initiatives outlined above intended to support the greater community, initiatives like pop-up grocery stores, especially at hospitals, were typically intended to support staff's food access. Other organizations also started offering free or reduced meals to staff. These efforts intended to provide employees with access to healthy, nutritious meals and improve staff morale. The survey portion of this research demonstrated that the most commonly adopted food access initiatives at hospitals were pop-up grocery stores and offering free or reduced meals to staff and patients. Hospitals were not open to the public during the survey period, indicating that these initiatives were primarily designed to support staff.

Efforts to support and retain staff were seen as important by institutions and administrators, many of whom felt they could successfully transition their business models because of the exceptional efforts of their staff. For example, when asked what they were proud of about their approach to addressing the pandemic, one hospital foodservice director simply responded that he was "*thankful for the staff at his disposal*," and he "*couldn't have done it without them*." Other participants echoed these sentiments throughout the interviews; a university administrator explained that having an existing team with established relationships made a huge difference in helping "*get things off the*

ground." Knowing the benefits of having a cohesive staff and good morale, these institutions prioritized supporting staff throughout the COVID-19 pandemic using novel approaches, another example of institutions engaging in experimentation and learning.

Employers also took steps to help address the discomfort and stress of foodservice employees by restructuring how they did business. Institutions varied in their approaches to address staff concerns and adapt to COVID-19. For example, some institutions allowed employees to work in reduced shifts with full pay to limit employee exposure; others offered voluntary furlough for employees who were uncomfortable coming into work in the first months of the pandemic, all of whom returned to work by mid-summer. At one hospital, which was required to close their cafeteria to the public, causing a significant decrease in revenue, upper management took a pay cut and awarded additional pay to the lowest-earning employees.

Survey Results

Although the survey was distributed to hospitals only, the results largely corroborate the themes identified by the interviews with multiple types of AIs. However, the survey results expand on the interview themes and demonstrate some interesting hospital-specific findings. For example, survey respondents had varying levels of familiarity with the term “anchor institution:” 23% responded that it was a new concept, 27% had heard the phrase before, but their institution had not taken steps to become one, and 50% answered that their institution had taken steps to become an AI or that AI activities were fundamental to their mission. As shown in table 4, engaged AIs had more

food access initiatives prior to COVID-19 and adopted more new initiatives in response to the pandemic. Another interesting way these groups varied was in size. Engaged AIs tended to be smaller, averaging 83 hospital beds, while unengaged institutions had an average of 116 hospital beds.

Table 4
Adoption of Food Access Initiatives

	During COVID-19		Prior to COVID-19	
Engagement in AI Role	Average	Standard Deviation	Average	Standard Deviatio
Engaged in AI Role	1.87	0.99	2.53	1.1
Not Engaged in AI Role	1.27	1.16	1.80	1.5

The survey results also provide some interesting insights into local food purchases at hospitals. Over half of the institutions surveyed (53%) had made regional farm purchases in 2019. Of the 87% of hospitals that reported a decrease in overall food sales in 2020, 40% maintained about the same levels of local food purchases throughout the pandemic as in 2019. This finding shows that a core group of hospitals prioritized local purchasing even when their foodservice operations experienced a significant decline in demand.

Discussion

This mixed-method research highlights the numerous ways AIs contributed to food system resilience throughout the first nine months of the COVID-19 pandemic: engaging in local procurement, leveraging relationships with local farms to address food shortages, and creating programs to improve food access for institutional staff and the broader community. Although most of the literature on AIs and food systems focuses on how foodservice purchases can support local producers, this research demonstrates that

the relationships established by local procurement efforts also enhance institutional resilience. In the first wave of the COVID-19 pandemic, the short supply chains and direct relationships that characterize FTI programs enabled institutions to source the products they needed in the face of widespread disruptions to \ global supply chains. Other studies demonstrating that shorter food supply chains were more resilient than longer ones during the early stages of the COVID-19 pandemic corroborate these findings (Fardkhales & Lincoln, 2021; Marocchino et al., 2020; Thilmany et al., 2020). In addition, when AIs establish purchasing relationships with local farmers and national vendors, they build diversity and functional redundancy into their food supply chain, critical components of resilience.

AIs also benefit from the secondary, indirect effects of strong local procurement programs, among them more robust local food systems and economies. The literature upholds the idea that relationships between communities and AIs are bi-directional and mutually enhancing (Alexander et al., 2017; Common Markets, 2014; Koh et al., 2020). Yet, the returns on food system investments identified by prior literature are largely indirect and conceptual. Common Market's (2014) theoretical model of the mutually beneficial relationship between AIs and local producers demonstrates this, stating that institutions benefit from "the development of farm, processing, and distribution infrastructure that make the region--and thus the institution--more successful" (p. 4). Other studies point to the fulfillment of institutional goals like encouraging healthy eating (Bontrager Yoder et al., 2014; Joshi, Azuma & Feenstra, 2008; Cromp et al., 2012). Our findings suggest that institutions reap a more direct benefit from supporting their local

food system; the strong mutually beneficial relationships AIs develop with local producers enhance the resilience of their food supply chains.

While the COVID-19 pandemic is unique in many ways, the frequency and severity of shocks are likely to increase worldwide as a result of climate change, making it increasingly vital to develop food system resilience in a variety of contexts (Botzen & Van Den Berg, 2009). Our findings suggest that FTI programs enhance the resilience of institutional supply chains while providing numerous other benefits identified by prior literature. Furthermore, the shortages most institutional buyers experienced during COVID-19 may motivate nascent AIs to establish relationships with local producers and diversify their supply chains.

This study also highlights how AIs supported their communities beyond procurement during the COVID-19 pandemic, specifically through initiatives to support food access. Because AIs are community hubs and many serve as emergency feeding sites, they are well-positioned to provide food to their communities. While some institutions, like K-12 schools, were compelled to distribute food, others voluntarily took on the role. While much of the current literature focuses on how AIs contribute to regional economies by purchasing local foods, the overwhelming adoption of food access programs during COVID-19 highlights an important way AIs contribute to the resilience of their local food systems, which has not been widely discussed or emphasized in the existing literature on AIs as a group.

AIs are well-suited to hosting food access programs in times of crisis since both schools and hospitals, the most common AIs, often act as community hubs and have experience as emergency feeding sites. Experience as emergency feeding sites during

natural disasters provided some AIs valuable experiences to draw on in this novel and challenging situation. While these institutions had past experiences to draw on, the COVID-19 pandemic inspired many AIs to create new food access initiatives. However, many institutions engaged in this type of work before the pandemic to a significant degree. For example, although the most common pre-pandemic initiatives for surveyed hospitals were CSAs and food insecurity screenings, at least 25% of survey respondents also hosted farmer's markets, community gardens, or community benefit programs that included food-based interventions. This diverse array of programming efforts demonstrates that AIs can support food access in a myriad of ways, allowing institutions to choose programs appropriate to the available resources and community needs.

Many of the food access programs at AIs, like CSAs and farmer's markets, also support local farms. Several of the new COVID-19 programs had similar dual benefits; for example, some hospitals highlighted local products at their pop-up grocery stores. We suggest that incorporating local products into existing food access initiatives may be a good way for institutions that have not previously engaged in local procurement to start developing relationships within their local food economy. For hospitals, in particular, using community benefit programs to support initiatives that address food insecurity and support local farmers is a promising avenue to build relationships within the local food system without straining hospital dining budget.

Both the interview and survey stages of this study demonstrate that AIs took an active and creative approach to problem-solving in the face of a severe and systemic shock. The eagerness of AIs to adopt new food access programs to address dramatic increases in food insecurity and challenges with food access suggests that AIs contribute

to food system resilience through experimentation and learning, a common indicator of resilience identified by Ungar (2018). AIs also used new food access programs to support and retain essential workers during the early months of the pandemic. Retaining staff, particularly in foodservice, is critical due to the ongoing and pre-existing shortages of workers and high turnover rate in the foodservice industry (Choi & Sneed, 2006; Fickenscher, 2021; Ryan, Ma, Hsiao & Ku, 2015). Beyond retaining staff, these efforts to support employee food access improved morale and allowed institutions to show appreciation for essential workers during the pandemic.

This article relies on mixed methods to integrate, confirm, corroborate, and cross-validate study findings. A limitation of the interview data is the lack of audio recordings. However, the use of multiple independent notetakers helped enhance the accuracy of interview notes and provided some short, direct quotes from participants. Additionally, given the low response rate, survey findings are not generalizable to the entire New England hospital population. Survey results were not used in isolation but rather to confirm or contradict interview findings. While the concurrent triangulation strategy used to integrate study findings increases reliability, this process also has some limitations. The Healthy Food in Health Care survey included one specific type of AI, hospitals. Therefore, this research may overemphasize hospital-specific findings, while themes relevant to educational institutions may be under-emphasized.

Additional research is necessary to better understand how AIs support local food systems and communities as both purchasers of local products and hosts of food access initiatives during periods of calm and crisis. Specifically, future research should examine what new or temporary programs are most successful in the context of acute need and

what longstanding initiatives best enhance the resilience of AIs and their communities. In the face of increased food insecurity during the COVID-19 pandemic, even institutions that did not consider themselves an AI supported their communities through food access initiatives. The widespread adoption of these programs suggests that food access work is an accessible entry point for institutions to begin acting as anchors for their communities.

References

Alexander, S. E., Clouse, C., & Austrian, Z. (2017). Thinking outside the higher education box: Expanding upon the economic and community development roles of urban universities to create a win-win situation. *Journal of Economic Development in Higher Education, 1*, 53-60.

American Hospital Association. (2021). Fact sheet: COVID-19 pandemic results in bankruptcies or closures for some hospitals. *American Hospital Association.* https://www.aha.org/fact-sheets/2020-11-09-fact-sheet-covid-19-pandemic-results-bankruptcies-or-closures-some-hospitals

Bartley, A. (2014, January 4). The rise of the anchor institution: Setting standards for success. *The Huffington Post.* https://www.huffpost.com/entry/the-rise-of-the-anchor-in_b_4589224

Becot, F., Conner, D., Imrie, D., & Ettman, K. (2016). Assessing the impacts of local hospital food procurement: results from Vermont. *Journal of Foodservice Management & Education*, *10*(1), 1–7.

Bene, C. (2020). Resilience of local food systems and links to food security – A review of some important concepts in the context of COVID-19 and other shocks. *Food Security, 12*, 805-822. https://doi.org/10.1007/s12571-020-01076-1

Birch, E., Perry, D. C., & Taylor, H. L. J. (2013). Universities as anchor institutions. *Journal of Higher Education Outreach and Engagement*, *17*(3), 7–16.

Bontrager Yoder, A. B., Liebhart, J. L., McCarty, D. J., Meinen, A., Schoeller, D. Vargas, C., & LaRowe, T. (2014). Farm to elementary school programming increases access to fruits and vegetables and increases their consumption among those with low intake. *Journal of Nutrition Education and Behavior, 46*(5), 341–349. https://doi.org/10.1016/j.jneb.2014.04.297

Botzen, W. J. W., & Van Den Berg, J. C. J. M. (2009). Managing natural risks in a changing climate. *Environmental Hazards, 8*(3), 209–225. https://doi.org/10.3763/ehaz.2009.0023

Bullock, J. M., Dhanjal-Adams, K. L., Milne, A., Oliver, T. H., Todman, L. C., Whitmore, A. P., & Pywell, R. F. (2017). Resilience and food security: Rethinking an ecological concept. *Journal of Ecology, 105*, 880-884. https://doi.org/10.1111/1365-2745.12791

Christensen L. O., Jablonski, B .B. R., Stephens L., & Joshi, A. (2017). *Economic impacts of farm to school: case studies and assessment tools*. National Farm to

School Network.
http://www.farmtoschool.org/Resources/EconomicImpactReport.pdf

Christensen L. O., Jablonski, B. B. R., Stephens L., & Joshi, A. (2019). Evaluating the economic impacts of farm-to-school procurement: An approach for primary and secondary financial data collection of producers selling to schools. *Journal of Agriculture, Food Systems, and Community Development, 8*(C), 73-94. https://doi.org/10.5304/jafscd.2019.08C.002

Choi, W.-S., & Sneed, J. (2006). Factors related to job satisfaction and intent to turnover for part-time student employees in university dining services. *Journal of Foodservice Management and Education, 2*(1), 34-48. http:// fsmec.org/wp-content/uploads/2011/09/ChoiSneed2006.pdf.

Common Market. (2014). *Health and wealth in your region: Anchor institutions and regional food procurement*. https://www.thecommonmarket.org/assets/uploads/reports/AnchorProcurementBrief_CommonMarket.pdfhttps://www.thecommonmarket.org/assets/uploads/reports/AnchorProcurementBrief_CommonMarket.pdf

Cromp, D., Cheadle, A., Solomon, L., Maring, P., Wong, E., & Reed, M. (2012). Kaiser Permanente's farmers' market program: Description, impact, and lessons learned. *Journal of Agriculture, Food Systems, and Community Development*, *2*(2), 29–36. https://doi.org/10.5304/jafscd.2012.022.010

Fardkhales, S. A., & Lincoln, N. K. (2021). Food hubs play an essential role in the COVID-19 response in Hawai'i. *Journal of Agriculture, Food Systems, and Community Development, 10*(20), 53–70. https://doi.org/10.5304/jafscd.2021.102.036

Feeding America. (2020). *The impact of the Coronavirus on food insecurity.* https://www.feedingamerica.org/sites/default/files/2020-04/Brief_Impact%20of%20Covid%20on%20Food%20Insecurity%204.22%20%28002%29.pdf

Fickenscher, L. (2021, June 20). Worker shortage has sparked a rent-s-staffer boom in the food industry. *New York Post*. https://nypost.com/2021/06/20/worker-shortage-sparks-rent-a-staffer-boom-in-food-industry/

Graham, H., Feenstra, G., Evans, A. M., & Zidenberg-Cherr, S. (2004). Davis school program supports life-long healthy eating habits in children. *California Agriculture, 58*(4), 200–205. https://doi.org/10.3733/ca.v058n04p200

Gunderson, C., Hake, M., Dewey, A., & Engelhard, E. (2021). Food insecurity During COVID-19. *Applied Economic Perspectives and Policy, 43*(1), 153-161. https://doi.org/10.1002/aepp.13100

Hardesty, S., Feenstra, G. Visher, D., Lerman, T., Thilmany-McFadden, D., Bauman, A., Gillpatrick, T., & Nurse-Rainbolt, G. (2014). Values-based supply chains: supporting regional food and farms. economic development. *Economic Development Quarterly, 28*(1): 17–27. https://doi/full/10.1177/0891242413507103.

Han, C. (January 27, 2021). Food insecurity: More Mainers go hungry during the pandemic & communities try to help. *Maine Public*. https://www.mainepublic.org/show/maine-calling/2021-01-27/food-insecurity-more-mainers-go-hungry-during-the-pandemic-communities-try-to-help

Health Care Without Harm. (2014*). New England healthy food in health care: leading the charge to a healthy, sustainable food system*. https://www.farmtoinstitution.org/sites/default/files/imce/uploads/NE%20HFHC%20Report%202014.pdf

Health Care Without Harm. (2019). *Healthy Food Pledge Signers.* https://noharm-uscanada.org/issues/us-canada/healthy-food-pledge-signers

Healthy Peninsula. (2021). *The Simmering Pot*. https://www.healthypeninsula.org/simmering-pot

Henneberry, S., Taylor, M., Whitacre, B., Agustini, H., Mutondo, J., & Roberts, W. (2008). *The economic impact of direct produce marketing: A case study of Oklahoma's farmer's markets* [Conference paper]. Southern Agricultural Economics Association Annual Meeting. Dallas, TX. https://doi.org/10.22004/ag.econ.6785

Institute for a Competitive Inner City. (2014). *What works for cities: anchor institutions and food systems: a recipe for economic growth.* https://icic.org/wp-content/uploads/2016/04/ICIC_WW_anchors_food.pdf

Jablonski, B., & Schmit, T. (2016). Differential expenditure patterns of local food system participants. *Renewable Agriculture and Food Systems, 31*(2), 139-147. https://doi.org/10.1017/S1742170515000083

Joshi, A., Azuma, A. M., & Feenstra, G. (2008). Do farm-to-school programs make a difference? Findings and future research needs. *Journal of Hunger and Environmental Nutrition, 3*(2–3), 229–246. https://doi.org/10.1080/19320240802244025

Kane, D., Kruse, S., Ratcliffe, M. M., Sobell, S. A., & Tessman, N. (2011). *The impact of seven cents.* Ecotrust. https://ecotrust.org/publication/the-impact-of-seven-cents/

Katz, V. S., Jordan, A. B., & Ognyanova, K. (2021). Digital inequality, faculty communication, and remote learning experiences during the COVID-19 pandemic: A survey of U.S. undergraduates. *PloS one, 16*(2).

Koh, H. K., Bantham, A., Geller, A., Rukavina, M. A., Emmons, K. M., Yatsko, P., & Restuccia, R. (2020). Anchor institutions: Best practices to address social needs and social determinants of health. *American Journal of Public Health, 110*(3), 309-316. https://doi.org/10.2105/AJPH.2019.305472

Leddy, A. M., Weiser, S. D., Palar, K., & Seligman, H. (2020). A conceptual model for understanding the rapid COVID-19–related increase in food insecurity and its impact on health and healthcare. *The American Journal of Clinical Nutrition,* 1-8. https://doi.org/10.1093/ajcn/nqaa226

Living Cities. (2013). *Harnessing the Economic Power of Anchor Institutions Lessons learned through Living Cities investments from 2010 through 2013.* https://livingcities.org/wp-content/uploads/2021/03/Harnessing-the-Economic-Power-of-Anchor-Institutions_-Lessons-Learned-through-Living-Cities-Investments-from-2010-2013.pdf

Marocchino, C., Stamoulis, K., Morrison, J., Martin, G., Punjabi, M., Ni, J.,... Raher, E. (2020). Cities and governments at the forefront in building inclusive and resilient food systems: Key results from the FAO survey "Urban Food Systems and COVID-19," Revised version. FAO. https://doi.org/10.4060/cb0407en

Niles, M.T., Bertmann, F., Belarmino, E.H., Wentworth, T., Biehl, E., & Neff, R. (2020). The early food insecurity impacts of COVID-19. *Nutrients,12*(7), 2096. https://doi.org/10.3390/nu12072096

Norris, T., & Howard, T. (2019). *Can Hospitals Heal America's Communities*? Democracy Collaborative. https://healthcareanchor.network/2019/11/can-hospitals-heal-americas-communities/

Ohmart, J., & Feenstra, G. (2004). Plate tectonics: Do farm-to-school programs shift students diets? *Sustainable Agriculture, 16*(3), 1–3. https://sarep.ucdavis.edu/sites/g/files/dgvnsk5751/files/inline-files/newsletters-fall2004-vol16no3.pdf

Owens, W. F. (1984). Interpretive Themes in Relational Communication. *Quarterly Journal of Speech, 70* (3), 274-87. https://doi.org/10.1080/00335638409383697

Parmer, S. M., Salisbury-Glennon, J., Shannon, D., & Struempler, B. (2009). School gardens: An experiential learning approach for a nutrition education program to increase fruit and vegetable knowledge, preference, and consumption among second-grade students. *Journal of nutrition education and behavior; 41*(3), 212-217. https://doi.org/10.1016/j.jneb.2008.06.002

Ramsey, A. F., Goodwin, B. K., Hanh, W. F., & Holt, M. T. (2020). Impacts of COVID-19 and Price Transmission in U.S. Meat Markets. *Agricultural Economics, 52*, 441-458. https://doi.org/10.1111/agec.12628

Roche, E., Becot, F., Kolodinsky, J., & Conner, D. (2016). *Economic contribution and potential impact of local food purchases made by Vermont schools*. Center for Rural Studies, University of Vermont. https://agriculture.vermont.gov/sites/agriculture/files/documents/Farm_to_School_Institution/Economic%20Contribution%20of%20Farm%20to%20School%20in%20Vermont%20.pdf

Ryan, B., Ma, E., Hsiao, A., & Ku, M. (2015). The work-family conflict of university foodservice managers: An exploratory study of its antecedents and consequences. *Journal of Hospitality and Tourism, 22, 10-18.* https://doi.org/10.1016/j.jhtm.2014.12.005

Schildt, C., & Rubin, V. (2015). *Leveraging anchor institutions for economic inclusion*. PolicyLink.

Smith, M. D., & Wesselbaum, D. (2020). COVID-19, food insecurity, and migration. *The Journal of Nutrition.* https://doi.org/10.1093/jn/nxaa270

Tendall, D.M., Joerin, J., Kopainsky, B., Edwards, P. J., Shreck, A., Le, Q. B., Kruetli, P., Grant, M., & Six, J. (2015). Food system resilience: Defining the concept. *Global Food Security*, *6*, 17-23. https://doi.org/10.1016/j.gfs.2015.08.001

Terrell, S. R. (2012). Mixed-Methods Research Methodologies. The Qualitative Report, 17(1), 254-280. https://doi.org/10.46743/2160-3715/2012.1819

Thilmany, D., Canales, E., Low, S. A., & Boys, K. (2020). Local food supply chain dynamics and resilience during COVID-19. *Applied Economic Perspectives and Policy, 43*(1), 86-104. https://doi.org/10.1002/aepp.13121

Ungar, M. (2018). Systemic resilience: principles and processes for a science of change in contexts of adversity. *Ecology and Society, 23*(4), 34. https://doi.org/10.5751/ES-10385-230434

Vize, R. (2018). Hospitals as anchor institutions: How the NHS can act beyond healthcare to support communities. *British Medical Journal*, 361. https://doi.org/10.1136/bmj.k2101

Wien, K. (2017). *Lettuce improve school nutrition: Best practices and key impacts of the USDA farm to school grant program* [Unpublished honors thesis, Duke University]. DukeSpace.

Worstell, J., & Green, J. (2017). Eight qualities of resilient food systems: Toward a Sustainability/Resilience Index. *Journal of Agriculture, Food Systems, and Community Development, 7*(3), 23–41. https://doi.org/10.5304/jafscd.2017.073.001

Wright, J. E., & Merritt, C. C. (2020). Social equity and COVID-19: The case of African Americans. *Public Administration Review, 80*(5), 820-826. https://doi.org/10.1111/puar.13251

CHAPTER 4: PRACTICAL TOOLS AND A WINDOW OF OPPORTUNITY FOR ANCHOR INSTITUTIONS TO INCREASE LOCAL PROCUREMENT

Abstract

Local food purchases at anchor institutions (AIs) support regional economies and provide a host of other community benefits. However, a lack of infrastructure designed to support mid-scale farms, known as infrastructure of the middle, has hindered the expansion of local procurement efforts at AIs. Drawing on Kingdon's multiple streams approach, we suggest that the COVID-19 pandemic and ongoing 'labor crunch' have acted as focusing events. This, coupled with a renewed national interest and demand for local foods, has created a window of opportunity to encourage investments in infrastructure of the middle. Research findings draw on the results of four in-depth focus groups with foodservice administrators and technical assistance providers from a diverse array of New England AIs. This paper highlights two complementary avenues to enhance local procurement efforts: supporting new policy initiatives and using practical methods identified by focus group participants. Focus-group participants identified purchasing commitments as a valuable method to developing trusting, mutually beneficial relationships with local suppliers. Participants also suggest strategic cross-sector collaboration among AIs as a practical way to generate significant year-round demand for local food products.

Introduction

Touted for their economic importance and contributions to community development, anchor institutions (AIs) play an essential role in many communities. Cantor et al. (2013) defined anchor institutions as "place-based organizations that persist in communities over generations, serving as social glue, economic engines, or both" (p. 20). Although the term encompasses a wide variety of institutions, the most common examples are schools, hospitals, and universities. Due to their mission-driven nature, many of these institutions take an active role in community development.

One crucial way institutions support their local communities is through their procurement choices. Farm-to-institution (FTI) programs, or farm-to-anchor-institution if you prefer, have drawn increasing attention for their contributions to local food systems, a potential not yet fully realized in many regions (Becot et al., 2016; Stahlbrand, 2019). As a result, many AIs have sought to increase purchases of local and sustainable food products, leveraging their sustainable purchasing power to support their local economies and farmers (Health Care Without Harm, 2020).

Local food purchases can have significant economic and employment impacts. Considering the substantial purchasing power of most large institutions, it is unsurprising that these purchases inject a considerable amount of money into local economies. However, to fully understand the contributions of local food purchases, you must also consider the multiplier effects: calculated as total effects divided by direct effects. For local food purchases, the total effects include money contributed to the economy through direct spending on food purchases (direct effects) and the resulting rounds of spending within the regional economy by local suppliers (indirect effects). FTI programs have

varying multiplier effects, typically ranging from 1.25-2.4 depending on the specific context (Kane et al., 2011; Becot et al., 2016; Benedek et al., 2020; Roche et al., 2016). This means that for every dollar spent on local food products, the regional economies gain a total of $1.25-$2.40. Compared to scenarios with no local purchases, these effects are substantial, as non-local purchases can result in money leaving the local economy, yielding a negative multiplier effect (Roche et al., 2016).

FTI programs also create new employment opportunities, both at the institutions themselves and throughout the region. Institutions often hire new employees to manage and coordinate local purchasing or to process local food products (direct effects). Additionally, local producers hire new employees in response to increasing demand from institutional buyers (indirect effects). For example, Farm-to-School purchases in Oregon created seven new related jobs within the school districts (Kane et a., 2011). Additionally, the resulting rounds of economic transactions led to the creation of 10 more jobs within the state, a multiplier effect of 2.43 (Kane et a., 2011). According to prior research, employment multiplier effects for FTI programs typically range from 1.27-3.30 (Kane et al., 2011; Roche et al., 2016; Becot et al., 2016).

In addition to their significant economic contributions, FTI programs also promote food system resilience. Resilience is, at its core, the ability to withstand or overcome disturbances (Tendall, 2015). Food system resilience, more specifically, is "the existence, development, and engagement of community resources by community members to thrive in an environment characterized by change, uncertainty, unpredictability, and surprise" (Magis, 2010, p. 401). Local food purchases at AIs support

the most basic components of resilience: functional redundancy, diversity, and connectivity (Ungar, 2018).

AIs create functional redundancy within their supply chains by engaging with local and national suppliers, reducing their reliance on a single vendor. By creating a market for mid-scale producers, AIs also support a diversity of farm sizes within their region, which is particularly important for food system resilience, according to prior research (Reidsma & Ewert, 2008). Finally, FTI programs often use value-chain models that create mutually beneficial relationships and promote a high level of connectivity between suppliers and producers (Conner et al., 2012; Thilmany et al., 2020).

The Current Policy Window

Drawing on Kingdon's multiple streams approach (MSA), the COVID-19 pandemic has created a unique window of opportunity to address some of the barriers to local procurement at AIs. The MSA identifies three 'streams,' problem, policy, and political, that coalesce to create the optimal conditions for policy change, depicted in figure 1. (Shepard et al., 2019; Kingdon, 1984). The MSA is an adaptable framework applied in numerous countries at various levels of governance and a wide range of policy areas (Jones et al., 2016).

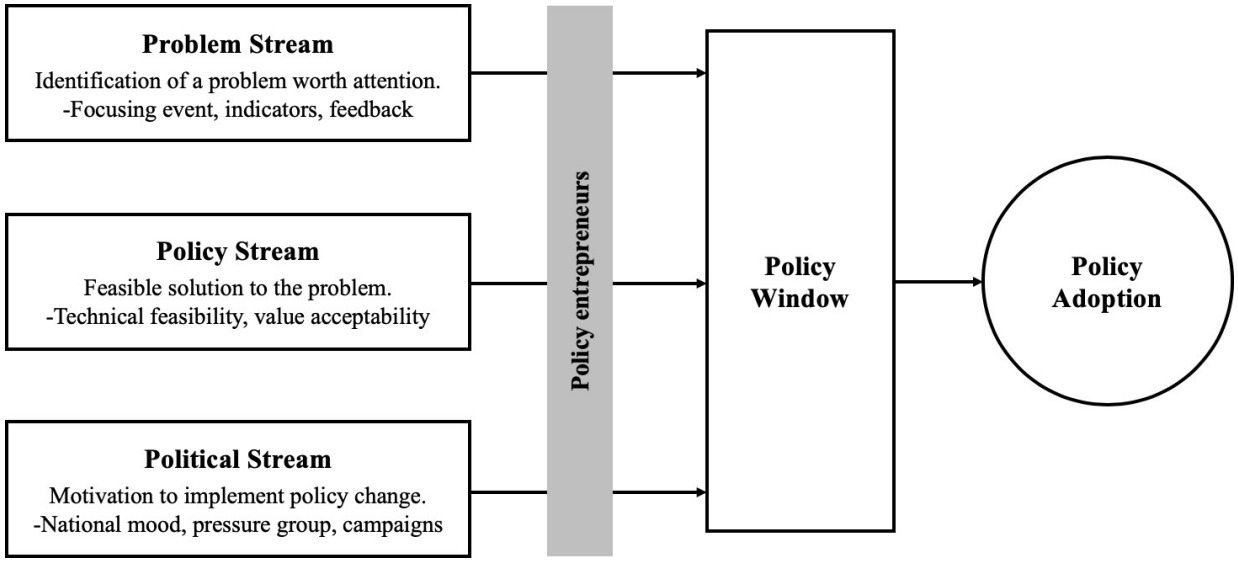

Figure 2. Multiple Streams Approach.

The Problem Stream. The first component of the MSA is identifying a defined issue worth the attention of policymakers, referred to as the problem stream. Problem stream identification can happen in several ways, including monitoring indicators and metrics, like the unemployment rate, based on feedback from previous policy initiatives or in response to a focusing event (Jones et al., 2016). A focusing event is a jarring event or crisis, like a terrorist attack or the COVID-19 pandemic, that draws attention to a particular issue. The manifestation of an issue through a focusing event encourages policymakers to address the issue. According to O'Donovan (2017), "experience with a policy problem revealed by focusing events allows policymakers to interpret and manage ambiguity in ways that promote policy change" (213).

The Policy Stream. While there are often numerous potential policies that have the ability to address a particular issue, not all solutions are equally feasible. Viable policy streams

must be technically and politically feasible (Shepard et al., 2019). Politically feasible solutions have a high level of value acceptability, defined by Jones et al. (2016) as conforming "to existing value constraints" (p. 16). On the other hand, technical feasibility means there is the technical ability to implement the proposal, and the resources required are reasonably obtainable (Jones et al., 2016).

The Political Stream. The final stream in the MSA is the political stream, meaning there is a willingness to enact potential solutions. Political willingness is impacted, in part, by the national mood, which "refers to the general orientation of the public toward issues, values, or solutions relevant to the policy problem" (Jones et al., 2016, p. 16). This willingness is also impacted by feedback politicians receive from interest groups and to what extent the policy reflects party ideology (Shepard et al., 2019).

Policy entrepreneurs. Policy entrepreneurs or champions shape policy outcomes and play a vital role in creating windows of opportunity. Policy entrepreneurs influence policies by generating attention to a problem (problem stream), encouraging the adoption of a preferred solution (policy stream), and influencing policymakers (political stream). Policy entrepreneurs can use insider and outsider tactics to influence policymakers "by helping direct the attention of policymakers to issues of importance to the community through a more collaborative insider approach while at the same time demonstrating the potential to increase the pressure on powerholders through mobilization and media coverage using an outsider strategy" (Shepard et al., 2019, p. 15). These efforts are

particularly effective when a focusing event creates a window of opportunity to enact policy changes (O'Donovan, 2017).

The COVID-19 pandemic is a perfect example of a focusing event that has generated attention for numerous issues. For institutional foodservice operations, the pandemic has highlighted two important problem streams: shortages of staple food items, which demonstrated vulnerabilities within the larger national supply chains, and labor shortages within the foodservice industry (Béné, 2020; Fardkhales & Lincoln, 2021; Ramsey, 2020; Cunningham et al., 2021a, Hobbs, 2020; Smith & Page, 2021).

Many policies have the potential to address these issues (policy streams). However, not all solutions are equally attainable. Policies designed to support the development of infrastructure of the middle have the potential to address both of the problem streams outlined above and are highly feasible. Development of food hubs processing capabilities and other types of infrastructure of the middle reduce labor requirements for foodservice operations and support short, local supply chains that are more resilient to systemic shocks (Conner et al., 2018; Berti & Mulligan, 2016). This solution is technically feasible, as efforts to expand this infrastructure have progressed without greater policy support. For example, in Vermont, a strategic partnership of AIs has received funding through the Kendall Foundation to invest in solutions to increase local procurement (Henry P. Kendall Foundation, 2020). To address the lack of processed local products, which exacerbated labor challenges at these institutions, this group coordinated demand and invested in processing infrastructure at a local food hub (Henry P. Kendall Foundation, 2020). Furthermore, in New England, there is a high level of

consumption and support for local foods giving this solution a high level of value acceptability (American Farmland Trust, Conservation Law Foundation & Northeast Sustainable Agriculture Working Group, 2014).

Finally, there is the opportunity to generate strong political support for an initiative designed to increase local food purchases (political stream). Since the pandemic started, there has been a growing demand for local food products, reflecting the national mood and current support for local foods (Richards & Vassalos, 2021; USDA Economic Research Service, 2021; Food Insight, 2021). The culmination of these three streams, if coupled with the support of policy entrepreneurs who highlight and champion these issues and solutions, creates an ideal policy window in which policy change is highly feasible.

Challenges Related to COVID-19

While some issues deterring AIs from increasing or engaging in local procurement are longstanding, the onset of the COVID-19 pandemic has exacerbated existing issues and created new ones. For example, shortages of everyday food products and the ongoing labor shortage have both impacted institutional foodservice operations. The severity of these issues during COVID-19 has drawn increasing attention and acted as a focusing event. Additionally, the most common types of AIs, hospitals, universities, and schools, experienced significant disruptions and changes to their foodservice operation as a result of COVID-19.

Hospital foodservice operations often provide the public with access to affordable, quality food. However, most hospitals were closed to the public during the early months of the pandemic, leading cafeteria sales to plummet as the number of people on hospital campuses sharply declined with the cancellation of many non-essential services (Cunningham et al., 2021a; Boss, 2020; American Hospital Association, 2021). As a result, most hospitals' foodservice operations experienced a decline in sales and financial losses. For example, a survey of New England hospital's foodservice operations found that 83% experienced a reduction in food sales, and 74% reported an overall financial loss as a result of changes related to the pandemic (Cunningham et al., 2021a). Universities campuses were also forced to close, largely adopting remote learning methods (Katz et al., 2021). This transition led to a sudden and precipitous decline in the demand for university dining services. Schools experienced similar closures during the pandemic. By March 23rd of 2020, every U.S. state had mandated statewide school closures, but many schools were in the unique position of having to transition to alternative models of food distribution (Kinsey et al., 2020). Estimates suggest that from March 9th to May 1st of 2020, students who receive free and reduced-price meals missed more than 1.15 billion school meals due to these closures (Kinsey et al., 2020).

During the early months of the pandemic, many institutions enacted hiring freezes or furloughed employees to cut spending (Rosewicz & Maciag, 2020; Flahery, 2020; Kochhar & Barroso, 2020). For example, from March to July of 2020, around 82% of universities implemented a hiring freeze (Rosewicz & Maciag, 2020; Association of American Colleges and Universities, 2020). As many hospitals returned to performing elective surgeries and schools and universities transitioned back to in-person classes,

many of these institutional foodservice operations experienced a rapid renewal in demand. This renewed demand caused many institutions and the foodservice industry as a whole to struggle with labor shortages (Buzalka, 2021; Smith & Page, 2021; Blank, 2020; Hobbs, 2020; Brandon Williams, personal communication, June 30, 2021). Given institutional foodservice operations already faced pre-existing labor shortages and high turn-over before the onset of the pandemic, this exacerbates a substantial issue for AIs purchasing local products, which have fewer processed options (Choi & Sneed, 2006; Ryan et al., 2015). While this 'problem stream' was ongoing, the pandemic has acted as a focusing event, strengthening this stream by drawing renewed attention and urgency to this issue.

Another challenge institutions faced was shortages of common food items. The survey of New England hospitals found that 67% of participants experienced shortages of staple food items during the first nine months of the pandemic (Cunningham et al., 2021a). These shortages have continued to persist into the new year (Smith & Page, 2021). Interestingly, past research has demonstrated that short supply chains, which often involve more direct relationships with local producers, are more resilient to shocks (Thilmany et al., 2020; Hardesty et al., 2014). Initial research in the context of COVID-19 has also indicated that short food supply chains were more resilient to the unique disruptions related to the pandemic (Marocchino et al., 2020; Cunningham et al., 2021b). Additionally, there have been examples of institutions utilizing their existing relationships with local farms or establishing new ones to adapt to the shortages of food items among broad-line distributors (Cunningham et al., 2021b).

Existing Challenges to Increased Local Procurement

Two primary barriers that hinder the expansion of local procurement at AIs are the lack of year-round product availability and processed local foods (Braun et al., 2018; Kloppenburg et al., 2008; Gregoire et al., 2005; Conner et al., 2010). The lack of year-round availability is an exceptionally substantial obstacle; for example, a study of Iowa producers found that out of 19 factors, lack of year-round product availability rated as the most significant obstacle for selling to institutional markets (Gregoire et al., 2005). The lack of processed local fruits and vegetables is also a substantial barrier, as many institutional buyers cannot justify paying the price premium for local products that they then have to invest more time and energy into processing (Braun et al., 2018; Henry P. Kendall Foundation, 2020; Conner et al., 2010; Brandon Williams, personal communication, June 30, 2021). For example, an administrator at a prominent New England AI explained this issue, stating:

> "Local products are more expensive in general... one of the ways we analyze how much we can pay for a local processed product is to consider the labor it would take to process it ..this usually makes the processed product much more affordable, and we are able to further justify an increase in price" (Brandon Williams, personal communication, June 30, 2021).

The time and labor required to process local food products add to the substantial transaction costs already associated with buying in local markets, which often requires institutions to work with multiple local farms or intermediaries (Conner et al., 2010; Henry P. Kendall Foundation, 2020).

These barriers are symptomatic of a larger issue within the food system, a lack of 'infrastructure of the middle.' Infrastructure of the middle refers to the critical mass of essential "resources, facilities and networks" that enable alternative, mid-sized, regional producers to meet the needs of high-volume foodservice clients, like AIs (Stahlbrand, 2019, p. 130). Infrastructure of the middle supports mid-size farms, improving their economic viability by providing them with access to resources that enhance their businesses' efficiency and allow them to access high-volume markets more easily. This type of infrastructure is critical for overcoming barriers like the lack of processed local food products, which is challenging to address at the individual farm level. Numerous studies have highlighted this issue. A prime example is a study of the Berlin metropolitan area, which identified the need for more processed fruits and vegetables to increase regional procurement but was unable to identify local facilities that performed these tasks, demonstrating a noticeable lack of this critical infrastructure (Braun et al., 2018). Food hubs are one possible solution to address these issues. Food hubs often process and store foods for year-round revenue, which benefits suppliers and food hubs while simultaneously serving institutional buyers' needs (Conner et al., 2018). This is a potential policy stream that addresses some of the crucial issues facing institutional foodservice operations.

Although AIs often invest in developing this critical infrastructure, the investments and efforts of one institution alone are not enough to overcome this substantial challenge (Stahlbrand, 2016; Becot et al., 2016). To support infrastructure of the middle, there must be a critical mass of mid-size producers within the region, which cannot thrive without this vital infrastructure. The simultaneous need for mid-size farms

and infrastructure of the middle, both of which cannot thrive without the other, creates a positive feedback loop and acts as a significant barrier to the development of more mid-size farms. This is one of the many reasons mid-size farms have been consistently declining in the U.S. since the 1950s (Conner et al., 2011; Brislen, 2018; Kirschenmann et al., 2004). Increasingly we see bifurcation within U.S. agriculture, with more small and large farms, and a corresponding rapid decline of mid-scale producers. The loss of mid-size farms threatens the resilience and sustainability of U.S. agriculture, as larger farms tend to specialize in one or two commodities, leading to biodiversity loss and increases in chemical pollutants (Kirschenmann et al., 2004). Stahlbrand (2016) identified AIs as critical for the development of this vital infrastructure.

There is a need for greater emphasis on overcoming these infrastructure challenges and how AIs can contribute to these solutions. This research project aims to better understand how AIs can increase local procurement efforts. Specifically, this research will seek to address the following research questions:

1. What are the current activities practitioners at anchor institutions engage in to increase local food purchases, and what has made them successful? What are the challenges they still face?
2. What can AIs do in the future to increase local procurement?
3. How have AIs responded to shocks to the food system in the past?
4. How can technical assistance and outreach providers better serve these institutions?

Although we conducted this research just before the major COVID-19 shutdowns in the U.S., which began in March of 2020, the findings have only increased in relevance and applicability, given the strain the pandemic has put on the food system. This research asked participants about their responses to shocks and ways to increase local procurement, both issues that have become increasingly relevant during COVID-19. The following sections outline the impacts of the pandemic and the potential window of opportunity it presents for addressing some of the critical challenges within regional food systems.

Methods

We explored our research questions using focus groups with technical assistance providers and foodservice managers and administrators from prominent New England institutions. Focus group participants were selected to include various perspectives within the sector to facilitate a dynamic conversation. The focus groups represented the three most common types of AIs: K-12 schools, hospitals, and universities.

Focus-Group Strategy

The research team conducted focus groups with at least three members of the team present. However, a primary researcher led the focus group discussions. The primary researcher was responsible for asking the five primary questions, probing questions, and encouraging participation among the group to ensure each participant's perspective was heard and captured in the research data. Each focus group had a range of

four to six participants. Some participants called in via phone; however, the majority were in person. Focus groups lasted anywhere from 45 minutes to an hour and a half.

Each of the four focus groups included employees working in a particular type of AI or sector. According to research by Hennick et al. (2019), four focus groups provide enough data to adequately reach code saturation, identifying "94% of all codes and 96% of high-prevalence codes" (p. 9). The focus groups were composed of institutional foodservice providers at hospitals, universities, and K-12 schools, as well as technical assistance providers who worked closely with AIs. This allowed the participants to discuss the particulars of their sector and researchers to compare which experiences were universally applicable to AIs or specific to one industry.

The researchers co-constructed the focus group protocol, which contained five primary open-ended questions. The first three interview questions focused on the barriers institutions faced when attempting to increase local food procurement (problem stream), the essential resources they currently used, and the ones they wish they had access to (potential policy streams). The fourth question asked participants what lessons they had learned from their foodservice experience that they wished they had known earlier. The final question focused on how the institutions responded to emergencies or natural disasters.

Analysis Strategy

Audio recordings of the four focus groups transcribed verbatim using Nvivo software served as the basis of this analysis. Coders completed a full review of the transcripts for accuracy before engaging in the coding process. The data were analyzed

using a constant comparative method, a cyclical process of identifying codes and themes within and across groups, and examining these themes in comparison to the existing literature (Lindlof & Taylor, 2011; Charmaz, 2005). Each step of the analysis process was conducted independently by two researchers, who then discussed and compared their results. Having two independent coders increases the reliability of the findings while reducing subjectivity, which is inherent to the coding process.

The first step in the constant comparative method is opening coding, examining each passage, and categorizing the data using relevant codes (Boeije, 2002). During the open coding process, coders reread interview transcripts and listened to focus group recordings to identify relevant codes. After completing this process, the two coders met to define a unified coding scheme, combing related codes and expanding others to provide more detail where warranted. Coders then recoded the data based on the unified coding scheme.

The following process was axial coding. Coders reviewed existing codes to identify recurrent and forceful themes within the dataset. Themes are recurrent if there are numerous statements within a single focus group and among different groups with "the same thread of meaning" using different or the same language (Owens, 1984, p. 275). If a theme was recurrent, it was considered forceful based on the coders' interpretation of "the vocal inflection, volume or dramatic pauses which serve to stress and subordinate some utterances" (Owens, 1984, p. 275). All analysis processes repeated until "saturation," the point at which no new codes or themes emerge and the codebook stabilized (Hennink et al., 2019). The results use representative quotes from the focus groups to support research claims and reflect participants' voices (Owens, 1984).

Results

The purpose of this research was to evaluate challenges and opportunities to enhance local procurement efforts at AIs while developing tools to assist in these efforts. As a result, four recurrent and forceful themes emerged from the focus group data. The first two themes build on previous research. The first identifies challenges with labor and infrastructure as obstacles hindering the expansion of local procurement efforts. The second demonstrates that AIs believe short, local food supply chains are more resilient to shocks. The final two themes identify practical, actionable methods to enhance local procurement efforts at AIs.

Labor and Infrastructure Challenges

Focus group participants identified a clear problem stream, labor shortages, that affected both local suppliers and institutions. Many institutions struggled to maintain adequate staffing levels. This was a particular challenge for universities and schools, which operate seasonally, maintaining low staffing levels throughout the summer months. One university foodservice administrator explained how this is a barrier to purchasing more local products, "*we open up in the fall with 140 openings, and that really puts a hardship on our dining halls...bring in a product that is local we would have to spend more time on [processing] that product."* Even for institutions like hospitals that do not operate seasonally, staffing can be an issue, as this challenge is widespread throughout the food system. As one participant explained, "*everyone is facing a huge labor challenge in the kitchen, with drivers, on farms, etc."* These labor challenges also affect the

suppliers' ability to meet institutional demand. Participants noted that smaller farms, in particular, had trouble hiring qualified and interested drivers, leading to less consistent deliveries.

Given that processing local products is a challenge for institutional buyers due to their labor limitations, AIs were adamant about the need for infrastructure development. This point was poignantly summarized in one focus group when an institutional buyer stated simply, "*we are always talking about infrastructure for producers and on the supply side*." This lead some institutions to look for "*creative infrastructure investments,"* finding unique solutions and strategic partnerships with local suppliers to invest in and developed needed infrastructure. These investments were mutually beneficial; they allowed the institution to meet local procurement goals and suppliers to expand their markets. Institutional buyers felt it would be feasible for them to purchase more local food products with a greater investment in processing infrastructure. Many participants gave specific examples of products they had tried to source locally but had not because there were no lightly processed local options for these products. For example, one buyer discussed their interest in purchasing local "*butternut squash that is already peeled*" and had the seeds taken out. However, they had not been able to identify an existing local source or cultivate a new one due to the lack of processing infrastructure in the region.

This theme identifies a clear problem stream, labor shortages, affecting regional food systems and institutional foodservice operations. It also simultaneously identifies a potential policy stream, greater investments in food processing infrastructure to alleviate labor challenges and increase local food purchases. The resounding support for

infrastructure development among AIs indicates that these organizations and individuals have the potential to become strong policy entrepreneurs advocating for policies that incentivize the development of more regional food infrastructure.

Local Supply Chains as a Source of Resilience

Many institutional buyers perceived purchasing relationships with local suppliers and the shorter supply chains they created as a source of resilience. This perception was one of the motivating factors that encouraged institutions to purchase local food products. This sentiment drew on past experiences, largely responding to natural disasters. A comprehensive example comes from one institution's experience during Tropical Storm Irene, which ravaged the area of study with floods and power outages during 2011; their institution lost power and was at risk of losing all of their refrigerated and frozen food products. They adapted to this situation by calling on a local distributor that they had an established purchasing relationship with and borrowed a refrigerated truck to stop these products from going to waste. The value of these products was thousands of dollars, which can have a significant impact on an institution’s foodservice budget. This participant went on to explain that they kept a list of emergency numbers and commitments from local companies who would deliver to them or loan them a refrigerated truck in the case of an emergency, concluding their story with, "*I feel like a local food system actually decreases your risk in an emergency*." Thus, while establishing relationships with local producers was often time-consuming for institutional buyers, there was a clear benefit and utilization of the social ties with local producers and distributors. Other institutional buyers had similarly utilized their connections with local

suppliers during natural disasters when they were unable to receive products from their broadline distributor as floods disrupted transportation to the area.

In addition to enhancing resilience in the context of a natural disaster, AIs also used their relationships with local suppliers to address other issues within the larger food system. One particularly salient example is the use of local purchases to adapt to food safety recalls. The purchaser explained that when there was a recall of a product from a large producer, romaine lettuce, in this example, they would go to "*alternative sources*," which "*made the case for...more localized purchasing for these items*." This gets to the heart of an essential component of resilience, functional redundancy. Functional redundancy means having multiple actors perform similar roles within a system. The purchaser explained this as the "*resiliency of having some different options*." Another institutional food purchaser summarized the sentiment at the core of many of these experiences, stating, "*I have definitely seen there be resilience- more resilient food systems because of a strong local food system*." Institutions were able to rely on local suppliers largely due to the mutually beneficial, close personal relationships they had invested in creating, in addition to their proximity to these businesses.

For the potential policy stream outlined above, this belief that local food systems are more resilient to shocks, coupled with the greater national support of local foods since the pandemic, could be utilized to generate political support for AIs' preferred policy initiatives. Thus, policy entrepreneurs at AIs have a window of opportunity to support new policy initiatives, capitalizing on the national mood and recent supply chain disruptions.

Purchasing Commitments

Focus group participants identified purchasing commitments as a practical method for enhancing purchasing relationships between AIs and local suppliers. These commitments solidify trust and help develop strong, mutually beneficial relationships. One focus group participant elaborated on why this trust-building process is so essential, asserting, "*working for a large corporation a lot of time people are initially skeptical, and they want to say are you guys really going to follow through with that?*" Making these purchasing commitments ensures that institutional buyers will follow through on what they say they will purchase and increases the consistency of markets for suppliers. In addition, these commitments build trust and enhance the social ties between AIs and local suppliers. As noted in the previous section on local supply chains as a source of resilience, AIs utilized these social connections to overcome issues within the food system and during emergency scenarios.

Institutions also benefit from engaging in these purchasing commitments. For example, one school buyer explained how their purchasing commitments facilitated their Harvest of the Month program, which highlights local, seasonal products. By making purchasing commitments in advance, they were able to coordinate with their local distributor to source the products they were interested in highlighting, were familiar with, and could efficiently process at their facilities. In addition, by coordinating with producers, institutions could source local products they enjoyed working with instead of adjusting menus to incorporate unfamiliar and potentially difficult to sell local products. One institutional buyer explained the benefit of this process, stating, "*you're not going out and reaching for new foods; you're working on things that the students are already*

eating and comfortable with, and your team is already comfortable producing." Some institutions even went as far as to coordinate with farmers during the crop planning season to ensure the availability of these products. This also helps suppliers identify a committed and viable market for their crops before investing in the planting, growing, and harvesting processes.

When developing these purchasing commitments, it was crucial to have "*refined details in pounds per month."* AIs had to develop a greater understanding of their supply chain, facilitating more thorough tracking of metrics related to their foodservice operations, to effectively use purchasing commitments. Tracking local food purchases benefitted institutions that used these metrics for marketing their products. This tracking also provided other benefits, as one participant explained: "*the metrics that we are able to track through those programs; academic partnerships, sponsorship and those kinds of things come about as a result of that work*." Therefore, institutions could justify the time associated with initiating tracking procedures because they provided tangible benefits and allowed institutions to use purchasing commitments with local producers effectively.

Strategic Partnerships

Throughout the four focus groups, participants stressed the importance of relationships within the regional food system. One particularly interesting concept to come from these conversations was the importance of developing strategic partnerships and some basic principles for how to identify potential partners. Participants talked about creating strategic partnerships with both suppliers and other institutional buyers. Participants used strategic partnerships to overcome issues related to "*mismatches of*

supply and demand," working with suppliers to increase production volumes for products they were interested in sourcing locally and regularly used in their operations. Purchasing commitments, in this case, were a helpful facilitator for establishing these strategic partnerships so that institutions could source their desired products locally. Another way to facilitate these partnerships was through "*creative infrastructure investments*." One participant provided an example where a hospital looking to enhance its local procurement and support its local producers loaned a supplier money to invest in infrastructure that would help them meet institutional demand.

Strategic partnerships among various types of AIs were also used to support local procurement efforts. Engaging with other institutions was a way to learn from professional peers involved in similar efforts while simultaneously looking to "*see where there might be some collaboration opportunities*." One participant emphasized the importance of "*really realizing the power of cross-sector work for institutions, and creating that year-round demand, using the different institutions from healthcare to corporate to campuses.*" Through these strategic partnerships, AIs can come together to leverage their substantial collective purchasing power. Maintaining year-round product demand has been a challenge for some local distributors, and working on generating consistent demand increases the feasibility of investing in some of the critical infrastructures that institutional buyers so adamantly want and need.

Throughout conversations about developing strategic partnerships, many participants highlighted the importance of knowing about their communities' resources, institutions, and suppliers. Without this knowledge, it was challenging to assess and identify potential partnerships. Asset mapping was identified by multiple focus group

participants, including technical assistance providers, as a helpful tool for better developing a greater understanding of potential partners within the region. One participant gave an example of the application of this method. They described using this process at a school with limited capacity for scratch cooking to identify potential partners in the region that had the capacity to process local food products, helping the school avoid the substantial upfront costs required to update their own facilities.

Discussion

Although we conducted this research just prior to the onset of COVID-19 in the U.S., the ongoing challenges within the food system have only increased the relevance and applications of these findings. These findings suggest two potential ways to increase local procurement at AIs: 1) utilizing the current window of opportunity to support policies that incentivizes the development of regional food processing infrastructure, and 2) using the practical methods and tools identified in this research to enhance local procurement efforts at the institutional level. A combination of both strategies would be most effective for enhancing local procurement efforts.

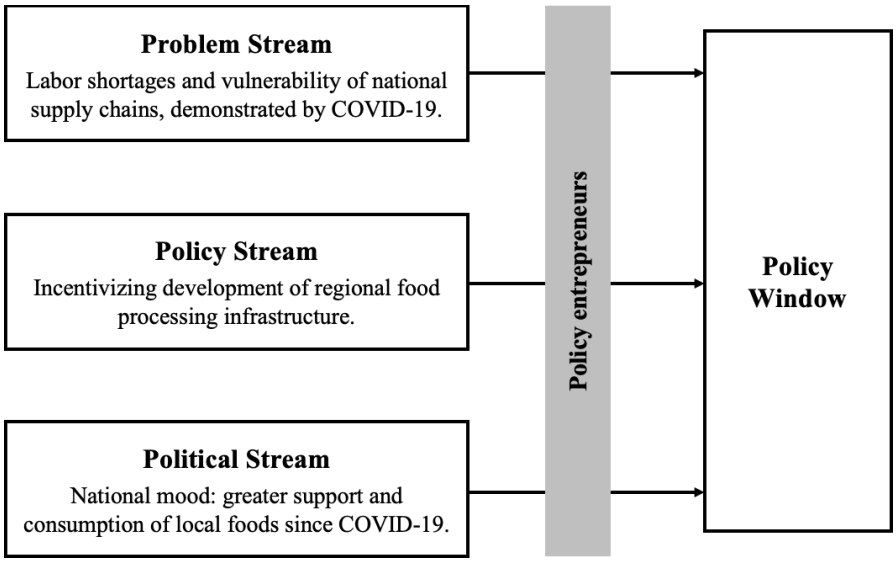

Figure 3. Anchor institutions current policy window.

AIs identified labor shortages as a substantial challenge for their foodservice operations. Institutions with seasonal demand, like universities and schools, especially struggled with staffing at the start of each school year when they had to hire many new employees in a short period. This made the management of institutional foodservice operations more challenging and hindered institutions' ability to source local food products. Labor shortages are a defined and constraining issue, referred to as a problem stream in Kingdon's MSA. These results are from data collected before the ongoing 'labor crunch,' which has exacerbated labor issues in many sectors throughout the U.S. economy, including the foodservice industry (Buzalka, 2021; Smith & Page, 2021; Blank, 2020; Hobbs, 2020). Adding to the challenge institutional foodservice operations face, many institutional buyers primary distributors experienced shortages of common food items during the COVID-19 pandemic (Cunningham et al., 2021a; Smith & Page, 2021). The ongoing labor crunch and disruptions to global supply chains have acted as

focusing events, drawing increased attention to these issues, depicted in Figure 2's problem stream. Attention to problems often rises quickly, especially when responding to a crisis, giving a limited window of opportunity to capitalize on the attention to the subject and enact meaningful policy changes.

Fortunately, focus group participants also highlighted a solution to these issues, identifying a potential policy stream. Participants resoundingly stated the need for greater development of infrastructure of the middle, principally to increase food processing capacities within regional food systems. This infrastructure would make it more feasible for AIs to increase local procurement by reducing the labor required to process local foods. Policy solutions that incentivize investment in regional food processing infrastructure would reduce the labor pressure on institutions that purchase local food products while simultaneously supporting the development of local food systems. These localized food systems support regional economies and enhance food system resilience, as noted by focus group participants and previous literature (Marocchino et al., 2020, Fardkhales & Lincoln, 2021).

The third and final component in Kingdon's MSA is the political stream, meaning there is a willingness to enact policy changes. AIs can support the development of a political stream, using their influence as large economic forces and employers within their communities. The focus-group findings indicate that institutional foodservice administrators understand conceptually and from experience that short, local supply chains are a source of resilience within the food system. Although the support for this assertion drew primarily on experiences during natural disasters, like Tropical Storm Irene, more recent findings demonstrate that short, local food supply chains have been a

source of resilience in the novel and unprecedented context of COVID-19 (Cunningham et al., 2021b, Marocchino et al., 2020, Fardkhales & Lincoln, 2021). These beliefs, coupled with the 'national mood' that increasingly supports local foods, can be leveraged to influence policymakers to adopt new policies that support local food systems (Richards & Vassalos, 2021; USDA Economic Research Service, 2021; Food Insight, 2021).

In addition to illuminating the potential for policy change, the focus group findings also identified tools and methods that have practical applications for outreach providers and institutions hoping to further their local procurement efforts. These findings identified purchasing commitments as an important method for enhancing trust and establishing mutually beneficial relationships. Purchasing commitments ensure producers that it was worth investing the time and energy to sell to institutional markets, providing them with consistent and stable purchasing partners. While these commitments were a way to incentivize farmers to produce in the bulk quantities desired for institutional markets, AIs also benefitted from these arrangements. As a result of these purchasing commitments, AIs were able to work with farmers during their crop planning season to encourage farmers to plant the varieties and crops they were most interested in purchasing, had familiarity with, and were able to process efficiently. By tracking local food purchases, AIs could also use this information to plan their foodservice operations, market their products, gain recognition, and access support for their local procurement programs. Since there is limited information on the mutual benefits of purchasing commitments between local farms and institutions, especially during times of crisis like COVID-19 or natural disasters, further research is needed on this topic.

These purchasing commitments benefitted both institutional buyers and local suppliers, but there was a high level of specificity required to engage in this practice effectively. Developing consistent tracking and a detailed understanding of the products and quantities foodservice operations used was essential for effectively engaging in these efforts. Creating tools and methodologies for effectively tracking this information and using it to inform local food purchases is one area where technical assistance providers may be able to enhance the work of institutions.

Finally, the importance of strategic partnerships was a forceful and recurrent theme within the research dataset. AIs suggested developing and using strategic partnerships with suppliers to support and incentivize infrastructure development. Partnerships between AIs and vendors are well-documented in the existing AIs literature, while less attention has been paid to the role of cross-sector collaboration among institutions (Becot et al., 2016, Conner et al., 2011, Feenstra et al., 2011). Cross-sector collaboration among different types of AIs, specifically hospitals and educational institutions, can create year-round product demand. The Kendall grant, which funded investment in processing equipment to support a diverse group of AIs, is a prime example of how these cross-sector collaborations can generate substantial year-round demand and encourage infrastructure investments (Henry P. Kendall Foundation, 2020). Technical assistance providers can also assist institutions in these efforts, connecting them to partners within communities they work in or helping them develop asset maps of the area to identify potential partners themselves. These findings have already informed the development of a multi-language toolkit for enhancing local procurement efforts at AIs as part of a collaboration between the University of Vermont and the University of Puerto

Rico Mayaguez. Based on these research findings, this toolkit includes a section on the application of asset mapping in the food system context.

Conclusion

These results present two complementary paths for AIs seeking to enhance their local procurement efforts. First, the COVID-19 pandemic has facilitated unique conditions that have created a window of opportunity to enact meaningful policy changes. Given AIs' beliefs that short, local supply chains are more resilient to shocks, they are a natural champion for local foods. As policy entrepreneurs, AIs can identify and support policies that incentivize greater infrastructure development within local and regional food systems. There is a clear problem stream identified in this research; the lack of processed local food products. This puts undue strain on the labor capacities of institutions that purchase local foods and hinders the expansion of local procurement efforts. However, while investment in food processing infrastructure is a definite and needed solution, policy entrepreneurs must still identify the best ways to encourage these investments, whether through grants, subsidies, or another method altogether. Finally, while there is greater national support for local foods since the pandemic, policy entrepreneurs must actively engage with policymakers to transform this sentiment into political will and support for their preferred policy initiatives.

In addition to encouraging policymakers to incentivize the development of critical infrastructure, this research also identified practical methods to enhance local procurement efforts at institutions. While systemic changes are necessary to develop more robust regional food systems, there are still opportunities to address some of the

barriers to local procurement at the institutional level. One crucial way AIs facilitated trusting, mutually beneficial relationships with suppliers was using purchasing commitments. More research is needed to understand the benefits and drawbacks of purchasing commitments, especially during times of crisis, like the COVID-19 pandemic. Purchasing commitments may have been a liability for institutions during the pandemic, as most AIs experienced a significant decline in demand. However, local purchasing relationships have been identified as one way institutions adapted to the shortages of food items among their primary distributors, helping AIs adapt to systemic supply chain disruptions (Brandon Williams, personal communication, June 30, 2021).

Strategic partnerships also have the potential to enhance local procurement efforts at AIs. Strategic cross-sector collaborations with other AIs can generate substantial, year-round product demand. As noted elsewhere, the AIs that received funding through the Kendall Grant have successfully applied this method in Vermont. However, more research is needed on the operationalization and benefits of these cross-sector AIs collaborations.

This research drew on the experiences of a wide range of AIs and identified two complementary paths to enhance local procurement efforts, making the findings applicable to a broad audience. The MSA indicates that there is a window of opportunity to enact meaningful policy changes, but this analysis does not have a mechanism to reflect the many public health decisions that policymakers have had to make since the start of the pandemic. The pandemic is a solid focusing event, but this power may be somewhat diluted because of the numerous issues the pandemic has caused and revealed.

Additionally, this research was conducted just before the pandemic and does not reflect how this jarring experience has shifted institutional foodservice providers' perspectives. Fortunately, these findings have been supported by research conducted during the pandemic, demonstrating that short, local supply chains were a source of resilience for institutions and food systems more broadly (Cunningham et al., 2021b; Marocchino et al., 2020). Additionally, the need for more infrastructure investments has only become more pressing. Foodservice professionals working as part of the Kendall Grant AI collaboration indicated the continued need to develop infrastructure of the middle, given the ongoing labor shortages (Brandon Williams, personal communication, June 30, 2021). Whether by enacting policy changes or adjusting institutional practices, this research demonstrates defined and realizable ways to enhance local procurement at AIs.

References

American Farmland Trust, Conservation Law Foundation & Northeast Sustainable Agriculture Working Group. (2014). *New England food policy: Building a sustainable food system*. https://www.clf.org/wp-content/uploads/2016/03/1.New_England_Food_Policy_FULL.pdf

American Hospital Association. (2021). Fact sheet: COVID-19 pandemic results in bankruptcies or closures for some hospitals. *American Hospital Association.* https://www.aha.org/fact-sheets/2020-11-09-fact-sheet-covid-19-pandemic-results-bankruptcies-or-closures-some-hospitals

Association of American Colleges and Universities. (2020). Responding to the ongoing COVID-19 crisis and to calls for racial justice: A survey of college and university presidents. https://www.aacu.org/sites/default/files/files/research/AACU_ABC_PTSurvey_Report_Findings_updated.pdf

Becot, F., Conner, D., Imrie, D., & Ettman, K. (2016). Assessing the impacts of local hospital food procurement: results from Vermont. *Journal of Foodservice Management & Education*, *10*(1), 1–7.

Bene, C. (2020). Resilience of local food systems and links to food security – A review of some important concepts in the context of COVID-19 and other shocks. *Food Security, 12*, 805-822.

Benedek, Z., Fertő, I., & Szente, V. (2020). The multiplier effects of food relocalization: A systematic review. *Sustainability, 12*(9), 3524. doi:http://dx.doi.org.ezproxy.uvm.edu/10.3390/su12093524

Berti, G., & Mulligan, C. (2016). Competitiveness of small farms and innovative food supply chains: The role of food hubs in creating sustainable regional and local food systems. *Sustainability, 8*(7), 616. DOI:10.3390/su8070616

Blank, C. (September 28, 2020). US institutional foodservice expected to recover in 2023. *SeafoodSource.* https://www.seafoodsource.com/news/foodservice-retail/us-institutional-foodservice-expected-to-recover-in-2023

Boeije, H. (2002). A purposeful approach to the constant comparative method in the analysis of qualitative interviews. *Quality & Quantity*, *36*, 391–409.

Boss, D. (2020). Healthcare foodservice leaders respond to the COVID-19 crisis. *Foodservice Equipment and Supplies*. https://fesmag.com/topics/trends/18471-special-section—healthcare-healthcare-foodservice-leaders-respond-to-the-covid-19-crisis

Braun, C. L., Rombach, M., Häring, A. M., & Bitsch, V. A. (2018). Local gap in sustainable food procurement: Organic vegetables in berlin's school meals. *Sustainability*, *10*(11), 1-19.

Brislen, L. (2018). Meeting in the middle: Scaling-up and scaling- over in alternative food networks. *Culture, Agriculture, Food and Environment, 40*(2), 105–113.

Buzalka, M. (June 20, 2021). Back to School: K-12 gets ready for the fall. *Food Management*. https://www.food-management.com/k-12-schools/back-school-k-12-gets-ready-fall

Cantor, N., Englot, P., Higgins, M. (2013). Making the work of anchor institutions stick: Building coalitions and collective expertise. *Journal of Higher Education Outreach and Engagement, 17*(3), 17-46.

Charmaz, K. (2005) 'Grounded theory in the 21st century: applications for advancing social justice studies'. In: Denzin, N. K. & Lincoln, Y. S. (eds.) *The Sage Handbook of Qualitative Research*, pp. 507–35. Sage: Thousand Oaks.

Choi, W.-S., & Sneed, J. (2006). Factors related to job satisfaction and intent to turnover for part-time student employees in university dining services. Journal of Foodservice Management and Education, 2(1), 34-48. Retrieved from: http:// fsmec.org/wp-content/uploads/2011/09/ChoiSneed2006.pdf.

Conner, D.S., Abate, G., Liquori, T., Hamm, M.W., & Peterson, H.C. (2010). Prospects for more healthful, local, and sustainably produced food in school meals. *Journal of Hunger and Environmental Nutrition, 5*. https://doi.org/10.1080/19320248.2010.527276

Conner, D. S., Nowak, A., Berkenkamp, J., Feenstra, G. W., Van Soelen Kim, J., Liquori, T., & Hamm, M. W. (2011). Value chains for sustainable procurement in large school districts: Fostering partnerships. *Journal of Agriculture, Food Systems, and Community Development, 1(4),* 55–68.

Conner, D., Sims, K., Berkfield, R., & Harrington, H. (2018). Do farmers and other suppliers benefit from sales to food hubs? Evidence from Vermont. *Journal of Hunger & Environmental Nutrition, 13*(4), 507-516. doi: 10.1080/19320248.2017.1378602

Cunningham, N., Leighton, H., Allison, P., Kaskey, L., & Conner, D. (2021a). Anchoring communities throughout COVID-19: Results from the 2020 healthy food in health care survey in New England. *Farm to Institute New England*. https://www.farmtoinstitution.org/sites/default/files/imce/uploads/Anchoring-Communities-Throughout-COVID-19-HCWH-Report-2021.pdf

Cunningham, N., Whitehouse, C., Conner, D., Blair, H., & Krueger, J. (2021b). Beyond Procurement: Anchor Institutions and Adaptations for Resilience [Unpublished Manuscript]. Department of Community Development and Applied Economics, University of Vermont.

Fardkhales, S. A., & Lincoln, N. K. (2021). Food hubs play an essential role in the COVID-19 response in Hawai‘i. *Journal of Agriculture, Food Systems, and Community Development, 10*(20), 53–70. https://doi.org/10.5304/jafscd.2021.102.036

Feenstra, G., Allen, P., Hardesty, S., Ohmart, J., & Perez, J. (2011). Using a supply chain analysis to assess the sustainability of farm-to-institution programs. *Journal of Agriculture, Food Systems, and Community Development, 1*(4), 69-84.

Flaherty, C. (April 1, 2020). Frozen searches. *Inside Higher Ed.* https://www.insidehighered.com/news/2020/04/01/scores-colleges-announce-faculty-hiring-freezes-response-coronavirus

Food Insight. (2021, March 15). Consumer surveys: A continued look at COVID-19's impact on food purchasing, eating behaviors, and perceptions of food safety. https://foodinsight.org/consumer-surveys-covid-19s-impact/

Gregoire, M. B., Arendt, S. W., & Strohbehn, C. (2005). Iowa producers' perceived benefits and obstacles in marketing to local restaurants and institutional foodservice operations. *Journal of Extension, 43*(1).

Hardesty, S., Feenstra, G. Visher, D., Lerman, T., Thilmany-McFadden, D., Bauman, A., Gillpatrick, T., & Nurse-Rainbolt, G. (2014). Values-based supply chains: supporting regional food and farms. economic development. *Economic Development Quarterly, 28*(1): 17–27. https://doi/full/10.1177/0891242413507103.

Health Care Without Harm. (2020). Anchors in action. https://noharm-uscanada.org/sites/default/files/documents-files/5795/Anchors%20in%20Action%20Backgrounder_April%205%202019.pdf

Hennink, M. M., Kaiser, B. N., & Weber, M. B. (2019). What influences saturation? Estimating sample sizes in focus group research. *Qualitative Health Research*, 1-14. hDttOpsI://1d0o.i.1o1rg7/71/01.10147977/13024391738283211868921269 2

Henry P. Kendall Foundation. (2020). Changing form for function. https://www.kendall.org/changing-form-for-function/

Hobbs, J. (2020). Food supply chains during the COVID-19 pandemic. *Canadian Journal of Agricultural Economics, 68*(2), 171-176. Doi: 10.1111/cjag.12237

Izumi, B. T., Alaimo, K., & Hamm, M. W. (2010). Farm-to-school programs: perspectives of school foodservice professionals. *Journal of Nutrition Education and Behavior, 42*(2), 83–91.

Jones, M. D., Peterson, H. L., Peirce, J. J., Herweg, N., Bernal, A., Lamberta Raney H., Zahariadis, N. (2016). A river runs through it: A multiple streams meta-review. *The Policy Studies Journal, 44*(1), 13-36.

Kane, D., Kruse, S., Ratcliffe, M. M., Sobell, S. A., & Tessman, N. (2011). *The impact of seven cents.* Ecotrust. https://ecotrust.org/publication/the-impact-of-seven-cents/

Katz, V. S., Jordan, A. B., & Ognyanova, K. (2021). Digital inequality, faculty communication, and remote learning experiences during the COVID-19 pandemic: A survey of U.S. undergraduates. *PloS one, 16*(2).

Kingdon, J. (1984). Agendas, alternatives, and public policies. Boston: Little, Brown.

Kinsey, E. W., Hecht, A. A., Dunn, C. G., Levi, R., Read, M. A., Smith, C., Nielson, P., Seligman, H. K., & Hager, E. R. (2020). School closures during COVID-19: Opportunities for innovation in meal service. *American Journal of Public Health, 110*(10), 1635-1643. https://doi-org.ezproxy.uvm.edu/10.2105/AJPH.2020.305875

Kirschenmann, F. L., Stevenson, S., Buttel, F., Lyson, T., & Duffy, M. (2004). *Why worry about the agriculture of the middle?* [White paper]. Leopold Center Publications and Papers.

Kloppenburg, J., Wubben, D. & Grunes, M. (2008). Linking the Land and the Lunchroom: Lessons from the Wisconsin Homegrown Lunch Project. *Journal of Hunger Environment and Nutrition, 3*, 440–455.

Kochhar, R., & Barroso, A. (March 27, 2020). Young workers likely to be hard hit as COVID-19 strikes a blow to restaurants and other service sector jobs. *Pew Research Center. https://www.pewresearch.org/fact-tank/2020/03/27/young-workers-likely-to-be-hard-hit-as-covid-19-strikes-a-blow-to-restaurants-and-other-service-sector-jobs/*

Lindlof, T. R. & Taylor, B. C. (2011). *Qualitative Communication Research Methods*. Sage: Thousand Oaks, CA.

Magis, K. (2010). Community Resilience: An Indicator of Social Sustainability. *Society and Natural Resources, 23*(5), 401-416. DOI: 10.1080/08941920903305674

Marocchino, C., Stamoulis, K., Morrison, J., Martin, G., Punjabi, M., Ni, J.,... Raher, E. (2020). Cities and governments at the forefront in building inclusive and resilient food systems: Key results from the FAO survey "Urban Food Systems and COVID-19," Revised version. FAO. https://doi.org/10.4060/cb0407en

O'Donovan, K. (2017). An assessment of aggregate focusing events, disaster experience, and policy change. *Risk, Hazards & Crisis in Public Policy, 8*(3), 201-219. doi: 10.1002/rhc3.12116

Owens, W. F. (1984). Interpretive themes in relational communication. *Quarterly Journal of Speech, 70* (3), 274-87.

Parmer, S. M., Salisbury-Glennon, J., Shannon, D., & Struempler, B. (2009). School gardens: An experiential learning approach for a nutrition education program to increase fruit and vegetable knowledge, preference, and consumption among second-grade students. *Journal of nutrition education and behavior; 41*(3), 212-217.

Ramsey, A. F., Goodwin, B. K., Hanh, W. F., Holt, M. T. (2020). Impacts of COVID-19 and Price Transmission in U.S. Meat Markets. *Agricultural Economics, 52*, 441-458.

Reidsma, P., & Ewert, F. (2008). regional farm diversity can reduce vulnerability of food production to climate change. *Ecology and Society, 13*(1). https://www.jstor.org/stable/26267943

Richards, S., & Vassalos, M. (2021). COVID-19 and consumer demand for local meat products in South Carolina. *Journal of Agriculture, Food Systems, and Community Development, 10*(3), 1-6. https://doi.org/10.5304/jafscd.2021.103.004

Roche, E., Becot, F., Kolodinsky, J., & Conner, D. (2016). *Economic contribution and potential impact of local food purchases made by Vermont schools*. Center for Rural Studies, University of Vermont. https://agriculture.vermont.gov/sites/agriculture/files/documents/Farm_to_School_Institution/Economic%20Contribution%20of%20Farm%20to%20School%20in%20Vermont%20.pdf

Rosewicz, B., & Maciag, M. (November 10, 2020). Nearly all states suffer declines in education jobs. *Pew Research Center.* https://www.pewtrusts.org/en/research-and-analysis/articles/2020/11/10/nearly-all-states-suffer-declines-in-education-jobs

Ryan, B., Ma, E., Hsiao, A., & Ku, M. (2015). The work-family conflict of university foodservice managers: An exploratory study of its antecedents and consequences. *Journal of Hospitality and Tourism, 22, 10-18.*

Shepard, D. D., Ellersiek, A., Meuer, J., Rupietta , C., Maynes, R., & Cairney, P. (2019). Kingdon's multiple streams approach in new political contexts: Consolidation, configuration, and new findings. *Governance*, 1-21. DOI: 10.1111/gove.12521

Smith, J., & Page, P. (May 21, 2021). Food supply chains are stretched as Americans head back to restaurants. *The Wall Street Journal. https://www.wsj.com/articles/food-supply-chains-are-stretched-as-americans-head-back-to-restaurants-11621589405*

Stahlbrand, L. (2016). Short food supply chains and " infrastructure of the middle ": The role of university food procurement in sustainability transition. 12th European International Farming Systems Association (IFSA) Symposium, Social and technological transformation of farming systems: Diverging and converging pathways, 12-15 July 2016, Harper Adams University, Newport, Shropshire, UK, pp.1-14.

Stahlbrand, L. (2019). Disruptive innovation and operationalization in local and sustainable food systems: examining the University of Toronto-Local Food Plus partnership. *Canadian Food Studies, 6*(1), 120-139.

Tendall, D.M., Joerin, J., Kopainsky, B., Edwards, P. J., Shreck, A., Le, Q. B., Kruetli, P., Grant, M., & Six, J. (2015). Food system resilience: Defining the concept. *Global Food Security*, *6*, 17-23. https://doi.org/10.1016/j.gfs.2015.08.001

Thilmany, D., Canales, E., Low, S. A., & Boys, K. (2020). Local food supply chain dynamics and resilience during COVID-19. *Applied Economic Perspectives and Policy, 43*(1), 86-104.

U.S. Department of Agriculture. (n.d.). *Food value chains: creating shared value to enhance marketing success*. https://www.ams.usda.gov/services/local-regional/food-value-chain

U.S. Department of Agriculture, Economic Research Service. (2021, February 18). Monthly sales of food, with taxes and tips, for all purchaser. https://www.ers.usda.gov/data-products/food-expenditure-series/food-expenditure-series/

CHAPTER 5: CONCLUSION

Discussion

Although humans have always been subject to the unpredictable shocks of natural disasters, these disruptions are likely to become more frequent and severe due to climate change (Botzen & Van Den Berg, 2009). Since, as a species, we cannot survive or thrive without functioning food systems, developing resilience capacities within these systems is particularly important. This research sought to add to the existing literature on AIs contributions to local food systems and resilience.

Chapters 3 and 4 of this thesis highlight how relationships among AIs, local farmers, and intermediaries contribute to food system resilience. Although most previous literature has focused on how AIs support local suppliers, this research demonstrates that institutions are more resilient as a result of these purchasing relationships. These relationships helped institutions navigate and adapt to shocks, both in the contexts of natural disasters and COVID-19. Institutions leverage their social capital with local producers to adapt to various disruptions relying on their mutually beneficial, highly connected relationships. For example, during the pandemic, institutions used their connections with local producers to source products they were unable to get from their broadline distributors. In the past, institutions have also used these relationships to adapt to other challenges, like food safety recalls and power outages. Relationships with local producers contribute to resilience by building functional redundancy, connectivity, and diversity into institutional supply chains. Thus, while FTI programs support local food systems, the social capital AIs have with local producers directly benefits institutions. Prior literature supports this finding and demonstrates that short supply chains are more

resilient than long, national ones (Fardkhales & Lincoln, 2021; Marocchino et al., 2020; Thilmany et al., 2020). Additionally, this finding is supported by a group of literature that suggests FTI programs provide reciprocal benefits to AIs and local producers (Alexander et al., 2017; Common Markets, 2014; Koh et al., 2020). The finding outlined in this thesis demonstrate the tangible benefits for institutions engaged in FTI programs and strengthen the argument that relationships between local producers and AIs are mutually beneficial. These benefits may act as an additional incentive for institutions to engage in FTI programs.

Chapter 3 highlights a vital way institutions contribute to food system resilience beyond procurement. The Healthy Food in Health Care survey and interviews with AIs found that the majority of institutions created new food access initiatives during COVID-19. In response to increasing food insecurity during the first nine months of the pandemic, these program initiatives supported AIs' communities and employees. However, many institutions had similar initiatives that supported food access and local producers prior to the pandemic. Institutions adopted a wide array of programming initiatives, including hosting pop-up grocery stores, donating food to local non-profits, and offering free meals to the community or staff. The wide array of potential food access initiatives allows institutions to adopt the programs that are best-suited to their community's needs and the institution's resources. Additionally, the widespread adoption of food access initiatives by institutions that did not consider themselves an AI or purchase local foods indicates that they are an accessible way for AIs to support their communities.

Chapter 4 highlighted two complementary paths to enhance local procurement efforts at AIs. Drawing on the MSA, this chapter details the current window of opportunity to enact policy changes. Focus group participants identified a defined problem stream: the labor challenges most institutions and local suppliers faced. Pandemic-related employment disruptions and the ongoing labor crunch have exacerbated existing labor issues and acted as focusing events, bringing increased attention to this problem stream. Participants also identified a potential policy stream, investing and incentivizing the development of infrastructure of the middle. This research and the MSA suggest that if AIs take an active role as policy entrepreneurs, they can influence policymakers (political stream) to enact new policies that support infrastructure of the middle, which would address some of the critical challenges AIs face when procuring local food products.

Chapter 4 also outlined two practical methods to enhance local procurement efforts at the institutional level: strategic partnerships and purchasing commitments. This is an area where technical assistance providers have the potential to assist institutions. Strategic cross-sector partnerships among AIs can generate substantial, year-round product demand. By leveraging this substantial demand, institutions can encourage intermediaries to invest in more processing infrastructure. Focus group participants identified asset mapping as a helpful way to identify potential partner organizations. Based on these findings, a food system specific methodology is included in a toolkit designed to assist AIs in their local procurement efforts (Appendix A, Infographic). Purchasing commitments were an indispensable way institutions fostered trusting, mutually beneficial relationships with local suppliers. Purchasing commitments allowed

institutions to source local products they were familiar with and interested in purchasing while simultaneously developing social capital with local producers that they can leverage during crises.

Limitations

Each research process presents its own unique set of limitations. Chapter 3 relied on mixed methods to integrate, confirm, corroborate, and cross-validate study findings. A major limitation of this study is the low response rate. Given the low response rate, these survey findings did not warrant independent statistical analysis, as they are not generalizable to the entire New England hospital population. HWCH has been sending the Healthy Food in Health Care survey to their network for several years; however, this was the first iteration to include all New England health care facilities. This sample may also be biased to include facilities that are more engaged with local and sustainable procurement efforts. 54% of New England hospitals are part of the HCWH network; however, 80% of survey respondents were part of this network. This selection bias is likely because HWCH provided the contact information for facilities and is more likely to have up-to-date contact information for the facilities in their network.

Due to these survey limitations, the results were not used in isolation but rather to confirm or contradict interview findings. While the triangulation of results increases the reliability of the findings, this process also has some limitations. For example, the Healthy Food in Health Care survey included one specific type of AI, hospitals, while the interviews included a wide variety of AIs. Therefore, this research may overemphasize

hospital-specific findings, while themes relevant to educational institutions may be under-emphasized.

Chapter 4 was based on the results of four in-depth focus groups. Group dynamics can present unique challenges, including one or two individuals dominating the conversation, contradictory group opinions, and a reluctance to share sensitive information within a public setting. This research used a highly experienced moderator to facilitate the focus groups to ensure that the data reflected the experiences of all the individuals present. However, even with an experienced moderator, not all perspectives are equally reflected within the data.

The research team conducted focus groups just before the onset of the pandemic. In contrast, this thesis presents the research findings in light of the recent systemic disruptions to institutional foodservice operations. Therefore, this research does not reflect how or if experiences during the pandemic changed the perspectives of institutional foodservice administrators. Furthermore, the MSA applied in Chapter 4 has some notable limitations. The MSA does not have a mechanism to reflect the strain the pandemic has put on policymakers. Given the numerous public health decisions, policymakers are having to make, they may have less bandwidth to address other issues. There is the potential that the pandemic diluted the power of the focusing events outlined in Chapter 4 because of the numerous issues it caused and revealed.

Future Research

These research findings and limitations highlight questions for future research. For example, during COVID-19, many institutions created new food access initiatives to

support their communities and staff. Future research should examine if adopting new food access initiatives to support employees throughout the pandemic increased staff retention. This issue is particularly interesting in light of the ongoing labor crunch and existing challenges with staff retention in the foodservice industry.

The Healthy Food in Health Care survey findings demonstrated widespread adoption of food access initiatives during COVID-19. This suggests that hospitals are interested in supporting these types of initiatives. However, only 27% of the hospitals surveyed used their community benefit programs to perform food-based interventions. Community benefit programs are designed to address critical community health risks, like food insecurity, and are required to maintain tax-exempt status. Additionally, like the Simmering Pot initiative, many of these programs have the dual benefits of supporting local farmers and food-insecure families. Future research should seek to understand if there is an opportunity to increase the use of community benefit funds to support food access initiatives.

This research also highlighted purchasing commitments as a valuable method to enhance local procurement efforts at AIs. Additional research looking at purchasing commitments could provide valuable information on the benefits and drawbacks for institutions and local suppliers engaged in these commitments. Most institutional foodservice operations experienced a significant decline in demand during the pandemic. Given this sudden and precipitous decline in demand, purchasing commitments may have been a liability for institutional foodservice operations. This research does not address if the pandemic changed institutions' perceptions of purchasing commitments. While this research indicated that relationships with local producers helped AIs adapt to supply

chain disruptions, the study conducted during COVID-19 did not look specifically at purchasing commitments, which warrants further investigation.

Finally, focus groups identified cross-sector collaborations among AIs as a way to enhance local procurement efforts. Technical assistance providers and AIs would benefit from studies that examine the benefits, drawbacks, and operationalization of these cross-sector collaborations. The ongoing efforts funded by the Kendal Grant provide an ideal case study to develop a better understanding of these collaborations.

COMPREHENSIVE BIBLIOGRAPHY

Alexander, S. E., Clouse, C., & Austrian, Z. (2017). Thinking outside the higher education box: Expanding upon the economic and community development roles of urban universities to create a win-win situation. *Journal of Economic Development in Higher Education, 1*, 53-60.

American Farmland Trust, Conservation Law Foundation & Northeast Sustainable Agriculture Working Group. (2014). *New England food policy: Building a sustainable food system*. https://www.clf.org/wp-content/uploads/2016/03/1.New_England_Food_Policy_FULL.pdf

American Hospital Association. (2021). Fact sheet: COVID-19 pandemic results in bankruptcies or closures for some hospitals. *American Hospital Association.* https://www.aha.org/fact-sheets/2020-11-09-fact-sheet-covid-19-pandemic-results-bankruptcies-or-closures-some-hospitals

Association of American Colleges and Universities. (2020). *Responding to the ongoing COVID-19 crisis and to calls for racial justice: A survey of college and university presidents.* https://www.aacu.org/sites/default/files/files/research/AACU_ABC_PTSurvey_Report_Findings_updated.pdf

Ansah, I.G.K., Gardebroek, C., & Ihle, R. (2019). Resilience and household food security : a review of concepts , methodological approaches and empirical evidence. *Food Security, 11*, 1–17. https://doi.org/10.1007/s12571-019-00968-1

Bartley, A. (2014, January 4). The rise of the anchor institution: Setting standards for success. *The Huffington Post. https://www.huffpost.com/entry/the-rise-of-the-anchor-in_b_4589224*

Becot, F., Conner, D., Imrie, D., & Ettman, K. (2016). Assessing the impacts of local hospital food procurement: results from Vermont. *Journal of Foodservice Management & Education*, *10*(1), 1–7.

Becot, F., Kolodinsky, J. M., Roche, E., Zipparo, A. E., Berlin, L., Buchwalter, E., & McLaughlin, J. (2017). Do farm-to-school programs create local economic impacts? *Choices*, *32*(1), 1-8.

Bene, C. (2020). Resilience of local food systems and links to food security – A review of some important concepts in the context of COVID-19 and other shocks. *Food Security, 12*, 805-822. https://doi.org/10.1007/s12571-020-01076-1

Benedek, Z., Fertő, I., & Szente, V. (2020). The multiplier effects of food relocalization: A systematic review. *Sustainability, 12*(9), 3524. doi:http://dx.doi.org.ezproxy.uvm.edu/10.3390/su12093524

Benson, M., & Fleury, D. (2017). Institutions: An emerging market for local and regional foods. In Dumont, A., Davis, D., Wascalus, J. Wilson, T. C., Barham, J., & Tropp, D. (Eds.), *Harvesting Opportunity: The Power of Regional Food System Investments to Transform Communities* (pp. 189-208). St. Louis, MO: Federal Reserve Bank of St. Louis. https://www.stlouisfed.org/~/media/files/pdfs/community-development/harvesting-opportunity/harvesting_opportunity.pdf

Berkenkamp, J. (2006). Making the farm/school connection: Opportunities and barriers to greater use of locally grown produce in public schools. *Leopold Center Pubs and Papers,* 153. http://lib.dr.iastate.edu/leopold_pubspapers

Berti, G., & Mulligan, C. (2016). Competitiveness of small farms and innovative food supply chains: The role of food hubs in creating sustainable regional and local food systems. *Sustainability, 8*(7), 616. DOI:10.3390/su8070616

Birch, E., Perry, D. C., & Taylor, H. L. J. (2013). Universities as anchor institutions. *Journal of Higher Education Outreach and Engagement*, *17*(3), 7–16.

Blank, C. (September 28, 2020). US institutional foodservice expected to recover in 2023. *SeafoodSource.* https://www.seafoodsource.com/news/foodservice-retail/us-institutional-foodservice-expected-to-recover-in-2023

Bloom, J. D., & Hinrichs, C. C. (2010). Moving local food through conventional food system infrastructure: Value chain framework comparisons and insights. *Renewable Agriculture and Food Systems*, *26*(1), 13–23. https://doi.org/10.1017/S1742170510000384

Boeije, H. (2002). A purposeful approach to the constant comparative method in the analysis of qualitative interviews. *Quality & Quantity*, *36*, 391–409. https://doi.org/10.1023/A:1020909529486

Bontrager Yoder, A. B., Liebhart, J. L., McCarty, D. J., Meinen, A., Schoeller, D. Vargas, C., & LaRowe, T. (2014). Farm to elementary school programming increases access to fruits and vegetables and increases their consumption among those with low intake. *Journal of Nutrition Education and Behavior, 46*(5), 341–349. https://doi.org/10.1016/j.jneb.2014.04.297

Boss, D. (2020). Healthcare foodservice leaders respond to the COVID-19 crisis. *Foodservice Equipment and Supplies*. https://fesmag.com/topics/trends/18471-special-section—healthcare-healthcare-foodservice-leaders-respond-to-the-covid-19-crisis

Botzen, W. J. W., & Van Den Berg, J. C. J. M. (2009). Managing natural risks in a changing climate. *Environmental Hazards, 8*(3), 209–225. https://doi.org/10.3763/ehaz.2009.0023

Braun, C. L., Rombach, M., Häring, A. M., & Bitsch, V. A. (2018). Local gap in sustainable food procurement: Organic vegetables in berlin's school meals. *Sustainability*, *10*(11), 1-19. https://doi.org/10.3390/su10114245

Brislen, L. (2018). Meeting in the middle: Scaling-up and scaling- over in alternative food networks. *Culture, Agriculture, Food and Environment, 40*(2), 105–113. https://doi.org/10.1111/cuag.12176

Buckley, J., Conner, D. S., Matts, C., & Hamm, M. W. (2013). Social relationships and farm-to-institution initiatives: Complexity and scale in local food systems. *Journal of Hunger & Environmental Nutrition, 8*, 397–412. https://doi.org/10.1080/19320248.2013.816988

Bullock, J. M., Dhanjal-Adams, K. L., Milne, A., Oliver, T. H., Todman, L. C., Whitmore, A. P., & Pywell, R. F. (2017). Resilience and food security: Rethinking an ecological concept. *Journal of Ecology, 105*, 880-884. https://doi.org/10.1111/1365-2745.12791

Buzalka, M. (June 20, 2021). Back to School: K-12 gets ready for the fall. *Food Management*. https://www.food-management.com/k-12-schools/back-school-k-12-gets-ready-fall

Campbell, J., DiPietro, R. B., & Remar, D. (2014). Local foods in a university setting: Price consciousness, product involvement, price/quality inference and consumer's willingness-to-pay. *International Journal of Hospitality Management, 42*, 39-49. https://doi.org/10.1016/j.ijhm.2014.05.014

Cantor, N., Englot, P., Higgins, M. (2013). Making the work of anchor institutions stick: Building coalitions and collective expertise. *Journal of Higher Education Outreach and Engagement, 17*(3), 17-46.

Charmaz, K. (2005) 'Grounded theory in the 21st century: applications for advancing social justice studies'. In: Denzin, N. K. & Lincoln, Y. S. (eds.) *The Sage Handbook of Qualitative Research*, pp. 507–35. Sage: Thousand Oaks.

Chriest, A., & Niles, M. (2018). The role of community social capital for food security following an extreme weather event. *Journal of Rural Studies*, *64*, 80–90. https://doi.org/10.1016/j.jrurstud.2018.09.019

Christensen L. O., Jablonski, B .B. R., Stephens L., & Joshi, A. (2017). *Economic impacts of farm to school: Case studies and assessment tools*. National Farm to

School Network.
http://www.farmtoschool.org/Resources/EconomicImpactReport.pdf

Christensen L. O., Jablonski, B. B. R., Stephens L., & Joshi, A. (2019). Evaluating the economic impacts of farm-to-school procurement: An approach for primary and secondary financial data collection of producers selling to schools. *Journal of Agriculture, Food Systems, and Community Development, 8*(C), 73-94. *https://doi.org/10.5304/jafscd.2019.08C.002*

Choi, W.-S., & Sneed, J. (2006). Factors related to job satisfaction and intent to turnover for part-time student employees in university dining services. *Journal of Foodservice Management and Education, 2*(1), 34-48. http:// fsmec.org/wp-content/uploads/2011/09/ChoiSneed2006.pdf.

Cohen, G. (2006, September). *First, do no harm* [Paper presentation]. Designing the 21st Century Hospital: Environmental Leadership for Healthier Patients and Facilities, Hackensack, New Jersey. https://www.healthdesign.org/chd/research/first-do-no-harm

Common Market. (2014). *Health and wealth in your region: Anchor institutions and regional food procurement*.
https://www.thecommonmarket.org/assets/uploads/reports/AnchorProcurementBrief_CommonMarket.pdf

Community Wealth. (n.d.). *Overview: Anchor institutions.* https://community-wealth.org/strategies/panel/anchors/index.html#:~:text=Anchor%20institutions%20are%20nonprofit%20institutions,anchor%20institutions%20to%20local%20economies

Conner, D. S., Knudson, W. A., Hamm, M. W., & Peterson, H. C. (2008). The food system as an economic driver: Strategies and applications for Michigan. *Journal of Hunger & Environmental Nutrition, 3*(4), 371–383.
https://doi.org/10.1080/19320240802528849

Conner, D.S., Abate, G., Liquori, T., Hamm, M.W., & Peterson, H.C. (2010). Prospects for more healthful, local, and sustainably produced food in school meals. *Journal of Hunger and Environmental Nutrition, 5*.
https://doi.org/10.1080/19320248.2010.527276

Conner, D. S., Nowak, A., Berkenkamp, J., Feenstra, G. W., Van Soelen Kim, J., Liquori, T., & Hamm, M. W. (2011). Value chains for sustainable procurement in large school districts: Fostering partnerships. *Journal of Agriculture, Food Systems, and Community Development, 1(4),* 55–68. https://doi.org/10.5304/jafscd.2011.014.005

Conner, D., Izumi, B. T., Liquori, T. & Hamm, M. W. (2012). Sustainable school food procurement in large K–12 districts: Prospects for value chain partnerships.

Agricultural and Resource Economics Review, 41(1), 100–113. https://doi.org/10.1017/S1068280500004226

Conner, D., Sims, K., Berkfield, R., & Harrington, H. (2018). Do farmers and other suppliers benefit from sales to food hubs? Evidence from Vermont. *Journal of Hunger & Environmental Nutrition, 13*(4), 507-516. doi: 10.1080/19320248.2017.1378602

Cram, P., Nallamothu, B. K., Fendrick, A. M., & Saint, S. (2002). Fast food franchises in hospitals [Letter]. *Journal of the American Medical Association, 287*(22), 2945–2946. https://doi.org/10.1001/jama.287.22.2942

Cromp, D., Cheadle, A., Solomon, L., Maring, P., Wong, E., & Reed, M. (2012). Kaiser Permanente's farmers' market program: Description, impact, and lessons learned. *Journal of Agriculture, Food Systems, and Community Development*, *2*(2), 29–36. https://doi.org/10.5304/jafscd.2012.022.010

Cunningham, N., Leighton, H., Allison, P., Kaskey, L., & Conner, D. (2021a). Anchoring communities throughout COVID-19: results from the 2020 healthy food in health care survey in New England. *Farm to Institute New England*. https://www.farmtoinstitution.org/sites/default/files/imce/uploads/Anchoring-Communities-Throughout-COVID-19-HCWH-Report-2021.pdf

Cunningham, N., Whitehouse, C., Conner, D., Blair, H., & Krueger, J. (2021b). Beyond Procurement: Anchor Institutions and Adaptations for Resilience [Unpublished Manuscript]. Department of Community Development and Applied Economics, University of Vermont.

Dua, A. Mahajan, D., Millan, I. & Stewart, S. (2020, May). *COVID-19's effect on minority-owned small businesses in the United States*. McKinsey & Company.

Dubb, S., & Howard, T. (2012). *Leveraging anchor institutions for local job creation and wealth building* [White paper]. Berkeley: Institute for Research on Labor and Employment, University of California. https://community-wealth.org/sites/clone.community-wealth.org/files/downloads/paper-dubb-howard.pdf

Egede, L. E. (2006). Race, ethnicity, culture, and disparities in health care. *Journal of General Internal Medicine, 21*(6), 667-669. https://doi.org/10.1111/j.1525-1497.2006.0512.x

Ehlenz, M., Birch, E., & Agness, B. (2014). *The power of eds and meds*. Penn Institute for Urban Research.

EXtension. (2019). *From plant to plate: Benefits of farm to school programs*. https://healthy-food-choices-in-schools.extension.org/from-plant-to-plate-benefits-of-farm-to-school-programs/

Fairlie, R. (2020, May). *The impact of covid-19 on small business owners: evidence of early-stage losses from the April 2020 current population survey* (Working Paper No. 20-002). https://siepr.stanford.edu/sites/default/files/publications/20-022.pdf

FAO. (2008). *Climate change and food security: A framework document.* Food and agriculture organization of the United Nations. http://www.fao.org/3/a-au035e.pdf

Fardkhales, S. A., & Lincoln, N. K. (2021). Food hubs play an essential role in the COVID-19 response in Hawai‘i. *Journal of Agriculture, Food Systems, and Community Development, 10*(20), 53–70. https://doi.org/10.5304/jafscd.2021.102.036

Farm to Institute New England. (2017). *Campus dining 101: benchmark study of farm to college in New England*. https://www.farmtoinstitution.org/sites/default/files/imce/uploads/FINE%20Farm%20to%20College%20Report_1.pdfhttps://www.farmtoinstitution.org/sites/default/files/imce/uploads/FINE%20Farm%20to%20College%20Report_1.pdf

Farm to Institute New England & Center for Agriculture and Food Systems at Vermont Law School. (2019). *Regional trends in New England farm to institution procurement policy*. https://www.vermontlaw.edu/sites/default/files/2019-08/Regional%20Trends%20in%20New%20England%20Farm%20to%20Institution%20Procurement%20Policy.pdf

Farm to Plate. (2015). *Farm to plate strategic plan: understanding consumer demand*. https://www.vtfarmtoplate.com/assets/plan_sections/files/3.1_Understanding%20Consumer%20Demand_MAY%202013.pdf

Farris, R., Chong, F., & Dunning, D. (2002). Generation Y: Purchasing power and implications for marketing. *Academy of Marketing Studies Journal, 6*(1-2), 89–101.

Feeding America. (2020). *The impact of the Coronavirus on food insecurity.* https://www.feedingamerica.org/sites/default/files/2020-04/Brief_Impact%20of%20Covid%20on%20Food%20Insecurity%204.22%20%28002%29.pdf

Feenstra, G., Allen, P., Hardesty, S., Ohmart, J., & Perez, J. (2011). Using a supply chain analysis to assess the sustainability of farm-to-institution programs. *Journal of Agriculture, Food Systems, and Community Development*, *1*(4), 69–84. https://doi.org/10.5304/jafscd.2011.014.009

Finkelstein, E. A., Graham, W. C. K., & Malhotra, R. (2014). Lifetime Direct Medical Costs of Childhood Obesity. *Pediatrics, 133*(5), 854–862. https://doi.org/10.1542/peds.2014-0063

Fickenscher, L. (2021, June 20). Worker shortage has sparked a rent-s-staffer boom in the food industry. *New York Post*. https://nypost.com/2021/06/20/worker-shortage-sparks-rent-a-staffer-boom-in-food-industry/

Flaherty, C. (April 1, 2020). Frozen searches. *Inside Higher Ed.* https://www.insidehighered.com/news/2020/04/01/scores-colleges-announce-faculty-hiring-freezes-response-coronavirus

Food Insight. (2021, March 15). Consumer surveys: A continued look at COVID-19's impact on food purchasing, eating behaviors, and perceptions of food safety. https://foodinsight.org/consumer-surveys-covid-19s-impact/

Food Service Director Magazine. 2011. *Non-Patient Service Drives Hospitals: Hospital census highlights,* 18-19. https://cdn.winsightmedia.com/platform/files/public/fsd/imported/FSD%20Hospital%20Census%202011.pdf

Franckle, R., Adler, R., & Davison, K. (2014). Accelerated weight gain among children during summer versus school year and related racial/ethnic disparities: A systematic review. *Preventing chronic disease*, *11*, E101. https://doi.org/10.5888/pcd11.130355

Fromm, J. (2019, July 26). Gen-Z and the three elements of purpose brands. *Forbes*. https://www.forbes.com/sites/jefffromm/2019/07/26/gen-z-and-the-three-elements-of-purpose-brands/#154ca14a37e3

GBD 2017 Diet Collaborators (2019). Health effects of dietary risks in 195 countries, 1990-2017: a systematic analysis for the Global Burden of Disease Study 2017. *Lancet (London, England), 393*(10184), 1958–1972.

Goodman, D., & Goodman, M. K. (2009). Alternative food networks. In Kitchin, R. & Thrift, N. (Eds.), *International Encyclopedia of Human Geography* (pp. 208-220). Elsevier, Oxford. https://doi.org/10.1016/B978-008044910-4.00889-0

Graham, H., Feenstra, G., Evans, A. M., & Zidenberg-Cherr, S. (2004). Davis school program supports life-long healthy eating habits in children. *California Agriculture, 58*(4), 200–205. https://doi.org/10.3733/ca.v058n04p200

Gregoire, M. B., Arendt, S. W., & Strohbehn, C. (2005). Iowa producers' perceived benefits and obstacles in marketing to local restaurants and institutional foodservice operations. *Journal of Extension, 43*(1).

Gunderson, C., Hake, M., Dewey, A., & Engelhard, E. (2021). Food insecurity During COVID-19. *Applied Economic Perspectives and Policy, 43*(1), 153-161. https://doi.org/10.1002/aepp.13100

Gupta, R. P., de Wit, M. L., & McKeown, D. (2007). The impact of poverty on the current and future health status of children. *Pediatrics & child health, 12*(8), 667–672. https://doi.org/10.1093/pch/12.8.667

Hardesty, S., Feenstra, G. Visher, D., Lerman, T., Thilmany-McFadden, D., Bauman, A., Gillpatrick, T., & Nurse-Rainbolt, G. (2014). Values-based supply chains: supporting regional food and farms. economic development. *Economic Development Quarterly, 28*(1): 17–27. https://doi/full/10.1177/0891242413507103.

Han, C. (January 27, 2021). Food insecurity: More Mainers go hungry during the pandemic & communities try to help. *Maine Public*. https://www.mainepublic.org/show/maine-calling/2021-01-27/food-insecurity-more-mainers-go-hungry-during-the-pandemic-communities-try-to-help

Health Care Without Harm. (2014*). New England healthy food in health care: leading the charge to a healthy, sustainable food system*. https://www.farmtoinstitution.org/sites/default/files/imce/uploads/NE%20HFHC%20Report%202014.pdf

Health Care Without Harm. (2019). *Healthy Food Pledge Signers.* https://noharm-uscanada.org/issues/us-canada/healthy-food-pledge-signers

Health Care Without Harm. (2020). Anchors in action. https://noharm-uscanada.org/sites/default/files/documents-files/5795/Anchors%20in%20Action%20Backgrounder_April%205%202019.pdf

Healthy Peninsula. (2021). *The Simmering Pot*.

https://www.healthypeninsula.org/simmering-pot

Hendrickson, D., Smith, C. & Eikenberry, N. (2006). Fruit and vegetable access in four low-income food deserts communities in Minnesota. *Agric Hum Values*, *23,* 371–383. https://doi.org/10.1007/s10460-006-9002-8

Henneberry, S., Taylor, M., Whitacre, B., Agustini, H., Mutondo, J., & Roberts, W. (2008). *The economic impact of direct produce marketing: A case study of Oklahoma's farmer's markets* [Conference paper]. Southern Agricultural Economics Association Annual Meeting. Dallas, TX.

Hennink, M. M., Kaiser, B. N., & Weber, M. B. (2019). What influences saturation? Estimating sample sizes in focus group research. *Qualitative Health Research*, 1-14. hDttOpsI://1d0o.i.1o1rg7/71/01.10147977/13024391738283211868921269 2

Henry P. Kendall Foundation. (2020). Changing form for function. https://www.kendall.org/changing-form-for-function/

Hobbs, J. (2020). Food supply chains during the COVID-19 pandemic. *Canadian Journal of Agricultural Economics, 68*(2), 171-176. Doi: 10.1111/cjag.12237

Institute for a Competitive Inner City. (2014). *What works for cities: anchor institutions and food systems: a recipe for economic growth.* https://icic.org/wp-content/uploads/2016/04/ICIC_WW_anchors_food.pdf

Institute of Food Technologists [IFT]. (2012). *Hospital foodservice initiatives: Exciting food innovation implications.* http://www.ift.org/knowledgecenter/focus-areas/food-health-and-nutrition/ hospital-foodservice-initiatives.aspx

Izumi, B. T., Alaimo, K., & Hamm, M. W. (2010). Farm-to-school programs: perspectives of school food service professionals. *Journal of Nutrition Education and Behavior, 42*(2), 83–91. https://doi.org/10.1016/j.jneb.2008.09.003

Jablonski, B., & Schmit, T. (2016). Differential expenditure patterns of local food system participants. *Renewable Agriculture and Food Systems, 31*(2), 139-147. https://doi.org/10.1017/S1742170515000083

Jiao, J., Moudon, A. V., Kim, S. Y., Hurvitz, P. M., & Drewnowski, A. (2015). Health implications of adults' eating at and living near fast food or quick service restaurants. *Nutrition & Diabetes, 5*(7), e171. https://doi.org/10.1038/nutd.2015.18

Jones, M. D., Peterson, H. L., Peirce, J. J., Herweg, N., Bernal, A., Lamberta Raney H., Zahariadis, N. (2016). A river runs through it: A multiple streams meta-review. *The Policy Studies Journal, 44*(1), 13-36.

Joshi, A., Azuma, A. M., & Feenstra, G. (2008). Do farm-to-school programs make a difference? Findings and future research needs. *Journal of Hunger and Environmental Nutrition, 3*(2–3), 229–246. https://doi.org/10.1080/19320240802244025

Kane, D., Kruse, S., Ratcliffe, M. M., Sobell, S. A., & Tessman, N. (2011). *The impact of seven cents.* Ecotrust. https://ecotrust.org/publication/the-impact-of-seven-cents/

Katz, V. S., Jordan, A. B., & Ognyanova, K. (2021). Digital inequality, faculty communication, and remote learning experiences during the COVID-19 pandemic: A survey of U.S. undergraduates. *PloS one, 16*(2).

Kingdon, J. (1984). Agendas, alternatives, and public policies. Boston: Little, Brown.

Kinsey, E. W., Hecht, A. A., Dunn, C. G., Levi, R., Read, M. A., Smith, C., Nielson, P., Seligman, H. K., & Hager, E. R. (2020). School closures during COVID-19: Opportunities for innovation in meal service. *American Journal of Public Health, 110*(10), 1635-1643. https://doi-org.ezproxy.uvm.edu/10.2105/AJPH.2020.305875

Kirschenmann, F. L., Stevenson, S., Buttel, F., Lyson, T., & Duffy, M. (2004). *Why worry about the agriculture of the middle?* [White paper]. Leopold Center Publications and Papers.

Kloppenburg, J., Wubben, D. & Grunes, M. (2008). Linking the Land and the Lunchroom: Lessons from the Wisconsin Homegrown Lunch Project. *Journal of Hunger Environment and Nutrition, 3*, 440–455. https://doi.org/10.1080/19320240802529300

Kochhar, R., & Barroso, A. (March 27, 2020). Young workers likely to be hard hit as COVID-19 strikes a blow to restaurants and other service sector jobs. *Pew Research Center. https://www.pewresearch.org/fact-tank/2020/03/27/young-workers-likely-to-be-hard-hit-as-covid-19-strikes-a-blow-to-restaurants-and-other-service-sector-jobs*

Koh, H. K., Bantham, A., Geller, A., Rukavina, M. A., Emmons, K. M., Yatsko, P., & Restuccia, R. (2020). Anchor institutions: Best practices to address social needs and social determinants of health. *American Journal of Public Health, 110*(3), 309-316. https://doi.org/10.2105/AJPH.2019.305472

LaVeist, T. A., Gaskin, D. J., & Richard, P. (2009). *The economic burden of health inequalities in the United States*. Joint Center for Political and Economic Studies.

Lawrence, S., Boyle, M., Craypo, L., & Samuels, S. (2009). The food and beverage vending environment in health care facilities participating in the healthy eating, active communities program. *Pediatrics, 123*(S5), S287–S292. https://doi.org/10.1542/peds.2008-2780G

Leddy, A. M., Weiser, S. D., Palar, K., & Seligman, H. (2020). A conceptual model for understanding the rapid COVID-19–related increase in food insecurity and its impact on health and healthcare. *The American Journal of Clinical Nutrition,* 1-8. *https://doi.org/10.1093/ajcn/nqaa226*

Lesser, L. I. (2006). Prevalence and type of brand name fast food at academic-affiliated hospitals [Research letter]. *Journal of the American Board of Family Medicine, 19(5),* 526–527. https://doi.org/10.3122/jabfm.19.5.526

Lesser, L. I., Hunnes, D. E., Reyes, P., Arab, L., Ryan, G. W., Brook, R. H., & Cohen, D. A. (2012). Assessment of food offerings and marketing strategies in the food-service

venues at California children's hospitals. *Academic Pediatrics, 12*(1), 62–67. https://doi.org/10.1016/j.acap.2011.09.004

Lin, B. B. (2011). Resilience in agriculture through crop diversification: Adaptive management for environmental change. *BioScience, 61*(3), 183–193. https://doi.org/10.1525/bio.2011.61.3.4

Lindlof, T. R. & Taylor, B. C. (2011). *Qualitative Communication Research Methods*. Sage: Thousand Oaks, CA.

Living Cities. (2013). *Harnessing the Economic Power of Anchor Institutions Lessons learned through Living Cities investments from 2010 through 2013.* https://livingcities.org/wp-content/uploads/2021/03/Harnessing-the-Economic-Power-of-Anchor-Institutions_-Lessons-Learned-through-Living-Cities-Investments-from-2010-2013.pdf

Lobao, L., & Stofferhn, C. W. (2008). The community effects of industrialized farming: Social science research and challenges to corporate farming laws. *Agriculture and Human Values, 25*, 219-240. https://doi.org/10.1007/s10460-007-9107-8

Macias, T., & Williams, K. (2016). Know your neighbors, save the planet: Social capital and the widening wedge of pro-environmental outcomes. *Environment and Behavior, 48*(3) , 391-420. https://doi.org/10.1177/0013916514540458

Magis, K. (2010). Community resilience: An indicator of social sustainability. *Society & Natural Resources, 23(5),* 401-416. https://doi.org/10.1080/08941920903305674

Marill, M. Editor (2013). Why Aren't Healthcare workers healthy? *Hospital Employee Health, 32*(1), 9-10.

Marocchino, C., Stamoulis, K., Morrison, J., Martin, G., Punjabi, M., Ni, J.,... Raher, E. (2020). Cities and governments at the forefront in building inclusive and resilient food systems: Key results from the FAO survey "Urban Food Systems and COVID-19," Revised version. FAO. https://doi.org/10.4060/cb0407en

Marsden, T. Banks, J., & Bristow, G. (2000). Food supply chain approaches: Exploring their role in rural development. *Sociologia Ruralis, 40*(4), 424-438. https://doi.org/10.1111/1467-9523.00158

Marshall, M. I., Niehm, L. S., Sydnor, S. B., & Schrank, H. L. (2015). Predicting small business demise after a natural disaster: An analysis of pre-existing conditions. *Natural Hazards, 79*(1), 331-354. https://doi.org/10.1007/s11069-015-1845-0

Mays, V. M., Cochran, S. D., & Barnes, N. W. (2007). Race, race-based discrimination, and health outcomes among African Americans. *Annual review of psychology, 58*, 201–225. https://doi.org/10.1146/annurev.psych.57.102904.190212

Niles, M.T., Bertmann, F., Belarmino, E.H., Wentworth, T., Biehl, E., & Neff, R. (2020). The early food insecurity impacts of COVID-19. *Nutrients,12*(7), 2096. https://doi.org/10.3390/nu12072096

Norris, T., & Howard, T. (2019). *Can Hospitals Heal America's Communities*? Democracy collaborative. https://healthcareanchor.network/2019/11/can-hospitals-heal-americas-communities/

Nour, M., Lutze, S. A., Grech, A., & Allman-Farinelli, M. (2018). The relationship between vegetable intake and weight outcomes: A systematic review of cohort studies. *Nutrients, 10*(11), 1626. https://doi.org/10.3390/nu10111626

Odegaard, A., Koh, W. Y., Yuan, J., Gross, M. D., & Pereira, M. A. (2012). Western-style fast food intake and cardiometabolic risk in an eastern country. *Circulation*, *126*(2), 182-188. https://doi.org/10.1161/CIRCULATIONAHA.111.084004

O'Donovan, K. (2017). An assessment of aggregate focusing events, disaster experience, and policy change. *Risk, Hazards & Crisis in Public Policy, 8*(3), 201-219. doi: 10.1002/rhc3.12116

Ohmart, J., & Feenstra, G. (2004). Plate tectonics: Do farm-to-school programs shift students diets? *Sustainable Agriculture, 16*(3), 1–3.

Owens, W. F. (1984). Interpretive Themes in Relational Communication. *Quarterly Journal of Speech, 70* (3), 274-87. https://doi.org/10.1080/00335638409383697

Parmer, S. M., Salisbury-Glennon, J., Shannon, D., & Struempler, B. (2009). School gardens: An experiential learning approach for a nutrition education program to increase fruit and vegetable knowledge, preference, and consumption among second-grade students. *Journal of nutrition education and behavior; 41*(3), 212-217. https://doi.org/10.1016/j.jneb.2008.06.002

Perline, A. Heuscher, A., Sondag, A., & Brown, B. (2015). Perceptions of local hospitals and food procurement opportunities for and barriers to implementing farm-to-hospital programs. *Journal of Agriculture, Food Systems, and Community Development*, *6*(1), 147–160. https://doi.org/10.5304/jafscd.2015.061.015

Porter Novelli/Cone. (2019). *Undivided 2-19 gen Z purpose study.* https://static1.squarespace.com/static/56b4a7472b8dde3df5b7013f/t/5da883bc77e66471a09a6240/1571324862662/2019+GenZ+Report+Layout+TO+PRINT+-+SinglePages.pdf

Poti, J. M., Duffey, K. J., & Popkin, B. M. (2014). The association of fast food consumption with poor dietary outcomes and obesity among children: Is it the fast

food or the remainder of the diet? *The American Journal of Clinical Nutrition*, *99*(1), 162–171. https://doi.org/10.3945/ajcn.113.071928

Raison, B., & Scheer, S. (2015). Potential of local food use in the Ohio health care industry: An exploratory study. *Journal of Agriculture, Food Systems, and Community Development, 5*(3), 131-147. https://doi.org/10.5304/jafscd.2015.053.011

Ramsey, A. F., Goodwin, B. K., Hanh, W. F., & Holt, M. T. (2020). Impacts of COVID-19 and Price Transmission in U.S. Meat Markets. *Agricultural Economics, 52*, 441-458. https://doi.org/10.1111/agec.12628

Ratcliffe, M. M., Merrigan, K. A., Rogers, B. L., & Goldberg, J. P. (2011). The effects of school garden experiences on middle school-aged students' knowledge, attitudes, and behaviors associated with vegetable consumption. *Health Promotion Practice, 12*(1), 36–43. https://doi.org/10.1177/1524839909349182

Real Food Challenge. (2020). *Signatory Schools*. https://www.realfoodchallenge.org/signatory-schools/

Reidsma, P., & Ewert, F. (2008). Regional farm diversity can reduce vulnerability of food production to climate change. *Ecology and Society, 13*(1). https://www.jstor.org/stable/26267943

Resilience. (n.d.). In *Lexico. https://www.lexico.com/en/definition/resilience*

Richards, S., & Vassalos, M. (2021). COVID-19 and consumer demand for local meat products in South Carolina. *Journal of Agriculture, Food Systems, and Community Development, 10*(3), 1-6. https://doi.org/10.5304/jafscd.2021.103.004

Roche, E., Conner, D., & Kolodinsky, J. (2015). Increasing local procurement in farm to school programs: An exploratory investigation. *Journal of Agriculture, Food Systems and Community Development, 5*(2), 81-90. https://doi.org/10.5304/jafscd.2015.052.019

Roche, E., Becot, F., Kolodinsky, J., & Conner, D. (2016). *Economic contribution and potential impact of local food purchases made by Vermont schools*. Center for Rural Studies, University of Vermont. https://agriculture.vermont.gov/sites/agriculture/files/documents/Farm_to_School_Institution/Economic%20Contribution%20of%20Farm%20to%20School%20in%20Vermont%20.pdf

Rosenbaum, S. Kindig, D. A., Bao, J., Byrnes, M. K., & O'Laughlin, C. (2015). The value of the nonprofit hospital tax exemption was $24.6 billion in 2011. *Health Affairs, 34*(7), 1225-1233. https://doi.org/10.1377/hlthaff.2014.1424

Rosewicz, B., & Maciag, M. (November 10, 2020). Nearly all states suffer declines in education jobs. *Pew Research Center.* https://www.pewtrusts.org/en/research-and-analysis/articles/2020/11/10/nearly-all-states-suffer-declines-in-education-jobs

Rundle, A. G., Factor-Litvak, P., Suglia, S. F., Susser, E. S., Kezios, K. L., Lovasi, G. S., Cirillo, P. M., Cohn, B. A., & Link, B. G. (2020). Tracking of obesity in childhood into adulthood: Effects on body mass index and fat mass index at age 50. *Childhood obesity*, *16*(3), 226–233. https://doi.org/10.1089/chi.2019.0185

Rundle, A. G., Park, Y. Herbstman, J. B., Kinsey, E. W., & Wang, C. (2020). COVID-19–related school closings and risk of weight gain among children. *Obesity, 28*(6), 1008-1009. https://doi.org/10.1002/oby.22813

Ryan, B., Ma, E., Hsiao, A., & Ku, M. (2015). The work-family conflict of university foodservice managers: An exploratory study of its antecedents and consequences. *Journal of Hospitality and Tourism, 22, 10-18.* https://doi.org/10.1016/j.jhtm.2014.12.005

Rutheiser, C. (n.d.). *The Promise and prospects of anchor institutions: Some thoughts on an emerging field*. EDGE PD&R. https://www.huduser.gov/portal/pdredge/pdr_edge_home.html

Schafft, K., Hinrichs, C. C., & Bloom, J. D. (2010). Pennsylvania farm-to-school programs and the articulation of local concept. *Journal of Hunger and Environmental Nutrition, 5*(1), 23–40. https://doi.org/10.1080/19320240903574155

Schildt, C., & Rubin, V. (2015). *Leveraging anchor institutions for economic inclusion*. PolicyLink.

School Nutrition Association. (2020). *SNA survey reveals COVID-19 school meal trends, financial impacts*. https://schoolnutrition.org/news-publications/press-releases/2020/sna-survey-reveals-covid-19-school-meal-trends-financial-impacts/

Schwinner, J. B., Burwinkle, T. M., & Varni, J. W. (2003). Health-related quality of life of severely obese children and adolescents. *JAMA, 289*(14), 1813-1819. https://doi.org/10.1001/jama.289.14.1813

Shepard, D. D., Ellersiek, A., Meuer, J., Rupietta , C., Maynes, R., & Cairney, P. (2019). Kingdon's multiple streams approach in new political contexts: Consolidation, configuration, and new findings. *Governance*, 1-21. DOI: 10.1111/gove.12521

Smith, J., & Page, P. (May 21, 2021). Food supply chains are stretched as Americans head back to restaurants. *The Wall Street Journal. https://www.wsj.com/articles/food-supply-chains-are-stretched-as-americans-head-back-to-restaurants-11621589405*

Smith, M. D., & Wesselbaum, D. (2020). COVID-19, food insecurity, and migration. *The Journal of Nutrition,* nxaa270. https://doi.org/10.1093/jn/nxaa270

Stahlbrand, L. (2016). *Short food supply chains and "infrastructure of the middle": The role of university food procurement in sustainability transition.* 12th European International Farming Systems Association (IFSA) Symposium, social and technological transformation of farming systems: Diverging and converging pathways, Newport, UK.

Stalhbrand, L. (2017). Can values-based food chains advance local and sustainable food systems? Evidence from case studies of university procurement in Canada and the UK. *International Journal of Sociology of Agriculture and Food, 24*(1), 77-95.

Stahlbrand, L. (2019). Disruptive innovation and operationalization in local and sustainable food systems: examining the University of Toronto-Local Food Plus partnership. *Canadian Food Studies, 6*(1), 120-139. https://doi.org/10.15353/cfs-rcea.v6i1.269

Stevenson, S. (2009*). Value-based food supply chains: executive summary*. Center for Integrated Agricultural Systems, University of Wisconsin. http://ngfn.org/resources/ngfn-database/knowledge/vcexecsum.pdf

Stevenson, G. W., & Pirog, R. (2008). Values-based supply chains: strategies for agrifood enterprises of the middle. In T. A. Lyson, G. W. Stevenson & R. Welsh (Eds.) *Food and the Mid-Level Farm: Renewing an Agriculture of the Middle* (pp. 119-143). The MIT Press. https://doi.org/10.7551/mitpress/9780262122993.003.0007

Sundkvist, A., Milestad, R., & Jansson, A. (2005). On the importance of tightening feedback loops for sustainable development of food systems. *Food Policy, 30*(2), 224-239. https://doi.org/10.1016/j.foodpol.2005.02.003

Tendall, D.M., Joerin, J., Kopainsky, B., Edwards, P. J., Shreck, A., Le, Q. B., Kruetli, P., Grant, M., & Six, J. (2015). Food system resilience: Defining the concept. *Global Food Security*, *6*, 17-23. https://doi.org/10.1016/j.gfs.2015.08.001

Terrell, S. R. (2012). Mixed-Methods Research Methodologies. The Qualitative Report, 17(1), 254-280. https://doi.org/10.46743/2160-3715/2012.1819

Thilmany, D., Canales, E., Low, S. A., & Boys, K. (2020). Local food supply chain dynamics and resilience during COVID-19. *Applied Economic Perspectives and Policy, 43*(1), 86-104. https://doi.org/10.1002/aepp.13121

Thompson, J., & Gaskin, J. (2018). An extension specialist' s reflections from the field: Discovering ag of the middle in the shift from direct sale to wholesale vegetable

production. *The Journal of Culture & Agriculture*, *40*(2), 124–129. https://doi.org/10.1111/cuag.12220

Ungar, M. (2018). Systemic resilience: principles and processes for a science of change in contexts of adversity. *Ecology and Society, 23*(4), 34. https://doi.org/10.5751/ES-10385-230434

U.S. Department of Agriculture & U.S. Department of Health and Human Services. (2010). *Dietary Guidelines for Americans, 2010.* https://health.gov/sites/default/files/2020-01/DietaryGuidelines2010.pdf

U.S. Department of Agriculture. (2014). *2012 census of agriculture: United States summary and state data*. https://www.nass.usda.gov/Publications/AgCensus/2012/

U.S. Department of Agriculture. (2015). *Farm to school works!* https://farmtoschoolcensus.fns.usda.gov/

U.S. Department of Agriculture. (n.d.a). *Food value chains: creating shared value to enhance marketing success*. https://www.ams.usda.gov/services/local-regional/food-value-chain

U.S. Department of Agriculture. (n.d.b). *Supporting local producers through collaborative planning, aggregation, and distribution*. https://www.ams.usda.gov/services/local-regional/food-hubs

U.S. Department of Agriculture, Economic Research Service. (2021). Monthly sales of food, with taxes and tips, for all purchaser. https://www.ers.usda.gov/data-products/food-expenditure-series/food-expenditure-series/

Vallianatos, M., Gottlieb, R., & Hasse, M. A. (2004). Farm-to-school: strategies for urban health, combating sprawl and establishing a community food system approach. *Journal of Planning Education and Research, 23*(4), 414–423. https://doi.org/10.1177/0739456X04264765

Vize, R. (2018). Hospitals as anchor institutions: How the NHS can act beyond healthcare to support communities. *British Medical Journal*, 361. https://doi.org/10.1136/bmj.k2101

von Hippel, P. T., & Workman, J. (2016). From kindergarten through second grade, U.S. children's obesity prevalence grows only during summer vacations. *Obesity (Silver Spring, Md.)*, *24*(11), 2296–2300. https://doi.org/10.1002/oby.21613

Wang Y. C., Vine, S., Hsiao, A., Rundle, A., & Goldsmith, J. (2015). Weight-related behaviors when children are in school versus on summer breaks: Does income matter? *Journal of School Health, 85*(7), 458-466. https://doi.org/10.1111/josh.12274

Wien, K. (2017). *Lettuce improve school nutrition: Best practices and key impacts of the USDA farm to school grant program* [Unpublished honors thesis, Duke University]. DukeSpace.

Worstell, J., & Green, J. (2017). Eight qualities of resilient food systems: Toward a Sustainability/Resilience Index. *Journal of Agriculture, Food Systems, and Community Development, 7*(3), 23–41. https://doi.org/10.5304/jafscd.2017.073.001

Wright, J. E., & Merritt, C. C. (2020). Social equity and COVID-19: The case of African Americans. *Public Administration Review, 80*(5), 820-826. https://doi.org/10.1111/puar.13251

Young, G., Chou, C. Alexander, J., Lee, S. D., & Raver, E. (2013). Provision of community benefits by tax-exempt U.S. hospitals. *The New England Journal of Medicine, 368*, 1519-1527. https://doi.org/10.1056/NEJMsa1210239

Young, G. J., Flaherty, S., Zepeda, E. D., Singh, S. R., & Cramer, G. R. (2018). Datawatch: community benefit spending by tax-exempt hospitals changed little after ACA. *Health Affairs, 37*(1), 121-124. https://doi.org/10.1377/hlthaff.2017.1028

APPENDICES

Appendix A: Educational Material Created for EDEN and Extension Toolkit (Infographic)

ASSET MAPPING

Background

Asset mapping is a strength-based approach to development that helps organizations learn more about the resources within their communities to enhance their work, empower them to recognize their full capacities, and establish mutually beneficial relationships within their communities.

STEPS

1) Determine the objective of your asset mapping process. Typically asset maps are used to identify resources to overcome specific challenges or inform programming decisions.

2) Limit the scope of the map. Include the areas you are most likely to work in or partner with organizations from.

3) Involve community partners who have various knowledge and experience with the resources within your community.

4) Determine the relevant community assets based on the objectives. Typically asset maps include community assets, like institutions, organizations, and citizen associations, as well as the physical and human resources at an organization's disposal.

5) List the asset you and partners already know in the area before investigating other assets that exist that you may not have previously known of.

6) Organize the asset map. In its simplest form, an asset map can be an organized list of assets, but organizing the information geographically or as a concept map can aid in the understanding of the relationships between community resources.

The resulting asset map can be shared with community partners, inform decision-making and resource allocation, and help identify resources to fill gaps and address challenges your organization faces.

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