



The resilience and viability of farmers markets in the United States as an alternative food network: case studies from Michigan during the COVID-19 pandemic

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Abstract

This paper examines the resilience of farmers markets in Michigan to the system shock of the global COVID-19 pandemic, questioning how the response fits into market goals of food sovereignty. Adapting to shifting public health recommendations and uncertainty, managers implemented new policies to create a safe shopping experience and expand food access. As consumers directed their shopping to farmers markets looking for safer outdoor shopping, local products, and foods in short supply at grocery stores, market sales skyrocketed with vendors reporting selling more than ever before, but the longevity of this change remains unclear. Our data collected via semi-structured interviews with market managers and vendors, and survey data from customers from 2020 to 21, suggest that despite the widespread impact of COVID-19, there is not sufficient evidence consumers will continue to shop at farmers markets at the rates they did in 2020-21. Furthermore, reasons consumers flocked to farmers markets do not align with market priorities for increased food sovereignty, as increased sales alone are not a sufficient driver for this goal. We question how markets can contribute to broader sustainability goals or serve as alternatives to capitalist and industrial modes of agricultural production, problematizing the role of markets in the food sovereignty movement.

Keywords Farmers markets · COVID-19 · Resilience · Alternative food networks

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Introduction

Historically, highly connected systems like the food system have been fragile to infectious disease (Daher et al. 2021). As COVID-19 impacted supply chains globally, existing vulnerabilities within industrial food systems became stark, validating longstanding concerns about the vulnerability of the food system to external shocks (Benton 2020), particularly those related to public health (Osterholm 2005). These breakdowns were best illustrated by media images of farmers disposing of fresh food, while grocery stores shelves were empty due to the hyper-specialization and concentration of the wholesale and retail markets (Corkery and Yaffe-Bellamy 2020). While the impact to poor and marginalized communities was particularly strong, (Bowen et al. 2021), the extent of consolidation across the supply chain meant the effects of the pandemic were felt even by households who had previously been unaffected by shortcomings in the food system (Hendrickson 2020).

Due to this breakdown in conventional supply chains, consumers looked for other avenues to obtain food. Many

scholars and practitioners pointed to the potential for alternative food networks (AFNs) such as farmers markets to rise as local alternatives that could provide a stable food supply within a relatively safe shopping environment (Ahmed et al. 2020; Feenstra 1997) defined AFNs as networks that are “rooted in particular places, aim to be economically viable for farmers and consumers, use ecologically sound production and distribution practices and enhance social equity and democracy for all members of the community” (p. 2). Due to their shorter supply chains, scholars theorized AFNs had fewer points of vulnerability, and thus would be more capable in maintaining local food access during the pandemic.

Beyond their ability to withstand shocks logistically, researchers have pointed to the objective of many AFNs to shift away from profit-centric modes of production as an increasingly necessary transition in the wake of COVID-19. Given the inability of the current food system, organized around profit-maximization and economic efficiency, to equitably distribute food and adequately prepare for shocks, there is a need to explore alternative principles around which to organize food production and distribution. Climate change has already begun to cause disruptions to the food system, and these are projected to increase in both frequency and scale in the coming decades (Benton 2020). To this end, the ability of AFNs to thrive during the pandemic could provide an alternative pathway to industrialized global supply chains for the future of the global food system.

In this paper, we explore the resilience of farmers markets in the state of Michigan in response to the COVID-19 pandemic. Drawing from semi-structured interviews with market vendors and managers conducted between 2020 and 2021, as well as a customer survey conducted in 2021, we explore how markets responded logistically and structurally to the shock of the pandemic, the effects on vendor and consumer behavior and their values related to the food system, and the potential for the COVID-19 pandemic to generate long-term change to the food system. Our project addresses the following research questions:

- 1) How resilient were farmers markets in Michigan to the shock caused by the COVID-19 pandemic?
- 2) How do farmers market actors (managers, vendors, and consumers) perceive the role of farmers markets in the food system changing because of the COVID-19 pandemic?

Literature review

Ericksen (2008) describes the food system as the activities of the system itself (production to consumption), the

interactions between biogeophysical and human environments which determine those activities, and the outcomes of those activities (e.g. food security). This definition draws on the language from the social-ecological systems (SES) literature within the social and biophysical sciences, which seeks to “[address] complex problems with multi-causality resulting from interactions among interdependent components” (p. 4). It also better reflects the dynamic and interconnected nature of current agri-food supply chains than a sole focus on the activities within supply chains, given their growing instability due to climate change, the rapid industrialization and concentration of the global food system, the massive rise in information that consumers are expected to process related to food quality and safety, and the separation of different aspects of supply chains into units governed separately, despite their connection to each other (Hodbold and Eakin 2015).

Within the SES literature, *resilience* is a property of central concern. First described theoretically by Holling (1973), resilience broadly refers to the dynamic ability of a system to absorb disturbances and shocks, without compromising its ability to accomplish its core functions over time. Applied to food systems, Tendall et al. (2015) define *food system resilience* as the “capacity over time of a food system and its units at multiple levels, to provide sufficient, appropriate and accessible food to all, in the face of various and even unforeseen disturbances” (p. 19). In their conceptualization of resilience within the food system, Béné et al. (2016) write that resilience is the result of three different capacities: *absorptive* capacity, the ability of the unit (e.g. family) or system to absorb a shock without changing their function; *adaptive* capacity, the ability to make incremental adjustments to growing stresses without making major changes to their operation; and *transformative* capacity; the ability of a system to make drastic changes to ensure the survival of the system in the fact of a large shock. When applied to the food system, Béné et al. (2016) argue that the resilience framework has value as a ‘mobilizing metaphor’, linking typically disparate sectors such as social protection, health and nutrition, as well as connecting humanitarian and development interventions in the wake of shocks and encouraging an emphasis on *ex ante* interventions to prepare for and prevent shocks to the system.

Corresponding concepts to resilience are *regimes* and *regime shifts*. At any given point in time a system exists within a regime. Systems that exhibit high resilience can maintain their current configuration in the face of various shocks and disturbances. However, shocks to systems that experience low resilience may push a current system past a threshold, causing a restructuring of the current system into a new regime (Folke et al. 2004). The current food regime is described by McMichael (2005), among others, as the

‘corporate food regime’ (CFR). While SES scholars argue that maintaining food security for all human life is the only morally acceptable regime state of the food system (Erickson 2008; Hodbod and Eakin 2015), the CFR is organized within a capitalist mode of production; thus, profit-making and economic efficiency are the sole principles guiding the food system (Holt-Jimenez, 2017). One of the defining features of the CFR has been the dramatic consolidation among agribusinesses; as profitable businesses have scaled up, they have captured greater shares of the market, crowding out smaller producers (Howard 2021). The market power and political influence afforded to these oligopolist has created a range of adverse sustainability outcomes for the food system, including low wages and benefits for food workers, the overproduction of highly processed and otherwise unhealthy foods for consumers, and widespread environmental destruction (Holt-Gimenez, 2019).

There has been a significant body of literature written about the potential points of fragility within the current CFR in response to shocks, highlighted in events like the 2008 global food crisis (Davis et al. 2021). The COVID-19 pandemic has amplified interest in studying the resilience of the CFR to shock events (e.g. Blay-Palmer 2020; Gordon 2020; King et al. 2022; Oncini 2021; Taylor et al. 2022a, b), given the nature of the shock (public health), and the effect of COVID-19 on crops beyond those commonly studied in the resilience literature (Davis et al. 2021). Early in the pandemic, supply chains across multiple sectors experienced acute breakdowns. Outbreaks among food workers across the supply chain, including in meat processing plants, greatly disrupted the ability of food businesses to maintain their productivity, resulting in shortages for staple products such as meat, eggs, and flour in retail outlets across the globe, amplified by a sudden shift by consumers towards at-home food preparation (Aday and Aday 2020). The loss of jobs and the resulting recession increased the number of families who were unable to afford an adequate diet and reduced the necessary tax revenues to maintain food assistance programs globally, exacerbating food security challenges globally (Carducci et al. 2021; Hynes et al. 2020). Consolidation across most agriculture sectors, linked to the CFR, meant that a shock such as COVID only needed to affect a small number of businesses to drastically impact the supply of food available to consumers (Hendrickson 2020). Relatedly, the specialization of many large farms into either the retail or wholesale sector in order to minimize costs meant that many farms that had previously operated as wholesalers for restaurants, schools, and other large institutions were unable to easily pivot to meet the rapidly growing needs of the take-home retail sector, and thus had an excess supply of products such as milk or fresh produce as shutdown orders were implemented (Chenarides et al. 2021; Richards et al. 2020;

Huffstutter 2020; Corkery and Yaffe-Bellamy 2020). This resulted in a paradoxical rise in food waste among many producers, who already produced large stores of dairy, meat, and fresh produce, but did not have buyers for them, even as many commercial retailers such as grocery stores struggled to keep sufficient product on their shelves (see e.g. Polansek and Huffstutter 2020; Corkery and Yaffe-Bellamy 2020).

Given the fragility illustrated by the global food system during the pandemic, in addition to already existing concerns about the CFR’s ability to accommodate shocks, interest among scholars and practitioners in advancing alternative regimes to succeed the CFR accelerated (Hynes et al. 2020; McMichael 2005) poignantly argues food sovereignty is the necessary successor regime to the CFR. The food sovereignty movement was first attributed to the international farmers’ movement, Via Campesina, who define food sovereignty as ‘the right of each nation to maintain and develop its own capacity to produce its basic foods respecting cultural and productive diversity’ (Via Campesina 1996). In contrast with the CFR, which utilizes a definition of food security centered in the market, food sovereignty takes a rights-based and explicitly anti-capitalist approach to food production and distribution (Clendenning et al. 2016).

While the organizing principles of a food sovereignty regime are clear, Friedmann (2016) argues that the path to realizing this vision remains under-theorized in the literature. As Patel (2009) notes, the ‘big tent’ nature of the food sovereignty movement, seeking to accommodate the visions of disparate communities across the globe, led to inconsistency in more detailed definitions of food sovereignty. This created barriers to effective global organization against the CFR, despite movement successes particularly in the global south. Despite its points of vulnerability, the CFR has proven adept at co-opting movements seeking to challenge it, including the food security movement (McMichael 2005), and the organic and fair-trade movements (Jaffee and Howard 2010). Other scholars argue that capitalist capture of agriculture is so complete it displaces the functional possibility of agrarian movements such as food sovereignty to challenge capitalism as manifest in the CFR (Bernstein 2010).

Friedmann (2016), however, utilizes the theory of *transitions* first introduced by Geels (2002) to present another possibility. Geels posits that ‘niches’ often form within regimes as ways to potentially reform the regime. In stable regimes, these niches are either integrated into the regime or die out. In unstable regimes, however, some collection of niches may coalesce to form the basis of a new regime. The niches in this case do more than passively wait to serve as fodder for a new regime. Rather, they actively advance the start of a new regime by creating the socio-technical preconditions necessary to facilitate the work of creating new institutions to support the new regime (Friedmann 2016).

It is in this space that we position this work. Most scholars agree that AFNs are defined both by their emphasis on local and/or regional supply chains, as well as a commitment to ecologically responsible production, resiliency, food security, and the economic well-being of producers (Goodman et al. 2012), often at the explicit opposition of the marketization central to the CFR, which suggests their potential compatibility with a food sovereignty regime. Farmers markets, food hubs, and farm-to-institution programs are all examples of AFNs that arguably decenter profit in food systems, thus providing a range of otherwise unavailable economic, social, and ecological benefits to local communities (Warsaw et al. 2021), and many of these principles have been integrated into successful food sovereignty efforts globally (Chappell 2018). Further, AFNs promote sustainability values in agriculture, indicating the potential for AFNs to create the social pre-conditions for a shift away from the CFR (Warsaw et al. 2021; Mishra & Khanal 2022). Initial research in the wake of the COVID-19 pandemic suggests improved food system resilience within AFNs over the CFR. Thilmany et al. (2021) argue that AFNs are more flexible and connected than globalized supply chains. In AFNs, producers are more likely to have personal relationships with other actors in the supply chain, and established ties to the community. Thus, when shocks to the system disrupt normal operations, producers in AFNs can quickly leverage community networks to adapt their production processes and find new buyers. Thilmany et al. (2021) point to this adaptability through the rise in online sales by retailers which serve AFNs. Additionally, while many AFNs struggled in the early stages of the pandemic due to shutdown orders (O'Hara et al. 2021), scholars noted that their flexibility might allow them to reorganize quickly (Mittal and Grimm 2020; Worstell 2020), while their societal benefits may position them as a viable long-term alternative.

Despite this potential, scholars also note how AFNs struggled to remain viable within the CFR without being co-opted by the logics of capitalism. Most U.S. AFNs are market-based, as such AFNs face capitalist pressures to maximize profits for producers, a goal often at odds with providing affordable food to households in need (Allen 2004) and building resilient food systems (Gordon 2020). This dynamic is amplified by the intersection of neoliberalism with whiteness. In the context of farmers markets, scholars have observed this tension, noting that market managers and vendors must balance their desire to improve local food security with the need to provide a livelihood for vendors and keep the market financially viable. Often this tension results in one or both of the following outcomes: (1) markets cater to high-income, typically white households, whether intentionally or unintentionally, even at markets which feature or center producers of color, or (2) markets

aggressively pursue low-income households through targeted marketing and pricing strategies, typically without much success due to the significantly lower cost of industrially-produced food, resulting in reduced income for vendors, vendor turnover, and eventual market collapse (Alkon and Cadji 2020; Mares & Alkon 2011). Striking this balance is not impossible, however, though it requires dedicated effort and ideally state support (Andrée et al. 2017), suggesting that farmers markets, and AFNs more broadly, have not *necessarily* been subsumed by the CFR.

This research contributes to the literature on AFNs and food system resilience by exploring the resilience of farmers markets in Michigan to the COVID-19 pandemic. Here, drawing from Tendall et al. (2015), we characterize farmers market resilience as the ability of farmers markets to provide adequate food access to their communities, *within the constraints of their normal operations*. The second half of this definition is important, as research has indicated that farmers markets have reached a point of saturation in the United States while not reaching a scale necessary to replace more conventional supply chains (Metz et al. 2022). Therefore, it is not likely that markets in this study would have the bandwidth to meet the food demand of the entire community. Rather, we investigate whether farmers markets were able to maintain (or expand) their level of food provision during the COVID-19 pandemic.

Second, we explore the status of farmers markets as a niche within the CFR with the potential to support a transition away from the CFR because of the COVID-19 pandemic. Recent scholarship cast doubt on the ability of AFNs to single-handedly bring about a new food system regime in the wake of COVID-19 (King et al. 2022). However, evidence of changes in food system value away from the CFR, and the connection between these value shifts and greater support for farmers markets could indicate the continued viability of markets as a niche within the CFR, while persistence in these value changes could indicate progress in the transition away from a food regime grounded in capitalism.

Methods

We present the results of an 18-month mixed-methods study of four farmers markets in Michigan, drawing on semi-structured interviews with market managers and vendors and a customer survey, conducted between September 2020 and June 2021. The integration of these methods allows us to triangulate the experiences of many customers with the individual experiences of market sellers, providing a more holistic understanding of market resilience than would be possible with a single method (Clark 2008).

Site selection

Markets were selected through purposive sampling in partnership with the Michigan Farmers Market Association (MIFMA), a statewide member-based non-profit that provides a range of technical services to its market members. Originally, the project was designed to ascertain the role that markets play in their local communities, and how markets attempt to track and measure that impact, specifically the Market Metrics Program administered by MIFMA (see Warsaw et al. 2022). However, the global COVID-19 pandemic struck our communities as we were preparing to begin interviews on this project. Given the limited sample size (4 markets) relative to MIFMA's membership (150+), the sample is not intended to be statistically representative of MIFMA's members. Rather, markets were chosen to maximize demographic diversity, representing the diversity of MIFMA's membership and a range of 'typical' MIFMA members. Markets were stratified along the following demographic characteristics:

1. Rural vs. urban: a mix of market serving urban and rural areas were chosen, based on the USDA definition of rural areas (USDA 2022).
2. Ethnic diversity: markets were chosen with a diversity of size and composition of the non-white population in the cities the markets serve.
3. Income: markets both above and below Michigan's median household income in 2019 (\$59,584).
4. Organizational structure: markets were diversified by whether they are operated by a non-profit, the local government, or another non-governmental agency (e.g. chamber of commerce).

The socioeconomic characteristics of each community we partnered with are listed in Table 1. In addition to these characteristics, each of these markets administer food assistance programs (e.g. SNAP, Double Up Food Bucks) at their market with the support of MIFMA for several years prior

to COVID (see Warsaw et al. 2022), allowing them to serve as useful informants about the role of farmers markets as a site for food access during the pandemic. MIFMA provided market contacts and we emailed market managers to identify interested markets. Final selection was determined based on general market demographics and ensuring a range rural and urban markets. In return for market managers agreeing to participate, providing a list of potential vendor interviewees, and administering the customer survey, markets were given \$1000 for their participation. Informed verbal consent was obtained from all participants in the interviews and surveys and responses are confidential. The names of the individual markets remain confidential. All project team members that conducted interviews and surveys, transcribed, and analyzed the data received IRB training and certification. Institutional review board exempt status was granted from Michigan State University (IRB#: 00004832).

Vendor interviews and analysis

Semi-structured interviews were conducted with vendors and managers to understand (a) changes to the market structure and operation due to the pandemic and (b) their perceptions about the role the markets played for them and their customers during the pandemic. The project team developed an interview guide based on the literature, with additional questions developed to understand changes in the market structure and services due to the ongoing pandemic. Participants were interviewed for 45–75 min and were given a \$25 Visa gift card in appreciation of their time. Four interviews were conducted with market managers (one for each of the markets) and 25 were conducted with vendors (total $n=29$). Through on-going assessment of the interview data, we stopped collecting data when approximate saturation of the data was determined (Fusch and Ness 2015). We use pseudonyms in place of proper names for individual quotes represented in this study, listed in Table 2.

The interviews were transcribed with otter.ai and reviewed for accuracy by one team member. To analyze the

Table 1 Selected demographics of the participating markets

Demographic Characteristics of Market Community	Market 1	Market 2	Market 3	Market 4
Rural/Urban	Urban	Urban	Urban	Rural
Median Household Income (City-Level)	\$41,674	\$65,745	\$39,332	\$63,812
Racial Composition (City-Level)	65% White 22% African-American 2.83% Asian 10% Latinx	68% White 7% African American 16% Asian 5.5% Latinx	61% White 31% African-American 3.18% Asian 2% Latinx	93% White 2% African-American 3% Asian 2% Latinx
Organized by	Non-Profit	City Government	Non-Profit	Non-Government Agency
Interviews Conducted	5	8	8	8
Number of Survey Respondents	82	13	109	26

Table 2 Pseudonyms of Research Participants

Moniker	Participant Identifier	Market
VN1	Market Vendor #1	Market #2
VN2	Market Vendor #2	Market #3
VN3	Market Vendor #3	Market #3
VN4	Market Vendor #4	Market #4
VN5	Market Vendor #5	Market #2
VN6	Market Vendor #6	Market #2
VN7	Market Vendor #7	Market #4
VN8	Market Vendor #8	Market #3
MN1	Market Manager #1	Market #1
MN2	Market Manager #2	Market #3
CU	Customer	Anonymous Survey Respondent

Table 3 Description of Values Assessed in Customer Survey

How has the importance of these aspects of the market changed for you during the COVID-19 pandemic? (1 – more important; 0 – no change; -1 – less important)

Value	Definition
Local	Desire to support the local economy
Small	Desire to support small and mid-sized producers
Healthy	Demand for ‘healthier’ food products
Affordable	Importance of affordable food products
Variety	Desire for diverse and unique food products
Learn	Desire to learn how food products are grown
Relationship	Desire to build a relationship with the farmers who grow their food
Fresh	Desire for fresh food products
Gathering	Value of the market as a social/gathering space
Ecological	Importance of buying food products grown with ‘ecological’ practices (e.g., organic)
Incentive	Importance of access to financial support programs (e.g., Double Up Food Bucks)
Safety	Importance of how food products are handled and processed
Supply	Concern about the reliability of conventional/industrial supply chains

interviews, emergent themes related to the pandemic were identified after reflexive conversations among the research team (see Warsaw et al. 2022 for more detail). These themes linked to the pandemic and changes in the market structure and services were created after reflective reading and engagement with the interviews. One team member coded the segments in MAXQDA and another extracted the data, developing intermediate tables and text summaries that structured the data across markets and participants. This analysis focused on linking changes in the market and customer demands through the first year of the pandemic.

Customer survey

To assess how customers’ engagement with their local market changed due to the COVID-19 pandemic, we administered a survey at all four markets during an eight-week period between July – September 2021. Flyers were hung at each market containing a QR code as well as tearaway strips containing a weblink to the survey. The survey was designed to take 10–15 min to complete, and respondents were offered an opportunity to be entered in a drawing for one of 20 \$50 gift cards for their participation. As part of the survey, customers were asked a set of Likert-scale questions where they indicated whether 13 values associated with the farmers market had increased, decreased, or seen no change in importance to them in response to the COVID-19 pandemic. The values included in the survey were developed through a careful review of the literature (see, for instance, Warsaw et al. 2021 or Feagan and Morris 2009) and are defined in Table 3. Respondents were also asked an open-ended response question about how their perception of the market changed due to the pandemic, to give them a chance to express opinions not adequately covered in the Likert-scale questions. Due to the nature of the sampling strategy, there is the possibility of upward bias in the values reported here, as participants must have either visited their local farmers market or the market’s Facebook page to access the survey. Therefore, the respondents are likely self-selected from individuals who on average place higher importance on the role and value of farmers markets within their community. These findings should be interpreted as representing the population of market shoppers, and not the general population. Furthermore, as this data was collected in response to the COVID-19 pandemic, we were unable to collect baseline values among market shoppers. Due to this, and previous research indicating the challenges of using Likert-scale questions to determine point-estimates of consumer values (see e.g. Wolf and Tonsor 2013), the data presented are best viewed as making comparisons of relative magnitudes of shifts across the values assessed here, rather than a point estimate of a change in any individual value.

Finally, we collected a range of demographic data, including the respondent’s gender, race, income, and frequency of attendance at the market for comparative quantitative analysis. The demographic composition of the sample is summarized in Table 4.

The survey data was analyzed using distributional tests to evaluate the magnitude of average values, both in the aggregate and across sub-populations. A simple t-test was used to test whether the aggregate values were statistically distinguishable from zero. A two-tailed p-value of <0.10 was considered statistically significant. T-tests and one-way ANOVA analysis were used to compare reported values across populations (e.g., market attendance).

Table 4 Demographic Summary of Survey Respondents

	Respondents (%), (n = 234)
Gender	
Female	54
Male	41
Genderqueer or Gender Fluid	2
Questioning or Unsure	1
Additional Gender Identity	1
Did Not Disclose	1
Race	
Black or African-American	3
Caucasian	90
Latinx	2
Native-American	2
Asian-American	2
Multi-racial	< 1
Did Not Disclose	1
Education	
Less than High School	1
High School	13
Undergraduate Degree	50
Graduate Degree	34
Did Not Disclose	2
Income	
\$0 - \$25,000	9
\$25,000 - \$50,000	19
\$50,000 - \$75,000	22
\$75,000 - \$100,000	39
\$100,000+	9
Did not Disclose	3
Market Attendance	
Multiple Times a Week	7
Once a Week	54
Once Every Few Weeks	29
Once a Month	6
Less than Once a Month	5
Market Attendance Since 2020	
Attending More Often	12
Attending Less Often	57
No Change	30
Uncertain	< 1

Results

Market resilience during COVID-19

Our interviews with market managers and vendors revealed three attributes which made markets in this study resilient to the shock of COVID-19: (1) flexibility in times of crisis; (2) ability to provide a stable income for producers; and (3) shorter supply chains which were less disrupted by labor shortages and other logistical challenges.

In response to the initial outbreak and subsequent shutdown of most businesses within Michigan, participants noted the way that managers, vendors, and consumers were able to alter

their practices rapidly to accommodate new rules and regulations. In the early stages of the pandemic, there was significant uncertainty around the virus, with news stories about outbreaks in meat processing plants amplifying concerns about safety in agricultural supply chains (see e.g. Foley 2020). As a result, most farmers markets were closed during the initial shutdown, though they were allowed to reopen because state lawmakers determined that they provide their communities with essential access to food. As relatively small organizations, markets were able to quickly adopt new rules and infrastructure to ensure they could remain a safe and reliable source of income for vendors and food to consumers. One significant adaptation discussed by multiple participants involved switching to online platforms which allowed customers to pre-order items for delivery or pick-up at the market. The structure of these online marketplaces varied by location; however, each of the online markets enabled vendors to sell their produce, which was a huge concern as restaurants and other sale points shut down. By creating these online portals, it allowed consumers to feel safe obtaining food because they minimized interpersonal interactions and the number of people that touched the product. This format also had the unintended benefit of allowing vendors to bring just the product necessary to fulfill those orders, making planning easier for them. As one market vendor described it:

(T)hey were like, ‘well, this market could be a super spreader, we got to have people go one way, they got to wear masks, they got to have sanitary stations,’ they didn’t know how they wanted to handle it. And it took them a couple months to figure it out. So, they just shut the market down, instantly. And I’m saying like, within that week of shutdown, these farmers collectively got together and organized themselves to set up alternative markets. And then you know, broadcast that it’s going to, we’re going to have a market over here, south of town, we’re going to have a market over here west of town, we’re going to have, we’re going to, and people started talking with each other, marketers started talking with each other to get organized. In that way, it was an instant adaptation, that was the closest thing, it was the fastest, lightest, adaptable change that I’ve ever experienced through this whole pandemic. (VN1)

Once the markets re-opened to in person shopping, markets took additional steps such as installing hand washing and sanitizing stations, limiting the number of vendors and consumers, practicing social distancing, starting the markets later, mandatory mask wearing for the vendors and customers, and requiring that different individuals handle the food and cash at some locations. These policies, in addition to general concern about the pandemic, did result in some vendors discontinuing their stands at the market; for instance,

having separate employees for handling money and produce was impractical or cost prohibitive for some. However, these policies allowed the markets to retain enough vendors to remain open. One vendor described how the flexibility of the market provided stability during the pandemic stating:

And we felt that we had a service to provide to the community that we could change our layout of our farm stand so that one staff person would handle the food and bag it and a second staff person would handle the money in the transaction. And a customer can come to an open air outdoor [market]...get fresh fruits and vegetables from us as safely as we could give them to them. So, six foot spacing, plexiglass, gloves, masks, one person handling food another person handling money. A third person sanitizing the shit out of everything. So, every time something was put on it [the table], it got sanitized before more stuff was put on it. Our payroll tripled, by the way, last year. So, for us what that did was it opened us a little sooner and allowed us to come out ahead of the season with really clear messaging about how important food safety was to us and how important their [customer's] health was to us...And people continued to shop with us, our sales were very good despite the fact that we had a terrible pandemic here. (VN2)

Vendors and managers pointed both to these policies and the structure of the farmers market as outdoor, comparatively smaller venues for food shopping as factors that helped people feel safe shopping at farmers markets during the early phases of the pandemic. One vendor noted that people wanted to avoid “big congregations” while another said, “People will feel more comfortable putting a mask on and going outside versus, going indoors.” Multiple interviewees talked about people wanting to stay away from large grocery stores due to health risks associated with the large number of people in those stores, especially if they had immunocompromised family members. As one vendor explained, “people had surgery, or people had cancer, and so getting food safely to them was very important.”

Linked to a safe shopping environment were concerns about food handling. Some indicated that customers felt it was safer because they knew where their food was coming from, and many markets required the vendors to wear masks. A vendor described how customers were feeling about food handling stating:

‘I know that if I go to the farmers markets, the farmers are pulling, I’m getting it straight from the farm. And they’re pulling it straight out of the garden. And it’s them touching the produce versus, a lot of other different people’. So, I think they felt a lot more comfortable buying the produce at the market. (VN3)

Thus, vendors and consumers linked the value of shortening the supply chain to maintaining public health. Customers also affirmed the value of public health interventions when discussing how the pandemic affected their perception of the market in the free-response portion of our survey, ‘I’ve always loved my farmers market but when they started curbside pick-up during Covid it felt like a lifeline. I’m so grateful they found a way to keep operating!’

While these policies were not able to entirely prevent customer attrition during the pandemic – 57% of respondents indicated that they attended their local market *less* after the onset of the pandemic – free responses such as these suggest that they did mitigate the attrition. Further evidence of this blunted attrition was indicated in vendor sales; over 90% of the vendors interviewed during this study, all of whom remained at the market during the 2020 season reported higher revenue than during the 2019 season. Sales were so high that several vendors reported selling out their stock on most weekends; even hard to sell items like chicken necks moved quickly. With the pandemic decreasing restaurant trips via closures to in-person dining, people explored home cooking, experimenting with recipes and making staple foods like bread. Flexibility and economic success were intertwined; as one vendor put it,

[We] pivoted and changed our business model very quickly and very successfully. Because we have such close relationships with our customers. People care about us. And likewise, we care about them. (VN4)

The ability of markets to retain sufficient customer activity to support their vendors is attributable not just to the policies implemented by market managers, but also how the pandemic shaped consumer perceptions of their local market, as illustrated by their survey responses (for summary of responses see Table 5). Of the 13 values associated with farmers markets presented to respondents, on average customers reported an increase in importance of 10 of them. Customers most frequently reported an increase in their desire to support small farms following the onset of the pandemic, at a rate nearly 1.5 times the next reported values (healthy and safety). The next five values in order of reported change were relatively close among survey respondents: healthy, safety, fresh, local, and supply. These shifts align with the overarching narrative presented by vendors and market managers: as customers witnessed first-hand the fragility of the global food system and were concerned with their own physical health in the short term, supporting the local farmers market enabled customers to shop in a safer environment, while bolstering the local economy and food producers. In their open-ended survey responses, customers further reiterated these points:

It has made me realize just how much impact I can have on my local economy. With big corporations getting richer during the pandemic, it made me want to spend money locally more than ever. I now see my market as a big support system—I get really high-quality food and by voting with my dollars I can have a say in how it is produced. And I can build friendships with my community at the same time. (CU)

Most interviewees described farmers markets serving as a community gathering space, allowing people to come out and socialize and feel a sense of normalcy during the pandemic. One vendor described this stating:

I mean, people were very hesitant and scared last year, and so they weren't utilizing the space in the same way. But it was still important for them to feel like

Table 5 Change in Importance of Local Food Values among Customers

	Obs.	More (+1) (%)	No Change (0) (%)	Less (-1) (%)	Mean	S.D.	T-test(=/=0)
Small	234	54	38	8	0.4615	0.6357	***
Healthy	233	33	62	6	0.2704	0.5570	***
Safety	233	35	57	8	0.2704	0.6016	***
Fresh	234	35	55	10	0.2564	0.6236	***
Local	233	39	45	15	0.2403	0.7026	***
Supply	233	35	53	12	0.2361	0.6433	***
Affordable	232	32	55	13	0.1897	0.6435	***
Ecological	233	26	63	13	0.1502	0.5936	***
Relationship	233	27	60	14	0.1288	0.6233	***
Gathering	232	32	48	20	0.1207	0.7105	**
Variety	234	17	71	12	0.0470	0.5421	
Learn	233	15	64	21	-0.0601	0.5987	
Incentive	234	12	62	27	-0.1453	0.6042	***

* Significant at the 10% level; ** Significant at the 5% level; *** Significant at the 1% level

On average, these effects were stronger for customers who reported attending the market more since the onset of the pandemic. This comparison is summarized in Table 6. Specifically, respondents who attended their market more frequently after the onset of the pandemic placed greater importance on values related to the economics of farmers markets (small, local, supply). A similar pattern held for the environmental and social aspects of the market (ecological, relationship, gathering, learn), though the differences were only significant at the 5 or 10% level. Of those values most directly related to the food or health aspects of the market (healthy, safety, fresh, variety, incentive, affordable), a statistically significant difference by attendance was only determined for variety. This suggests that while all respondents had a similar response to the pandemic with regards to health-related values, this alone was not enough to push customers into increasing or maintaining their shopping behavior at markets. Rather, it was the extent to which the pandemic increased the interpersonal or community-level benefits of farmers markets which determined whether customers attended more often during the pandemic.

For their part, managers and vendors expressed similar sentiments about the importance of the community aspects of the market during the pandemic. All the market managers and eight of the vendors talked about how the pandemic increased the need for social interactions due to shutdowns.

they were out in the community, to see people that they knew...it gave them consistency, and a sense of like, life isn't completely turned upside down. And we heard that a lot. (VN4)

Acknowledging that the sociality of the market space necessarily changed in its physical structure, participants noted

Table 6 Survey results by market attendance after the beginning of the pandemic

	More often (n=29)	Less often (n=134)	No change (n=70)	ANOVA F-test
Small	0.8276	0.4030	0.4429	***
Healthy	0.2759	0.3008	0.2143	
Safety	0.3448	0.2388	0.3043	
Fresh	0.2759	0.2463	0.2714	
Local	0.6786	0.0672	0.4000	***
Supply	0.5862	0.1879	0.1714	***
Affordable	0.2069	0.2197	0.1286	
Ecological	0.4138	0.0902	0.1429	**
Relationship	0.3793	0.0672	0.1594	**
Gathering	0.3103	0.0303	0.2286	**
Variety	0.2069	0.0149	0.0571	*
Learn	0.1379	-0.1053	-0.0429	*
Incentive	0.0000	-0.1866	-0.1143	

* Significant at the 10% level; ** Significant at the 5% level; *** Significant at the 1% level

that the emotional value and significance of remaining active in that space was important.

Given the breakdown in global food supply chains due to COVID-19, farmers markets also benefitted from their perception as a reliable place to buy food. Vendors described the markets as an additional resource beyond the grocery store, particularly when grocery stores experienced supply shortages. Customers also realized they needed to find non-traditional ways to get food; as one customer wrote in their survey, “I mean, it was really scary, like, when there was no food on the grocery shelves.” Multiple interviewees recounted customers claiming the market was more reliable than other stores – especially for meat, eggs, and produce. Meat was in particularly high demand with vendors selling out of their products early or not having enough because there are few small processors in Michigan, who faced a backlog. Stores were often out of products, and they failed to adapt as quickly to challenges in the supply chains, but people could rely on the farmers market to get those items. This was in due part to the ability of vendors to respond directly and quickly to customer demand for various products, a benefit identified in previous scholarship (Warsaw et al. 2022). While most vendors seemed to grow the same things they normally grow, others changed some of their products. One vendor reduced their storage crops and increased greens due to demand, while others saw an increase in demand for foods like snacks, breads, plants, and seeds.

Several vendors said demand for participation in community supported agriculture (CSA) programs was much higher—customers wanted the reliability of the CSA because it ensured there would be food for their family, like a back-up plan. Participants even mentioned efforts by local organizations to support the cost of membership shares, explaining:

We have a lot more interest in our CSA programs than we ever had before. Certainly because of the pandemic primarily. People want a secure source [of food], you want to make sure they’re going to get their food. And, you know, we pre box their shares and people like that where they minimize contact and quicker, easier shopping experience at the market. (VN5)

Others said that customers knew deep down that the market was their source of food. One customer said food access could turn on a dime and another said it was scary that food was dependent on something very far away. Another offered the perspective that it felt good that we have been building infrastructure, indicating the farmers market, to distribute food locally. Finally, some indicated recently there was

more food assistance demand from new demographics, and people are relying on this assistance.

This reliability extended to customers who combine food assistance programs (FAPs), with the benefit of state policy. Multiple interviewees noted that the Double Up Food Bucks cap was removed by the state during the pandemic, allowing customers to match the entirety of their SNAP benefits at the market, resulting in drastically increasing the number of SNAP transactions and sales across vendors. Of our interviewees, only one vendor that accepted FAPs said they did not see a change after the onset of the pandemic. Prior to this policy change, the Double Up Food Bucks program allowed customers to match their SNAP dollars at the market, but only up to a \$20 limit. With this cap removed, customers sought to maximize this benefit, to the point where they would occasionally show up to the market uncertain of what to buy, or how to deal with a potential excess of products that they could afford with the new rules. Similarly, vendors encouraged customers to freeze food or come back later in the season. As one manager stated:

In April (2020), everyone started receiving the maximum amount of SNAP that they could receive, and the Double Up Food Bucks cap was taken away. So those two factors have drastically increased the number of SNAP transactions and the amount of sales at the vendors drastically; it has never been this high. And people have been coming and getting \$100 out and getting \$200 (total with Double Up Food Bucks). And then not spending it all that day, but like having that amount of money to buy fruits and vegetables (at another point), which is amazing. (MN1)

Others who had been previously ineligible for benefits received an EBT card in the mail and did not know what to do with it. Managers explained that through promotions and social media, markets tried to inform people how their new EBT cards could be used and combined with additional programs like Double Up Food Bucks, and EBT sales surged as a result. Other programs which expanded during the pandemic included WIC, Senior Project Fresh, a program which provided \$25 vouchers for low-income residents over 55, and a ride program for people with disabilities, giving people without a mode of transportation an opportunity to get to the market. Further, though the online markets had price mark-ups for products to offset increased transaction costs, these mark-ups were reduced for SNAP recipients to give customers using FAPs maximum opportunities to access fresh produce.

While the general perception by vendors and managers was that markets had proven resilient to the pandemic, several interviews also noted drawbacks to the changes

in policy and market structure that resulted from the pandemic. Vendors indicated that the boom year was not as good for artisans or fresh cut flower sellers as people were really looking for food, and fresh food at that. Some vendors also noted the reduction in the number of vendors at the market, whether due to new rules or concerns about safety, with uncertainty about how those vendors fared during the worst of the pandemic. In addition to costs borne by the new COVID rules, the supply chain impacted vendors, increasing the cost of packaging, and making it unfeasible for some to sell their products at a profit. While FAP sales grew significantly during the pandemic overall, they dipped temporarily at the onset of the pandemic with the shift to online sales, as the platforms could not initially accommodate processing these benefits. One vendor summarized these sentiments while discussing the social distancing policies at their market, stating:

So that was really hard because space is such a premium, and having to limit space more, really, really, really hurt a lot of people and caused a lot of vendors not to resume so that was interesting. And unfortunate, but I don't think we had any alternatives. A weird, funny thing is more people started buying local and so sales actually really increased, which was strange. There was a really big hit to non-food vendors. So like the non-essential products, especially in the spring, cut flowers just because they're so seasonal, but the artisans as well, that kind of thing. So they were able to come back eventually, but not as soon as the food vendors. (VN6)

Finally, while many respondents discussed the benefits of continued social interaction during the COVID shutdowns, others noted that the ongoing restrictions, such as mandatory mask wearing, made it hard to meaningfully engage. Some participants noted that limiting other events that happen at the market, such as musicians playing, crafts, or activities and events for children, impacted the feel of the market. Limiting activities and community engagement that happens in the space of the market had the effect, for some, of turning market visits into nothing more than a routine shopping trip.

Long-Term Market Outlook.

While there was consensus among vendors and managers about how well their markets weathered the worst of the pandemic, there were mixed opinions on what this might imply for the future. Opinions ranged from those suggesting that farmers markets, and local food systems more broadly, were shifting into a new phase permanently, to those who believed that consumer behavior would trickle back to previous levels of engagement once the economy fully

reopened. One vendor skeptical about the durability of their higher sales referenced a similar bubble they had witnessed in the early 2000s,

I think, I think a disappointingly large percentage of them will go back to the convenience, and the selection that they offer the grocery store...[W]e saw a trend there for, oh, gosh, probably back in the probably back in the early 2000 point, somewhere in there where every little community wanted to open a farm market because that was something that was hot. And people were talking about going to the markets and everybody was vending and everyone is buying at markets and that lasted all of about two years. And I didn't get involved in it because I wondered if it was going to be a bubble, and in my experience, my opinion it was. (VN7)

Interviewees who were more optimistic about the long-term outlook pointed to the changes in consumer values as one reason for believing these changes will be lasting. One vendor explained:

And I think it's kind of what I've heard from folks is that it's kind of shifted priorities, and it's just kind of simplified people's lives a bit. And so, you know, they've sort of had a year forced on them to which they had to make a lot of changes. And so they have new habits now and seem to be preferring other things. And that doesn't mean it won't change, but I don't think it's going to be a drastic change. (VN4)

While there was disagreement about whether increased sales for farmers markets would persist as consumers long to return to a sense of 'normalcy', there was greater agreement among participants that the pandemic would have a lasting impact on *how* consumers would shop. Specifically, multiple interviewees referenced the rise of online shopping, and the need for markets to continue to adapt to match changes in consumer behavior. Discussing online sales, one vendor expressed:

Now I'm kind of seeing that things are starting to be back to normal a little bit that those online marketplaces, and even marketplaces far from farmers are competing with the farmers market directly. At my markets specifically, I have a lot of vendors, farmers, I have a lot of people who I see who are also my CSA members. And a lot of their sales have now gone directly to me. And at that market, I've also seen tons of consumers who are purchasing from the online market from other farmers. And there's, there's so many

other sources to local products [that are] so efficient, and just so convenient, that I do have some worry that those sales are going to eat into farmer market sales. And, you know, lessen the amount of farmers that show up to the markets. (VN8)

While it is impossible to look into the future and know with certainty the long-term behavior of consumers, it is notable that there is very little consensus about these changes persisting in the future. Vendors and managers were largely split between those who felt that COVID created a fundamental shift in the personal values among consumers, creating the opening for long-term change, and those who saw the shift as merely a necessary adaptation due changing market conditions, likely to shift back as conventional markets stabilized.

Discussion and conclusion

Our findings show that farmers markets in Michigan were resilient to the shocks caused by the COVID-19 pandemic. Despite shutdown orders throughout the state in the early stages of the pandemic, farmers markets were allowed to quickly reopen, minimizing disruption to most vendors. In addition, vendors reported limited challenges in product availability, in contrast with larger retailers such as supermarkets, which struggled with product shortages due to breakdowns in national and international supply chains. This reliability appealed to customers, who saw farmers markets as a dependable source of food, improving the economic performance of many vendors during the pandemic-related recession in 2020. Vendors also benefited from a shift in customer values to prioritize supporting the local economy and food safety during the pandemic, combined with policy changes which made accessing food assistance benefits such as Double Up Food Bucks more accessible to households. As small, local institutions, farmers markets had the ability to quickly shift their operations to include new modalities for shopping and installing public health facilities to their in-person shopping, which enhanced the perception of these spaces as a safer place to shop. Taken together, these factors not only allowed the markets to survive the pandemic but resulted most vendors in this study experiencing increased sales. These findings align with recent and ongoing scholarship which has found that localized and alternative food networks were less prone to disruption during the COVID-19 pandemic (Blay-Palmer et al. 2020; Gordon 2020; King et al. 2022). In addition, our findings provide a valuable framework for considering how food systems might develop in the wake of the pandemic, such as the potential for expanding

food assistance programs like Double Up Food Bucks on a permanent basis for increasing market viability.

Regarding the role of farmers markets functioning as a niche within the CFR, our findings were mixed. While most vendors saw increased sales during the pandemic, our sample only included vendors that were selling at the market as of 2021. One of the adaptations that many markets made during the pandemic was reducing the number of vendors to facilitate social distancing. It is possible that increased sales were in part a reflection of the remaining vendors at the market receiving a larger share of customers, rather than solely a function of more customers attending the market or existing customers purchasing more. This possibility is supported by our survey data that found most respondents were attending the market as frequently or less frequently than before the pandemic, which is consistent with other research on market performance during this time (Taylor et al. 2022a). One area for future research should involve engagement with market vendors who did not attend the market during the pandemic to assess how the pandemic affected their long-term financial trajectory, which will refine the assessment of market resilience provided here.

Relatedly, while our survey did indicate a general shift in values favorable to a new food regime, these results were relatively muted, primarily limited to the minority of customers who attended the market more often during the pandemic. Further, our interview results suggest doubt that this shift in values will persist in the long run. As the economy continues its ‘post-COVID’ recovery, many vendors postulated that customers are likely to return to their normal consumption patterns in restaurants and grocery stores, bringing farmers markets closer to their pre-pandemic sales levels. Future research could test this theory by using the results presented here and in other related scholarship as a baseline from which to assess the stability of any shift in consumer behavior, vendor performance, or values among market actors during the pandemic.

Taken together, these results affirm existing research on the tensions and possibilities of farmers markets in promoting an alternative vision of food systems. As households saw a shift in food system values in closer alignment with the principles of food sovereignty (e.g. skepticism of globalized industrial agriculture), farmers markets were seen as a viable representative of these new values. However, the concern about a shift back to ‘old’ values also illustrates farmers markets as a niche integrated within the current CFR, wherein farmers markets are simply another consumption option consumers can make within a capitalist economy. One market manager commented directly on this tension:

Farmers markets are still just like mini-capitalism. So, it's not a radical shift. But it does increase awareness about how food is grown. It gives people more autonomy in making choices about their food. And, in a lot of cases for farmers markets it is the access point for fresh food. So, it's an access point; it's a choice. It's about having more choice in the kinds of growing practices that you have access to. Yeah, but it's not a radically different shift in the in the food system.

Surprised at the frankness of this critique, we asked the manager to expound. Drawing from her recent experiences in attempting to increase BIPOC representation at her market, she stated:

I just attended a conference recently...[and] there's a lot of talk about how do we increase BIPOC farmers that are at markets, BIPOC vendors that are at markets? One of the speakers was talking about part of it is people don't feel comfortable engaging in a system that has caused them harm. Capitalism is harmful. So it's still capitalism. And just acknowledging that is powerful. And we're not going to change it tomorrow. I'm not a lead thinker on how we move past this. There's lots of people who have lots of great ideas for alternate systems, and dual systems and a lot of phrases that I've heard and don't fully understand. I'll be quite upfront with that. But I know that acknowledging the harm is a first step. (MN2)

This statement is illuminating within the broader context of the demographic composition of the customer survey. Despite serving ethnically diverse communities, and all the market managers expressing similar desires and efforts to pursue racial equity in their markets (see Warsaw et al. 2022), the sample of customers for this research was overwhelmingly white, above-average income, and highly educated. Previous scholarship studying the tensions of AFNs within capitalism have frequently noted the ways in which AFNs such as farmers markets or urban gardens are commodified, and in so doing, are framed as 'white' spaces (see, e.g., McClintock 2018 or Alkon and Cadji 2020). This is the result of both the dynamics of markets themselves, where AFNs such as farmers markets will shape their offerings to meet the preferences of high-income households, whether intentionally or unintentionally, but also of the underlying racialized hierarchies which are used to justify and reproduce the harmful logics of capitalism, and shape the inequalities observed within the food system, including inadequate food access (Mayorga et al., 2022) or gentrification when AFNs or other points of food access are introduced to divested communities (McClintock 2018; Alkon and Cadji

2020; White 2018). In this way, as suggested by Kretschmer et al. (2021), simply creating 'sustainable' alternatives to 'unsustainable' industrialized food systems such as farmers markets is not likely to drive long-term change. However, as the manager above indicated, markets can be a place where local community members are introduced to local food systems, and they could serve as a space for recognizing and challenging the harm done by capitalism, patriarchy, and white supremacy in the food system. Other scholars have similarly argued that intentional effort is needed not only to ensure that farmers markets are properly structured to serve BIPOC and other marginalized communities, but in resisting the broad capitalist and neoliberal logics to prevent markets from becoming another vehicle for capitalist accumulation at the expense of working class and BIPOC communities (Alkon & McCollum, 2011; Alkon and Mares 2012; Shostak et al. 2016; Alkon et al. 2022).

To this end, future research should explore the long-term viability of farmers markets and other AFNs post-COVID through several avenues. First, the results presented here and in other related scholarship can serve as a useful benchmark against which to assess the performance of farmers markets, food hubs and other AFNs in the next 5–10 years to assess whether local food systems experience continued growth and elevated sales relative to the pre-COVID period. Second, based on how AFNs are positioned economically in the coming years, scholars may investigate whether institutions within various AFNs have successfully leveraged this moment, as well as growing calls for change among activists and other community organizations to push for more radical and creative alternatives to profit-centric food systems. As King et al. (2022) state, "Activism and policy are needed to ensure any transformation in the food system is inclusive and equitable for all. The industrial food system will not change itself" (835). While there are other examples of AFNs successfully mobilizing change during the pandemic, the widespread, long-term impact of these changes remains unclear (Shostak 2022). The system shock of the global COVID-19 pandemic significantly impacted food access and behaviors, and the farmers markets in this study demonstrated a resiliency to the shock that had the effect of increasing profits for vendors and increasing food access and affordability for many Michigan families who turned to the market for dependable access to safe produce. However, systemic change at a level that can alter supply chains, and reliably shift the share of food consumers access through farmers markets still requires further concerted efforts in both research and activism.

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References

- Aday, S., and M. S. Aday. 2020. Impact of COVID-19 on the food supply chain. *Food Quality and Safety* 4 (4): 167–180. <https://doi.org/10.1093/fqsafe/fyaa024>.
- Ahmed, S., S. M. Downs, C. Yang, L. Chunlin, Ten Broek, N., & S. Ghosh-Jerath. 2020. Rapid tool based on a food environment typology framework for evaluating effects of the COVID-19 pandemic on food system resilience. *Food security* 12: 773–778. <https://doi.org/10.1007/s12571-020-01086-z>.
- Alkon, A. H., and J. Cadji. 2020. Sowing seeds of displacement: gentrification and food justice in Oakland, CA. *International Journal of Urban and Regional Research* 44 (1): 108–123. <https://doi.org/10.1111/1468-2427.12684>.
- Alkon, A. H., and T. M. Mares. 2012. Food sovereignty in US food movements: radical visions and neoliberal constraints. *Agriculture and Human Values* 29 (3): 347–359. <https://doi.org/10.1007/s10460-012-9356-z>.
- Alkon, A. H., and C. G. McCullen. 2011. Whiteness and farmers markets: Performances, perpetuations... contestations? *Antipode* 43 (4): 937–959. <https://doi.org/10.1111/j.1467-8330.2010.00818.x>.
- Alkon, A. H., Y. J. Cadji, and F. Moore. 2022. Subverting the new narrative: food, gentrification and resistance in Oakland, California. In *Rethinking Food System Transformation*, 143–154. Switzerland: Springer, Cham.
- Allen, P. 2004. *Together at the table: sustainability and sustenance in the american agrifood system*. University Park, Pennsylvania: Penn State Press.
- Andrée, P., P. Ballamingie, S. Piazza, and S. Jarosiewicz. 2017. Can community-based initiatives address the conundrum of improving household food access while supporting local smallholder farmer livelihoods? In *Nourishing Communities*, 77–94. Switzerland: Springer, Cham.
- Béné, C., D. Headey, L. Haddad, and K. von Grebmer. 2016. Is resilience a useful concept in the context of food security and nutrition programmes? Some conceptual and practical considerations. *Food security* 8: 123–138. <https://doi.org/10.1007/s12571-015-0526-x>.
- Benton, T. 2020. COVID-19 and disruptions to food systems. *Agriculture and Human Values* 37: 577–578. <https://doi.org/10.1007/s10460-020-10081-1>.
- Bernstein, H. 2010. *Class dynamics of agrarian change*. vol. 1. Sterling, VA: Kumarian Press.
- Blay-Palmer, A., R. Carey, E. Valette, and M. R. Sanderson. 2020. Post COVID 19 and food pathways to sustainable transformation. *Agriculture and Human Values* 37: 517–519. <https://doi.org/10.1007/s10460-020-10051-7>.
- Bowen, S., S. Elliott, and A. Hardison-Moody. 2021. The structural roots of food insecurity: how racism is a fundamental cause of food insecurity. *Sociology Compass* 15 (7): e12846. <https://doi.org/10.1111/soc4.12846>.
- Carducci, B., E. C. Keats, M. Ruel, L. Haddad, S. J. M. Osendarp, and Z. A. Bhutta. 2021. Food systems, diets and nutrition in the wake of COVID-19. *Nature Food* 2 (2): 68–70. <https://doi.org/10.1038/s43016-021-00233-9>.
- Chappell, M. J. 2018. *Beginning to end hunger: Food and the environment in Belo Horizonte, Brazil, and beyond*. Oakland, CA: Univ of California Press.
- Chenarides, L., M. Manfredo, and T. J. Richards. 2021. COVID-19 and food supply chains. *Applied Economic Perspectives and Policy* 43 (1): 270–279. <https://doi.org/10.1002/aep.13085>.
- Clark, V. L. P. 2008. *The mixed methods reader*. Los Angeles, CA: Sage.
- Cledenning, J., W. H. Dressler, and C. Richards. 2016. Food justice or food sovereignty? Understanding the rise of urban food movements in the USA. *Agriculture and Human Values* 33 (1): 165–177. <https://doi.org/10.1007/s10460-015-9625-8>.
- Corkery, M., and D. Yaffe-Bellamy. 2020. ‘We had to do something’’: Trying to prevent massive food waste. *The New York Times*. <https://www.nytimes.com/2020/05/02/business/coronavirus-food-waste-destroyed.html>. Accessed July 12, 2020.
- Daher, B., S. Hamie, K. Pappas, M. Nahidul Karim, and T. Thomas. 2021. Toward resilient water-energy-food systems under Shocks: understanding the impact of Migration, Pandemics, and natural disasters. *Sustainability* 13 (16): 9402. <https://doi.org/10.3390/su13169402>.
- Davis, K. F., S. Downs, and J. A. Gephart. 2021. Towards food supply chain resilience to environmental shocks. *Nature Food* 2: 54–65. <https://doi.org/10.1038/s43016-020-00196-3>.
- Erickson, P. J. 2008. Conceptualizing food systems for global environmental change research. *Global environmental change* 18 (1): 234–245. <https://doi.org/10.1016/j.gloenvcha.2007.09.002>.
- Feagan, R. B., and D. Morris. 2009. Consumer quest for embeddedness: a case study of the Brantford Farmers’ market. *International Journal of Consumer Studies* 33 (3): 235–243. <https://doi.org/10.1111/j.1470-6431.2009.00745.x>.
- Feenstra, G. W. 1997. Local food systems and sustainable communities. *American journal of alternative agriculture* 12 (1): 28–36. <https://doi.org/10.1017/S0889189300007165>.
- Foley, R. J. 2020. Tyson Foods idles largest pork plant as virus slams industry. Retrieved from: <https://apnews.com/d21fe9a4864971427d40fd2caa61ad34>. Accessed February 24, 2023.
- Folke, C., S. Carpenter, B. Walker, M. Scheffer, T. Elmqvist, L. Gunderson, and C. S. Holling. 2004. Regime shifts, resilience, and biodiversity in ecosystem management. *Annual Review of Ecology and Systematics* 35: 557–581. <https://doi.org/10.1146/annurev.ecolsys.35.021103.105711>.
- Friedmann, H. 2016. Commentary: Food regime analysis and agrarian questions: widening the conversation. *The Journal of Peasant Studies* 43 (3): 671–692. <https://doi.org/10.1080/03066150.2016.1146254>.
- Fusch, P. I., and L. R. Ness. 2015. Are we there yet? Data saturation in qualitative research. *The qualitative report*. <https://doi.org/10.46743/2160-3715/2015.2281>.
- Geels, F. W. 2002. Technological transitions as evolutionary reconfiguration processes: a multi-level perspective and a case-study. *Research policy* 31 (8–9): 1257–1274. [https://doi.org/10.1016/S0048-7333\(02\)00062-8](https://doi.org/10.1016/S0048-7333(02)00062-8).
- Goodman, D., E. M. DuPuis, and M. K. Goodman. 2012. *Alternative food networks: knowledge, practice, and politics*. London: Routledge.
- Gordon, L. J. 2020. The Covid-19 pandemic stress the need to build resilient production ecosystems. *Agriculture and Human Values* 37: 645–646. <https://doi.org/10.1007/s10460-020-10105-w>.
- Hendrickson, M. K. 2020. Covid lays bare the brittleness of a concentrated and consolidated food system. *Agriculture and Human Values* 37: 579–580. <https://doi.org/10.1007/s10460-020-10092-y>.
- Hodbod, J., and H. Eakin. 2015. Adapting a social-ecological resilience framework for food systems. *Journal of Environmental Studies and Sciences* 5: 474–484. <https://doi.org/10.1007/s13412-015-0280-6>.
- Holling, C. S. 1973. Resilience and stability of ecological systems. *Annual Review of Ecology and Systematics* 4: 1–23. <https://doi.org/10.1146/annurev.es.04.110173.000245>.
- Holt-Giménez, E. 2017. *A foodie’s guide to capitalism*. New York, NY: NYU Press.
- Holt-Giménez, E. 2019. Capitalism, food, and social movements: the political economy of food system transformation. *Journal of Agriculture Food Systems and Community Development* 9 (Suppl. 1): 23–35. <https://doi.org/10.5304/jafscd.2019.091.043>.

- Howard, P. H. 2021. *Concentration and power in the food system: who controls what we eat?* vol. 3. New York, NY: Bloomsbury Publishing.
- Huffstutter, P. J. 2020. U.S. Dairy Farmers Dump Milk as Pandemic Upends Food Markets. Reuters, April 3, Retrieved from: <https://www.reuters.com/article/us-health-coronavirus-dairy-insight/us-dairy-farmersdump-milk-as-pandemic-upends-food-markets-idUSKBN21L1DW>. Accessed February 20, 2023.
- Hynes, W., B. Trump, P. Love, and I. Linkov. 2020. Bouncing forward: a resilience approach to dealing with COVID-19 and future systemic shocks. *Environment Systems and Decisions* 40: 174–184. <https://doi.org/10.1007/s10669-020-09776-x>.
- Jaffee, D., and P. H. Howard. 2010. Corporate cooptation of organic and fair trade standards. *Agriculture and human values* 27 (4): 387–399. <https://doi.org/10.1007/s10460-009-9231-8>.
- King, S., A. McFarland, and J. Vogelzang. 2022. Food sovereignty and sustainability mid-pandemic: how Michigan's experience of Covid-19 highlights chasms in the food system. *Agriculture and Human Values* 39: 827–838. <https://doi.org/10.1007/s10460-021-10270-6>.
- Kretschmer, S., B. Langfeldt, C. Herzig, and T. Krikser. 2021. The organic mindset: insights from a mixed methods grounded theory (MM-GT) study into organic food systems. *Sustainability* 13 (9): 4724. <https://doi.org/10.3390/su13094724>.
- Mares, T. M., and A. H. Alkon. 2011. Mapping the food movement: addressing inequality and neoliberalism. *Environment and Society*. <https://doi.org/10.3167/ares.2011.020105>.
- Mayorga, S., M. Underhill, and L. Crosser. 2022. "I hate that food Lion": Grocery Shopping, racial capitalism, and Everyday Disinvestment. *City & Community* 21 (3): 238–255. <https://doi.org/10.1177/15356841221091811>.
- McClintock, N. 2018. Urban agriculture, racial capitalism, and resistance in the settler-colonial city. *Geography Compass* 12 (6): e12373. <https://doi.org/10.1111/gec3.12373>.
- McMichael, P. 2005. Global development and the corporate food regime. In *New directions in the sociology of global development*. Bingley, United Kingdom: Emerald Group Publishing Limited.
- Metz, J. J., and S. M. Scherer. 2022. The rise and decline of farmers markets in greater Cincinnati. *Agriculture and Human Values* 39 (1): 95–117. <https://doi.org/10.1007/s10460-021-10228-8>.
- Mishra, S. K., A. R. Khanal, and W. J. Collins. 2022. Farm-to-school programmes, benefits, health outcomes and barriers: a structured literature review. *Health Education Journal* 81 (7): 781–792. <https://doi.org/10.1177/00178969221119290>.
- Mittal, A., and J. Grimm. 2020. ICT solutions to support local food supply chains during the COVID-19 pandemic. *Journal of Agriculture Food Systems and Community Development*. <https://doi.org/10.5304/jafscd.2020.101.015>.
- O'Hara, J. K., T. A. Woods, N. Dutton, and N. Stavely. 2021. COVID-19's impact on farmers market sales in the Washington, DC, area. *Journal of Agricultural and Applied Economics*. <https://doi.org/10.1017/aae.2020.37>.
- Oncini, F. 2021. Food support provision in the COVID-19 times: a mixed method study based in Greater Manchester. *Agriculture and Human Values* 38: 1201–1213. <https://doi.org/10.1007/s10460-021-10212-2>.
- Osterholm, M. 2005. Preparing for the next pandemic. *The New England Journal of Medicine* 352: 1839–1842. <https://doi.org/10.2307/20034418>.
- Patel, R. 2009. Food sovereignty. *The journal of peasant studies* 36 (3): 663–706. <https://doi.org/10.1080/03066150903143079>.
- Polansek, T., and P. J. Huffstutter. 2020. Piglets Aborted, Chickens Gassed as Pandemic Slams Meat Sector. Reuters <https://www.reuters.com/article/us-health-coronavirus-livestock-insight/piglets-aborted-chickens-gassed-as-pandemic-slams-meat-sector-idUSKCN2292YS>. Accessed February 20, 2023.
- Richards, S., and M. Vassalos. 2020. COVID-19 amplifies local meat supply chain issues in South Carolina. *Journal of Agriculture Food Systems and Community Development* 10 (1): 191–195. <https://doi.org/10.5304/jafscd.2020.101.001>.
- Shostak, S. 2022. "How do we measure justice?": missions and metrics in urban agriculture. *Agriculture and Human Values* 39: 953–964. <https://doi.org/10.1007/s10460-022-10296-4>.
- Shostak, S., J. Blum, and C. Mancini. 2016. From food access to food justice: a case study of the somerville mobile farmers' market. In *Feeding cities*, 73–89. Routledge.
- Taylor, D. E., L. M. Farinas, L. M. Kahan, J. Talamo, A. Surdoval, E. D. McCoy, and S. M. Daupan. 2022a. Understanding the challenges faced by Michigan's family farmers: race/ethnicity and the impacts of the pandemic. *Agriculture and Human Values*. <https://doi.org/10.1007/s10460-022-10305-6>.
- Taylor, D. E., A. Lusuegro, V. Loong, A. Cambridge, C. Nichols, M. Goode, E. McCoy, S. M. Daupan, M. L. Bartlett, E. Noel, and B. Pollvogt. 2022b. Racial, gender, and Age Dynamics in Michigan's Urban and Rural Farmers Markets: reducing Food Insecurity, and the impacts of a pandemic. *American Behavioral Scientist* 66 (7): 894–936. <https://doi.org/10.1177/00027642211013387>.
- Tendall, D. M., J. Joerin, B. Kopainsky, P. Edwards, A. Shreck, Q. B. Le, K. Pius, A. Shreck, Q. B. Le, P. Krütli, M. Grant, and J. Six. 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., E. Canales, S. A. Low, and K. Boys. 2021. Local food supply chain dynamics and resilience during COVID-19. *Applied Economic Perspectives and Policy* 43 (1): 86–104. <https://doi.org/10.1002/aep.13121>.
- United States Department of Agriculture. 2022. Rural Classifications. Retrieved from: <https://www.ers.usda.gov/topics/rural-economy-population/rural-classifications/>.
- Via Campesina. 1996. The right to produce and access to land. Voice of the Turtle. Available from: <http://www.voiceoftheturtle.org/library/viacampesina.php>. Accessed 4 January 2023.
- Warsaw, P., S. Archambault, A. He, and S. Miller. 2021. The economic, social, and environmental impacts of farmers markets: recent evidence from the us. *Sustainability*. <https://doi.org/10.3390/su13063423>.
- Warsaw, P., C. Wentworth, A. Lewis, K. Isaacs, and A. Traore. 2022. Manager and vendor perceptions of farmers' markets' impacts on communities: evidence from Michigan. *International Journal of Sociology and Social Policy* 42 (7/8): 712–726. <https://doi.org/10.1108/IJSSP-10-2021-0268>.
- White, M. M. 2018. *Freedom farmers: agricultural resistance and the Black freedom movement*. Chapel Hill, NC: UNC Press Books.
- Wolf, C. A., and G. T. Tonsor. 2013. Dairy farmer policy preferences. *Journal of Agricultural and Resource Economics* 38 (2): 220–234. <https://www.jstor.org/stable/23496752>.
- Worstell, J. 2020. Ecological resilience of food systems in response to the COVID-19 crisis. *Journal of Agriculture Food Systems and Community Development*, 9(3): 23–30Fwe. <https://doi.org/10.5304/jafscd.2020.093.015>.

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