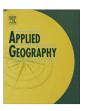


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Strengthening the core, improving access: Bringing healthy food downtown via a farmers' market move



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ABSTRACT

Diet-related diseases are a major public health concern, and food environment research explores how built environmental interventions can address nutritional inequalities. Yet other, more direct intervention approaches may also yield positive benefits for residents living in food deserts. This paper presents a case study of a farmers' market move and its effects on healthy food accessibility and customer characteristics in a community with many food deserts. 844 surveys collected in 2011 and 2015 determine customer purchasing patterns and demographics at the Flint (Michigan) Farmers' Market. The market move has meant improved healthy food accessibility for mobility-constrained and low-income residents throughout the region. Counter to past research suggesting that farmers' markets tend to serve higher income groups, socioeconomically disadvantaged people constitute a major consumer demographic at Flint's market. The results of this research have broad utility for communities seeking to ameliorate the challenges of bringing healthy food to isolated food deserts by demonstrating that positioning healthy food in a prominent, central location will attract residents from such neighborhoods while engaging a broad clientele.

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1. Introduction

Diet-related diseases constitute a major public health concern, and opportunities for healthy eating are a key determinant shaping risk for such diseases. Simultaneously, interest in food environments and the impact of place effects on health has grown. Much built environment-oriented research focuses on built environmental interventions to address inequalities in healthy food consumption, rather than programs at the individual level.

The premise of this research is that a relatively simple environmental modification (i.e. a population-level approach) can have cascading positive effects for residents in surrounding neighborhoods in terms of accessing healthy foods. The environmental change here entails strengthening the core of a deindustrialized city by moving a growing farmers' market from the edge of a former industrial district into the heart of downtown.

This approach suggests that not all analyses of food accessibility and exposure require sophisticated spatial models. Indeed, some solutions to intractable, multi-faceted problems around nutrition may be found in the straightforward application of community

development at strategic sites. Public health and local food policymakers will be able to use such information to advocate more effectively for change in the food system. The departure from conventional food environment research requires some framing around this topic.

1.1. Food access in the Rust Belt

The foremost concern of this paper is that opportunities for healthy eating are increasingly difficult to find, particularly in Rust Belt cities whose core populations are declining. Low-income residents in inner-urban areas of this region—including Buffalo, Toledo, Detroit, and Lansing—have poorer access to healthy foods when compared to suburbanites (Eckert & Shetty, 2011; Goldsberry, Duvall, Howard, & Stevens, 2010; Widener, Metcalf, & Bar-Yam, 2012; Zenk et al., 2005).

A review of 39 mid-sized American cities (including 17 from the Rust Belt) found that food retail clusters were on average nearly 4 miles from a city's core (Bellinger & Wang, 2011). The dispersed suburban development patterns of Rust Belt cities suggest that retail clusters are commonly centered even farther out in these cities. Importantly for this context, neighborhoods with high densities of African—American or black residents were significantly

underserved, even when controlling for demand and cost factors (Bellinger & Wang, 2011). The implication is that mid-sized American Rust Belt cities with large black populations—such as the study site for this research—are at the highest risk of having neighborhoods with poor access to healthy foods.

Access is fundamental as a prerequisite for the consumption of healthy food. Food deserts have commonly been attributed the following characteristics: healthy diets are more expensive (Furey, Strugnell, & McIlveen, 2001); obesity rates are higher (Morland & Evenson, 2009); fruit and vegetable consumption is lower due to inability to shop at supermarkets (Caspi, Sorensen, Subramanian, & Kawachi, 2012); the population is more commonly populated with low-income individuals (Ball, Timperio, & Crawford, 2009; Burns & Inglis, 2007); unhealthy food outlets like fast food are more common (Smoyer-Tomic et al., 2008); and the convenience stores that predominate tend to have little variety and a low quality of healthy foods (Latham & Moffat, 2007). Additionally, even when controlling for socio-demographic variables, inner-urban areas tend to have higher rates of food insecurity (Shannon, Lee, Holloway, Brown, & Bell, 2015). But the absence of food retail does not always correlate with lack of demand: when a new grocery store opened in Detroit and the price of fresh fruits and vegetables went down, residents responded by increasing their purchases of these prod-(Weatherspoon, Oehmke, Coleman, Dembele. Weatherspoon, 2012). Thus where financially possible, there is reason to invest in food deserts.

1.2. Conceptualizing access

Within geographic research on food environments, an uncritical focus on place as a determinant of behavior has meant that access is sometimes conceptualized too narrowly. A review article of 38 studies concluded that GIS-based container or density measures alone are typically inadequate because they do not capture additional dimensions of food access (Caspi et al., 2012), while another found that 90% of built environment studies only considered place of residence when estimating exposure (Leal & Chaix, 2011).

Research on mobility and exposure within the built environment has questioned the value of such narrow approaches. Cummins (2007) adapted the idea of the 'local trap' to suggest that the local scale is an inadequate unit of analysis when examining daily activity patterns. Further, "families do not necessarily use better quality retail provision even if locally available" (p. 356). Studies that fall into the local trap are said to be ignoring the 'spatial polygamy' of daily activity patterns (Kestens et al., 2012; Matthews, 2011). As this pertains to intervention research, the focus on local space or individual locations as a primary driver of behavior has meant an inordinate focus on neighborhood-specific interventions, without a necessarily deep understanding of spatial influences on health behaviors generally or food consumption in particular. Within food desert research, discussions commonly include advocating for the (re)introduction of grocery stores into underserved neighborhoods without evidence to support the idea. Consequently, results from such endeavors have not been equivocal, and negative results are more common when pursued without additional public health intervention programming (Cheadle et al., 2010; Cummins, Flint, & Matthews, 2014; Cummins, Petticrew, Higgins, Findlay, & Sparks, 2005; Wrigley, Warm, Margetts, & Whelan, 2002).

Part of this deficiency in intervention implementation likely results from poorly designed spatial models to predict food access, lack of context about how individuals behave within their environments, or both. Recent contributions in this journal have addressed a range of such spatial issues, and emphasize the need for well-constructed models to accurately represent access (Chen &

Clark, 2013; Chen & Yang, 2014; Horner & Wood, 2014; LeDoux & Vojnovic, 2014; Shannon et al., 2015; Widener & Li, 2014).

LeDoux and Vojnovic (2014) combined survey responses, sociodemographic census data, and distance-based and cumulative measures of accessibility to a range of store types to determine the associations between behavior and many definitions of accessibility. Shannon et al. (2015) similarly used a spatial-statistical model to determine the influence of different food environments on household food insecurity. On another methodological front, space-time models have been used to model variations in access more extensively than at one point in time (Chen & Clark, 2013; Horner & Wood, 2014). Another area of inquiry has connected GPS tracking of smartphones and computers to food-related content on social media, and found that areas with poor access to healthy foods have more content oriented around unhealthy foods (Chen & Yang, 2014; Widener & Li, 2014). In every case, the goal of such research is to highlight the importance of individual context within neighborhood-level food environments.

Incorporating this same emphasis on technology, a related strain of research has focused on better understanding how people are exposed to healthy and unhealthy foods by using GPS tracking to capture activity spaces, with the end goal of predicting environments where people are more likely to consume unhealthy foods (Rainham, Krewski, McDowell, Sawada, & Liekens, 2008; Sadler & Gilliland, 2015). Even while refining these methods, however, researchers have cautioned that tracking should not be the primary or sole source of data when determining the important elements involved in addressing exposure to (un)healthy foods (Chaix et al., 2013; Nuckols, Ward, & Jarup, 2004). As discussed extensively in the literature above, the heterogeneity of individual behavior within any food environment means that intervention programming cannot only consider facilities within one neighborhood.

1.3. Why farmers' markets?

The current research is framed from this position, suggesting that although the literature on defining accessibility through well-articulated spatial models and measuring exposure through tracking of activity spaces is of critical importance, food environment research must also explore programs and interventions that transcend neighborhood food access as part of a multi-pronged approach to improving healthy behaviors. Researchers have indicated the improbability of a 'silver bullet' for resolving unhealthy dietary habits, and instead emphasized the necessity of programs that address not only access, but also food skills/knowledge and environmental cues (Algazy, Gipstein, Riahi, & Tryon, 2010; Hebda & Wagner, 2015; Neff, Palmer, McKenzie, & Lawrence, 2009).

One such venue for nutritional interventions is the community farmers' market (Singleton, Sen, & Affuso, 2015). A review article identified 12 studies which evaluated nutritional outcomes associated with participation at farmers' markets (McCormack, Laska, Larson, & Story, 2010), and others have pegged markets as key sites for addressing food insecurity, promoting food assistance programs, and delivering community nutrition projects (Holben, 2010; Maxwell & Slater, 2003; McCormack et al., 2010; Young, Karpyn, Uy, Wich, & Glyn, 2011). Farmers' markets are ideal sites for nutrition and food security programming because they primarily offer healthy foods, many focus on food skills and the use of whole ingredients in cooking, and interpersonal relationships with vendors offer the opportunity to casually learn more about the food being purchased. Researchers have also shown that the introduction of farmers' markets can abate food desert issues and serve social justice ends (Larsen & Gilliland, 2009; Wang, Qiu, & Swallow, 2014).

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