

1 Title: “If you Build it *with them*, they will come”: **What Makes a Supermarket Intervention**
2 **Successful in a Food Desert?**

3 **Abstract**

4 Using 71 planned supermarket interventions in food deserts, this study assesses the interplay
5 between regional geography, management models, policy drivers, financing and timing. We find
6 that community engagement and cooperative management models are important factors to
7 opening and sustaining a new store, and subsequent ability to improve the foodscape, built
8 environment and diet-related health. Findings show that none of the non-profit or community-
9 driven stores have closed whereas nearly half of the commercial-driven and one-third of
10 government-initiated cases resulted in cancelled plans or closed stores. Our research suggests
11 community engagement is a critical component of effective policies for healthy food access.
12 Future studies may wish to include measurements of community engagement with their case
13 studies to better situate explanatory findings.

14 **Highlights**

- 15 • Our study highlights the overlooked role of community engagement in implementing and
16 assessing health interventions.
- 17 • We use evidence from 71 supermarket interventions to reveal spatial and process-
18 oriented trends in establishing a new supermarket in a food desert.
- 19 • Our findings support the critique that the supermarket intervention model has been
20 piloted largely in major urban centers, not rural areas.
- 21 • Most supermarket interventions are initiated and driven by government interests at the
22 urging of a non-profit.
- 23 • A quarter of the planned supermarkets have closed or failed to open.
- 24 • Plans that incorporate significant community engagement in design and store
25 management show greater success in opening and staying open.
- 26 • Findings suggest that the community governance framework should be considered in
27 evaluating intervention plans and outcomes.

28
29 **Keywords:** neighborhood economic development; urban planning; community governance;
30 commons; public finance; community engagement

31 **Introduction**

32 In the United States and elsewhere, low-income communities and communities of color bear
33 disproportionate health burdens, in part due to spatial and economic disparities in the food
34 system (Algert et al., 2006; Beaulac et al., 2009; Walker et al., 2010; Gordon et al., 2011;
35 Brinkley et al., 2017). These spatial food system disparities are partially explained by a lack of
36 purchasing power to support a supermarket business model, and are often called ‘food deserts’

(Cummins and Macintyre 2002: 2115; Morland et al, 2002). In response, several city- and state-level, non-profit, and private programs began initiatives to establish new supermarkets (Chrisinger, 2015). At the federal level, the United States Department of Agriculture (USDA) began to focus on diet-related spatial data with the Food Atlas project. Here, food deserts were officially defined in 2008 as communities with either 500 residents or 33% of the area's population living further than one mile from a supermarket or ten miles away for rural communities (see Figure 1, USDA, 2017). According to the USDA, 23.5 million Americans live in food deserts distributed among 448 counties in the United States of which 98% are non-metropolitan, rural counties (Figure 1).

Informed by local policies and national data, First Lady Michelle Obama's 'Let's Move' Campaign urged congress to create the 2010 Healthy Food Financing Initiative (HFFI), which received \$125 million from the 2014 Farm Bill (Obama, 2012). The goal of HFFI was to improve "access to healthy food options while creating job and business development opportunities in low-income communities, particularly as grocery stores often serve as anchor institutions in commercial centers" (HHA, 2017). In addition to food access, supermarkets often act as economic generators by providing local jobs and offering the convenience of neighborhood services, such as pharmacies and banks (Bell and Standish, 2009). We refer to such efforts as 'supermarket intervention policies' after Lee and Lim's (2009) classification of *retail intervention policies*.

A group of major food retailers responded to the 'Let's Move' initiative in 2011 by promising to open or expand 1,500 supermarket or convenience stores in and around food desert neighborhoods by 2016 (Kraak et al., 2011). The effort had limited initial success. According to

“The Partnership for a Healthier America” report, the nation's top 75 food retailers opened approximately 250 new supermarkets in food deserts between 2011 and 2015, falling short of their goal by implementing only a quarter of the promised stores (Partnership for a Healthier America, 2017). Indeed, corporate consolidation and store closures are creating ever more food deserts (Isidore, 2017). Worse, some of the supermarket interventions have since closed, which can have long-term implications for a neighborhood’s status as a food desert, particularly if a retailer has placed deed restrictions on a property, preventing a competitive supermarket from opening in the same location (Peters, 2017). For example, only 10% of respondents reported that they shopped at the new supermarket introduced in 2009 in Flint, Michigan (Sadler et al., 2013). The supermarket subsequently closed in 2011 (Sadler et al., 2013). More broadly, evaluations of supermarket interventions find mixed results in terms of food desert residents’ shopping habits at new stores (Ulrich et al., 2015; Ghosh-Dastidar et al., 2017), purchasing of healthy foods (Dubowitz et al, 2015; Elbel et al, 2015; Cummins et al, 2014), or more downstream health outcomes, like body mass index (Cummins et al, 2014; Zhang et al., 2016). Such findings beg the following questions: under what circumstances does a supermarket intervention program work, which communities support it, and how long might such an intervention last?

[Insert: **Figure 1.** Food deserts in the United States. Number of people in a county living more than 1 mile from a supermarket or large grocery store if in an urban area, or more than 10 miles from a supermarket or large grocery store if in a rural area. Data from year 2015. No data were available for Alaska or Hawaii, and these states are not included. Source: USDA, 2018.]

Importantly, many of the above studies fail to parse community engagement in the planning and management of supermarket intervention projects as important contributing factors to neighborhood use, staying power, and overall ability of the intervention to transform the

foodscape, built environment and health. Emphasis on and assessment of community engagement has a long history ranging from Gandhi's cooperative movement of village development (1963), to the rise of participatory planning that sought to incorporate community input into development plans (Forester, 1999), and current project funding frameworks established by the World Bank (Mansuri and Rao, 2004). Because supermarket interventions require non-conventional funding through public or philanthropic investment in order to support non-profit or commercial retailers, community engagement occurs through a variety forms across multiple sectors to align mutual goals. "Community governance" provides a framework for understanding how such small-scale social interactions influence policy outcomes originating from government, non-profit and commercial sectors (Bowles and Gintis, 2002). A community governance framework can help make sense not only of different modes of community engagement within efforts, but also alliances across efforts where non-profits or commercial actors institutionalize their agendas in public policy. For example, Zitcer and Dilworth (2017) provide evidence from a Philadelphia-based supermarket cooperative where community engagement in development set the foundation for further involvement in the neighborhood's development trajectory by embedding community members in the work of non-profits, local government and the business community. Their findings are particularly salient for neighborhoods that have lacked local institutions with legitimacy in the policymaking process. A better understanding of how community engagement influences non-profit, philanthropic, commercial and government-driven supermarket interventions will help inform policies to spur wanted and lasting economic development and improved health.

Methods

With this research, we ask where and how the supermarket intervention model works best.

Because no comprehensive public database of supermarket interventions exists, we used Chrisinger's (2016a) cross-sectional strategy to develop a database of cases across the US from 2000 to 2016 (see supplemental material for database). Drawing from local and national media coverage, as well as multi-case reports from non-profit and academic sources (see Table 1) we compiled a set of 71 cases. Criteria for inclusion were 1) that a location was identified for a new (or reopened) supermarket, 2) the neighborhood was described as a food desert, and 3) the supermarket was identified as a way to increase healthy food access for local residents. To build a more complete understanding of each case, we sought additional media and reports, as well as supplemental sources such as blog posts, industry commentary, and Facebook pages. Local media often plays a large role in gauging community support or dissatisfaction with a development, and has been previously used by non-profit agencies in assessing 'community fit' for supermarket intervention projects (Harries et al., 2014), helping to validate our use of this resource.

The database included the following information about each case: location (exact address, census tract, and geo-coordinates; whether the location meets the USDA definition of a food desert, whether an existing food retail structure was on the lot); timing (date the project was announced and opened if applicable); project outcomes (in progress, open, closed, cancelled); store name and business model (for-profit national chain, for-profit local or regional business, cooperative, or non-profit); participating stakeholders and groups (individual names, community leaders, non-profits, private companies, and government officials); retail operation classification (local, regional or national chains); and funding (land donation, financial grant, tax credit, low-interest loan). Visual confirmation of store location was gathered through Google Street View. This

enabled the authors to verify the geo-coordinates, collect visual aesthetic and surrounding land-use qualities, and ascertain if the site was under construction or had changed names.

[Insert **Table 1: Sources from which database was compiled**]

Supermarket intervention project classifications were built from the “Community Governance” theoretical framework (Bowles and Gintis, 2002) and empiric findings provided in Pothukuchi’s 2005 national survey of inter-city supermarket development, and include five broad types (Table 2). A non-profit group, the local government, a private person, commercial interest, or a community group could initiate a new supermarket project, but the initial actor may not see the project all the way through to completion. Similarly, a store may be non-profit, commercial, or co-operatively managed. To parse cases into community governance categories we relied on a fuzzy logic model (Mendel, 2001) where programs could have multiple values, but were ultimately classified based on their primary driver during development, not initiator or resulting store management model.

- **Non-profit**-driven interventions included non-profits organizing meetings with city officials, retailers, and community groups during the planning stage of the project. Sometimes non-profits would partner with governmental agencies and commercial operations through public-private partnerships to manage the store beyond its launch.
- **Government**-driven projects included city and state officials or agencies recruiting retailers, facilitating development through land acquisition, zoning changes, and/or fast-tracked permitting, along with financing or subsidies from city, state and/or federal sources. In all cases, governments worked with for-profit supermarket retailers. The only

non-profit organizations involved acted at the behest of government initiatives such as state fresh food financing programs. Community members or local organizations were not actively involved in planning these developments.

- **Community**-driven cases represent situations in which local residents not only expressed the need for greater food access in their community but took the lead in bringing it about. These projects were conceived and carried out by local residents, who retain ownership/control of the store. The end result was a non-profit supermarket or cooperative ownership model. To meet the criteria for community-driven, cases had to have local resident ownership and control. Most cases also included at least two documented neighborhood meetings with community feedback that changed development.
- **Blended** models were similar to government-driven projects, but included a community member or local non-profit in some stage of project development. Either community members pressed a local leader to bring in a supermarket, or a non-profit Economic Development Corporation was involved in the planning process. However, community members or organizations were not involved beyond one such role. Some Economic Development Corporations are for-profit and some are non-profit, making it difficult to say how much they represent the community's or local government's interests. This category distinguishes between efforts where community members organize themselves "to create action or social change," described above as community-driven cases, and efforts on behalf of Development Corporations, which are often run by professionals outside the community (Stoecker, 1997).
- **Commercial**-driven development describes the process by which one retailer or

developer approached the city and community, and engaged in most of the project initiation, planning, development and operation activity, with little involvement of other stakeholders.

The extent of community engagement within each driver framework was considered both as a binary (yes/no), as well as with qualitative data on where and how community input was sought and engagement resulted in demonstrated changes to planning, store design and layout, and/or management practices such as hiring policies or products carried. Brief case studies highlight the interplay between geography, policy diffusion, management model, primary driver, financing and timing of supermarket interventions.

Findings

First, we describe the geographic distribution of cases in relation to other studies and the diffusion of supermarket intervention policies. Next, we provide background explaining this distribution in terms of policy efforts and need. We then divide cases by intervention drivers, financing, time to store opening, and outcomes to better understand why some stores in similar regions fail to open, while others do not.

2.1 Geographic patterns

Only five interventions occur outside of major metropolitan areas (Figure 2), reflecting the concerns of McEntee and Agyeman (2010) that despite a greater prevalence of food deserts in rural areas, the policy intervention is decidedly urban. Thus, the supermarket intervention is not clearly defined by where the need is greatest (Figure 1), but where city and state-level programs have gained political traction through a variety of different policy efforts. Moreover, the hotspots in Figure 2 represent clusters with many varied levels of success in opening and staying open,

perhaps more as a result of heavier experimenting and differing driving agents as opposed to endogenous place-specific variables for success.

Cases cluster in the Washington-Philadelphia-New York corridor and the northeast around Illinois (Figure 2), a finding supported by Chrisinger (2016a). This case clustering does not reflect where there are more food deserts regionally (Figure 1), but likely where a fulsome community governance framework could aid policy diffusion with investment from non-profits, local governments and industry. The northeastern hotspot can be largely explained by the efforts of a Philadelphia-based non-profit, The Food Trust, which initiated a focus on food deserts in 1992 after several studies pointed to the lack of supermarkets throughout the City of Philadelphia (Perry, 2001; Chirouze et al., 2010), ultimately leading to the creation of a statewide public-private financing program, the Pennsylvania Fresh Food Financing Initiative (FFFI), managed through a partnership between the Commonwealth of Pennsylvania and two other non-profits. A community development financial institution (CDFI) administered The Reinvestment Fund (TRF) beginning in 2004. The State seeded the program with a \$30 million grant, which TRF leveraged with \$145 million in additional investment to provide loans and grants. FFFI attracted 206 applications from across Pennsylvania, emphasizing interventions in both rural and urban food deserts, with 88 projects financed. All the supermarket projects funded were independent or regional chains, including cooperatives and non-profit-run supermarkets. In total, more than \$73.2 million in loans and \$12.1 million in grants were approved before the program ended in 2010 after all of its funds were deployed (TRF, 2017). Several studies investigated the impact of FFFI efforts. Econometric analysis on two supermarkets from FFFI's program in Philadelphia found that housing values increased 4-7 percent (average \$1,500) while staunching depreciation (Econsult, 2006). A study by TRF found that new supermarkets reduced the leakage of food

219 retail expenditures and resulted in a net increase in employment for nearby communities
220 (Goldstein et al., 2008).

221 Pennsylvania's successful policy efforts spread along with the supermarket intervention model as
222 The Food Trust authored several reports for cities and states. New York implemented a state-
223 level program, followed by Illinois, and California, all showing up as hotspots on the
224 supermarket intervention map (Figure 2). California's FreshWorks Fund is a financing program
225 that invests in supermarket development and is modeled explicitly after Pennsylvania's FFFI to
226 provide public financial support, structure tax incentives and facilitate land donations (Press
227 Release, 2011).

228 Not all state-level efforts were successful. Research and spatial mapping by the Food Trust
229 (2005) showing the links between limited supermarkets and diet-related deaths, prompted the
230 formation of the Illinois Food Marketing Task Force, which included the Philadelphia-based
231 Food Trust. For instance, state-level initiatives stalled when the Food Trust withdrew from the
232 partnership. The \$10 million in seed grant funding provided by the state through the 2009 Illinois
233 Senate Bill 1221, Section 200 was never dispersed.

234 Cities were arguably more responsive to policy diffusion and better able to realize success than
235 states. Of the six city-level reports from The Food Trust, four were published before 2016 and
236 are associate with successful cases as seen in Figure 2 (Miami, Florida; New Orleans, Louisiana;
237 Houston and Dallas, Texas). Other cities initiated processes without formal engagement from
238 The Food Trust. New York City is one such hotspot on the map (Figure 2). In 2008, New York's
239 City's Mayor's Office requested a study on supermarket access from the Department of City
240 Planning, the New York City Food Policy Coordinator, the NYC Economic Development

241 Corporation (NYCEDC), and the Department of Health (DOH). The following year, New York's
242 Food Retail Expansion to Support Health (FRESH) was initiated, resulting in the construction of
243 13 supermarkets by 2017 (NYC Fresh, 2017).

244 As supermarket policy diffused, the drivers changed, influencing the success of different regions
245 in opening supermarkets that would stay open. In a parallel process to the stalled efforts of
246 Illinois State, the City of Chicago pursued supermarket interventions resulting in a prominent
247 hotspot (Figure 2). Unlike FFFI's Pennsylvania-based efforts, Chicago's supermarket
248 interventions followed a decidedly top-down approach. Government and commercial interests
249 drove most of Chicago's interventions, representing four of the five cases in Chicago. Incoming
250 Mayor Rahm Emanuel's 2010 transition plan called to "eliminate food deserts in Chicago" as a
251 top initiative, noting that more than 600,000 Chicagoans (22 percent of the city's 2.7 million
252 residents) lack a proximate supermarket (Emanuel, 2011). After convening "a private meeting of
253 food store CEOs," Mayor Emanuel "promised to help fast-track paperwork and create incentives
254 to open new groceries [grocery stores] in underserved communities" (Eng, 2011). In 2011, as
255 part of her national Let's Move campaign, First Lady Michelle Obama promoted a plan by Wal-
256 Mart, Walgreens, and Supervalu stores to open hundreds of supermarkets in Chicago's food
257 deserts (Byfield-Green 2011). A reporter at *The Nation* suspected that "the retailer's newfound
258 interest in food deserts is a public relations push designed to help it finally gain entry into
259 lucrative urban markets from which it has long been excluded, thanks to grassroots opposition"
260 (Huber, 2011, para 8).

261 [Insert **Figure 2**. Map of case studies in relation to U.S. counties and census-defined Urban
262 Areas. Urban Areas (UA) in the United States are defined by the U.S. Census Bureau as

contiguous, densely settled Census blocks and block groups that meet minimum population density requirements (1000 people /sq mi or 390 persons/km²), along with adjacent densely settled census blocks with a density of at least 500 people/sq mi (190 persons/km²) that together encompass a population of at least 50,000 people. UAs are delineated without regard to political boundaries. The dataset covers the 50 States plus the District of Columbia within United States.]

2.2. Community Governance models in supermarket interventions

Our findings are similar to Pothukuchi's (2005) in that the 32 cities she surveyed varied widely within and across in policy approach and driving agent (e.g., private developer, city planner, or community based organization). The purpose of her study was to draw attention to the breadth of initiative drivers in order to make recommendations to community and economic development planners for successful investment in underserved areas. Our parallel finding is worth pointing out precisely because so many studies on the impact of supermarket interventions fail to parse development drivers as important to outcomes. In 21 of our cases, government entities initiated and drove the development process (Table 2), whereby state financing initiatives and/or city officials worked with private developers and/or retailers to facilitate the supermarket intervention. Five cases were led by the government-funded financing agencies (FFFI in PA, IFF in IL, LIIF in NY). These agencies are technically non-profits, but are categorized as government entities because they distribute state funding to meet state directives. In these "government-initiated" cases, government activity included recruiting retailers, facilitating development through land acquisition, zoning changes, and/or fast-tracked permitting, along with financing or subsidies from city, state and/or federal sources. Many of these cases were part of larger plans to (re)develop entire shopping centers, with the supermarket as an anchor tenant.

Industry partners often included local developers and real estate holding companies along with

286 commercial retailers. In most cases, public officials such as the mayor or city councilmember(s)
287 participated in press conferences announcing the project or celebrating the store's opening.
288 These cases, like the commercial-driven cases, involved few neighborhood non-profit or
289 community stakeholders in planning. Community engagement was limited to gauging general
290 interest in a supermarket using intercept polls and other measures or donating to local
291 community groups. Community input was not sought on specific elements of store design or
292 food preferences. The targeted efforts of The Food Trust to work with city and state governments
293 helps explain this category of drivers as the largest, followed by non-profit and community
294 models (Table 1).

295 Twelve cases were typed as "blended" because their development process was similar to the
296 "government-initiated" cases, but included community groups or local residents. In five of these
297 cases, local residents had initiated the process by lobbying city leaders to bring a supermarket to
298 their community. In one case, the developers held a community engagement meeting before
299 opening the store. In another six cases, non-profit Economic Development Corporations were
300 key actors driving the development. We counted these cases as "blended" rather than "non-profit
301 driven" because Economic Development Corporations vary to the degree that community
302 interests beyond development and economic growth are the driving focus, and the degree to
303 which such entities form at the behest of local governments or developers (Stoeker, 1997).

304 In eight cases, we identified a commercial-driven development process (Table 2) in which one
305 retailer or developer engaged with little involvement of other stakeholders. These projects ranged
306 from smaller-scale supermarkets to multimillion-dollar retail complexes, all of which were
307 conceived of and executed (or attempted) by a single entrepreneur or commercial organization.
308 Five of the commercial entities were local retailers and three were regional or national grocery

chains. All of these entities funded their developments primarily through private capital or traditional lenders, though two involved less than \$300,000 of government subsidy (tax increment financing in one case, and state initiative funding in another).

Local non-profit organizations played a more substantive role in 12 cases. These cases are characterized by multi-stakeholder engagement, including convening of city officials and retailers with community groups and local non-profit organizations during the project planning stage. In all non-profit cases, we identified at least two ways in which community groups and local residents appeared to be involved in the planning process. Indeed, community engagement is often a necessary component to many non-profit efforts. Harries et al. (2014) describes the process that The Food Trust, a non-profit, uses in evaluating grants for supermarket projects, which sometimes involves site visits and calls “with community partners, including community and economic development officials, community health agencies, and/or other civic leaders.” Developers involved in the non-profit model adjusted store designs and/or product offerings in response to community desires expressed in planning meetings. In five of the non-profit driven cases, local non-profits such as universities or food banks maintain a significant role in store management. Two other cases involved non-profit consultants during development, with the goal of improving community health. Eight cases secured grants or loans from non-profit foundations. In all but two of these cases, local government was also an active force in planning and/or financing the supermarket intervention.

The remaining 18 cases were developed through a “community-driven” process in which government and industry partners had smaller roles. In these cases, local residents not only expressed the need for greater food access in their community, and helped initiate projects to achieve positive solutions. As with the non-profit process, community engagement meetings

yielded modifications to the plans, often additional features such as a community room or space for local art. Five of the community-driven cases included grants or loans from a government agency, and one project required rezoning, but in none of these cases were city officials (or commercial entities) the major drivers of the development. While most other cases sought to establish conventional commercial supermarkets, thirteen of the community-driven developments were structured as cooperatives and the other two as new non-profit entities (Table 3).

[Insert: **Figure 3.** Timeline of fundraising and opening. Fundraising includes only public funding in the form of grants or low-interest loans as well as crowd-funding, such as co-op membership drives. Fundraising excludes traditional loans and private investment. Cases without funding information are included on the bottom of the graph.]

2.3 Community engagement across governance types

The level and form(s) of community engagement varied across case types. Government- and commercial-driven projects generally involved the least community engagement; donations to local non-profits, schools or community groups were the most common form of outreach for projects in these categories. Few appeared to hold community engagement meetings during the planning process, and while some attempted to tailor product offerings to local tastes, others did not appear to solicit or incorporate community input about preferred foods or price points.

Blended cases included more community engagement, but this rarely translated to influence over store design or management. In half of the blended cases, community members pressed local development corporations or elected officials for a grocery store, and highly-engaged community members were sometimes invited to speak at the stores' grand openings. A third of the blended projects held community engagement meetings during the planning phase, but community

groups often came away from the meetings with concerns about transparency or hiring practices.

In contrast to government, commercial-driven and blended cases, non-profit driven projects commonly included community engagement meetings that produced changes to the store design or management, such as revised layouts, building facades, product offerings, and hiring practices. Community-driven projects generally involved not only community engagement meetings and adjustments to store design and management, but also features such as community rooms, locally sourced produce, and arts and cultural events. For example, planners of a Baltimore ShopRite redesigned the parking lot so that the bus stop would be right outside the store entrance; the store also carries desired items such as fast food alternatives and added a Halal butcher for the large Muslim community in the neighborhood (The Reinvestment Fund 2014; Melser 2014). Similarly, when the Seward Community Co-op sought to open a second location, they responded to local residents concerned that the store would not reflect the neighborhood by changing their hiring practices to increase the number of community members and people of color employed (Pagani 2016).

2.4 Financing the intervention

Where financing data were available, we found that government-led and non-profit efforts used more public funding. Community-initiated models resulted mainly in cooperatives, which required less public capital (Figure 3). We suspect that community-driven efforts are lower in square footage, thereby explaining lower construction and development costs. Yet, cooperative models also rely on local social networks for development, management, and financing, and the crowd-source fundraising stage of co-operative development may double as a marketing campaign. There is also a national network of cooperatives which provided consultation and access to financing for some of the new cooperatives. Wild Root Market in West Racine, WI and

Clifton Cooperative in Cincinnati OH are two cases which demonstrate this benefit. In addition, alternate programs for cost savings would be more attractive to commercial enterprises than non-profits and cooperatives, such as tax abatement programs and land donations. Local governments might also be more willing to take risks by offering public funds for commercial driven efforts when experimenting with a supermarket intervention because they stand to generate revenues from higher property taxes should the surrounding land appreciate.

2.5 Timing of interventions

Commercial-driven efforts had some of the shortest initiation-to-opening times (average: 1.7 years) when compared to lengthier set-up processes by non-profit (average: 4 years) and community-driven models (average: 3.9 years; Figure 3). Government-initiated efforts ranged from short set-ups to some of the longest planning periods. The nature of development models may help explain such differences. Non-profit and community-driven efforts often included multiple meetings with community groups, plan revisions, grant-seeking from local governments, and partnerships with commercial interests. Such involved planning processes may take more time than privately driven developments, especially those with fast-track permitting and/or land use assistance from local governments.

Logistical or practical constraints on project timelines may also influence implementation drivers. For example, the push to implement a successful policy may push government-driven efforts toward commercial management over the slower cooperative and non-profit models. Chicago provides an example. The benchmark for success in Chicago's food desert initiative was first changed one month after Mayor Emanuel took office by redefining "food desert." After two years, the food desert classification was changed again to only include low-income residents living half a mile away or more from a 10,000 square foot store. With the new standards, only

100,159 Chicagoans, as compared to the original more than 600,000, lived in a food desert (Ruthart, 2016). A push for policy success may also have contributed to an emphasis on large corporate management models in Chicago’s initiative, and ultimately more intervention failures as time-consuming community engagement was bypassed in the planning phase (Figure 2).

2.6 Intervention outcomes

Outcomes varied across models, with non-profits and community-driven efforts achieving the greatest success. There were four possible outcomes: canceled (7), opened then closed (11), open (45), and in-progress (9) (Table 2). Comparing the development process to store status, we find that while all categories have produced stores that successfully opened, none of the stores opened through a non-profit (9) or community-driven (13) process have closed (Figure 3, Table 2). Further, if canceled plans or a store closing are considered failures and an open store is considered a success, then the success rates for stores with substantive community engagement are higher. Nearly half of the commercial-driven cases and one-third of government-initiated cases have failed compared to roughly ten percent for community-driven and non-profit efforts (Table 2).

[Insert: **Table 2.** Development model and status of supermarket]

[Insert: **Table 3.** Management model in comparison to driver]

2.7 Case Studies

We provide case examples of failure and successes for each of the categories of drivers to illustrate patterns in the arc from project initiation to successful store opening. Closer examination of the canceled and open-then-closed cases reveals further evidence of the relationship between community engagement and successful supermarket intervention.

2.7.1 The Blended Model

First, an example of a blended model project in Pittsburgh, Pennsylvania’s Hill District highlights one success tied to community engagement efforts. The Hill District, one of the city’s largest lower income and majority-African American neighborhoods, had struggled with waves of upheaval, relocation, and redevelopment resulting from urban renewal policies and programs of the previous several decades. While community-owned grocery stores had been a mainstay of the Hill District throughout this struggle, long-term sustainability remained elusive, and by the early 2000s, the neighborhood was again a “food desert” (Taylor, 1974; Carter, 2013). A series of mega-projects, like a retractable-roof sports complex in the 1950s and a new hockey arena for the Pittsburgh Penguins in the early 2000s, had also engendered feelings of animosity between local government officials and Hill residents, who had grown increasingly skeptical that city or developer promises would be kept (Carter, 2013). However, during the planning and construction of the city’s new hockey arena, a strong coalition of community economic and religious leaders was able to successfully demand accountability from these powerful parties. These negotiations resulted in a legally-binding, 40-page Community Benefits Agreement (CBA) that defines exactly how and when the Hill District residents can expect to benefit from the project, including significant financial commitments from the city to build a large grocery retailer in the neighborhood (Hill District Community Benefits Agreement, 2008; Young, 2008).

Though the project struggled with delays and ultimately required additional subsidy than originally anticipated, a new “Shop ‘N Save” supermarket opened in 2013, with neighborhood residents holding many of the employment opportunities it provided. The four other successful blended interventions have similar histories: Pete’s Fruit Market in Milwaukee, WI, ALDI in Kansas City, Missouri, Fresh Grocer near LaSalle University in Philadelphia, and the Tatum Food Market in Tatum, NM.

The Philadelphia neighborhood of Mantua is a “Blended Governance” case where community engagement led to cancelled plans. Lacking a civic association, Mantua could not lobby for public grants nor private investments for a supermarket to replace the one destroyed by a fire over twenty years earlier (Sibilla, 2014). The councilperson pushed for the Mantua neighborhood to be designated as a federal Promise Zone, making it eligible for supermarket intervention funding. The proposed supermarket would be financed by a non-profit development agency, the Mantua Community Improvement Committee (MCIC). The MCIC president was one of the principal investors for the Strong Investments, LLC, a development company interested in constructing the supermarket. The MCIC president was also a contributor to the councilperson’s campaign, prompting calls of political graft (Stehle, 2013). The councilperson used eminent domain to claim an artist’s studio as the site for the new supermarket. The artist, James Dupree, was a prominent Philadelphia muralist and long-time Mantua neighbor. He rallied community support and ultimately defeated the eminent domain claim with the aid of the non-profit Institute for Justice legal team (Sibilla, 2014).

In at least two other successful intervention cases, city officials used condemnation proceedings to obtain land, and in many cases the city purchased lots and then sold them at a steep discount to

supermarket developers. These cases include Meijer in Detroit, MI (a commercially driven model) and the ALDI in Kansas City, MO (a blended model), which is also the case that took the longest to develop (Figure 3). However, the attempted use of eminent domain against the Mantua artist, whose property was occupied and well-maintained, appears to have been a poor strategy for rallying public support. When the redevelopment authority announced cancellation of its plans in Mantua, they cited neighborhood opposition and court victory against the eminent domain proceedings as the reason for abandoning the supermarket intervention. No other location was proposed in its place.

2.7.2 Government-driven cases

A new supermarket may not always be considered a success for the host community. Such an example is found in New Orleans's St. Roch Market, where graffiti artists vandalized the building with slogans such as "yuppies= bad," and local residents charged officials with intentionally spurring gentrification rather than delivering on a promise to renovate the building as a reasonably priced grocer (White, 2015). Such instances of "successful" interventions that bypass usership and acceptance by the immediate low-income community neighbors due to pricing have been linked to gentrifying neighborhoods and are referred to as "food mirages" due to plentiful, but unavailable expensive food options (Breyer and Voss-Andreae, 2013). The leverage of supermarket interventions to spur economic development in the absence of host community engagement and subsequent usership illustrates the danger of supermarket intervention policy success in relation to other, evidenced programs of improving healthy food consumption, such as Supplemental Nutrition Assistance Programs (SNAP) and Special Supplemental Nutrition Assistance Program for Women, Infant and Children (WIC) (Wolf-Powers, 2017).

Other government successes included supermarkets as part of larger development plans, such as a shopping center or mixed-use affordable housing project. For example, in Dallas, Texas, city councilman Tennell Atkins secured \$2.8 million in public funds for a local developer to build a supermarket and apartment complex in a food desert that grocers considered too risky because of both poverty and low housing density (Martyn, 2014). The city contacted numerous large retailers to find a tenant for the grocery store, and eventually secured a lease with discount retailer Save-A-Lot. About half of the successful government-driven interventions (6 out of 14) paired grocery stores with other commercial or residential development.

Store closures in this category often resulted from a reported lack of community use. By way of explanation, the speed of set-up for many stores (Figure 3) may run counter to the time needed to engage host communities in site planning, store management and subsequent usership.

Government-driven interventions that failed also often left behind unpaid debts to the public funding agents. For example, The Fresh Grocer in New Brunswick, NJ closed after just 18 months. The supermarket was funded by the New Jersey Food Action Initiative, local tax credits, conventional bank financing, and private equity. The New Brunswick Parking Authority spent millions of public dollars to acquire and assemble parcels for the project (Kratovil, 2014). While such failures left state and non-profit agencies with unpaid loans and their host neighborhoods with disappointment and vacant buildings, the Fresh Grocer also operates some of the longest-running FFFI supermarket interventions, complicating a view of policy success in a trying urban climate. In our sample, 3 out of the 5 government-driven interventions that resulted in store closure ended with a large debt (\$100,000 or more) to the funding agencies. Two other failed government-driven interventions involved planned stores that never opened (Table 2).

2.7.3 Community-driven cases

The only community-driven case that is listed as “canceled” is a cooperative whose backers determined that the initial location they identified would not be financially feasible (Table 3). They identified a new location in 2014, and are still in progress toward opening that store (a development effort which, due to the location change, is included in our database as a separate case). The members of this cooperative, Wild Root Market in Racine, WI, have been raising money and consulting on store development since 2011. They secured a suitable location in 2014 and plan to open the store in fall 2018. This long development timeline is typical for community-driven projects and co-operative stores in particular, which require a lengthy process of fundraising and community engagement in the design process. Reflecting this longer process, 4 of the 18 community driven cases in our sample have not yet opened; however, 13 of the community-driven cases have opened, and none of these have closed. Most community-driven cases produced cooperative grocery stores (Table 3). Indeed, the only cooperative model to fail was categorized as a blended rather than community-driven case, due to lack of community engagement. The host community residents were not involved in the cooperative planning, financing or management.

2.7.3 Non-profit-driven cases

Host communities often propel the success of non-profit-driven models, such as Fare and Square in Chester, PA, a nonprofit store developed through the work of Philabundance, a local food bank. Recognizing growing need in his community for access to fresh food, Philabundance’s director consulted with local academic experts and regional grocery chains to develop a nonprofit store model. Fare and Square was funded through a combination of federal, state, and local financing, as well as numerous donations from local businesses, nonprofits and individuals.

536 Out of nine successful nonprofit-driven interventions, four involved extensive fundraising
537 campaigns in the local community. All nine of the successful nonprofit-driven efforts involved
538 some form of concerted community engagement, whether a fundraising campaign, a series of
539 community engagement meetings that resulted in changes to store design or product offerings,
540 collaboration with local farmers to source local produce, and/or crafting a community benefits
541 agreement.

542 Yet, non-profit models often take a long time to become established (Figure 3), and can thus
543 jeopardize their own success. For example, the “Truman Medical Center” non-profit-driven
544 effort in Kansas City, Missouri was canceled when a blended-model driven intervention
545 established a commercial Aldi supermarket (also in our database) a mile and a half away,
546 changing the demand forecasting (Horsley, 2015). The city supported ALDI’s proposal with \$5
547 million in tax increment financing and condemnation proceedings to acquire the property. This
548 development, first proposed in 2004, finally came to fruition in 2014 – after Truman Medical
549 Center had invested 4 years in its own efforts to bring a supermarket to the community. This case
550 helps highlight the interplay between project planning and timing for various models in relation
551 to success of the project. Because non-profit and community-driven efforts typically have longer
552 set-up times (Figure 3), they can be warranted unnecessary by faster moving commercial efforts.

553 In three other cases, simultaneous intervention plans resulted in two stores being opened in close
554 proximity, with one of the stores later closing. In Milwaukee, a blended-model intervention
555 opened and then closed across the street from a nonprofit-driven intervention. In Chicago and
556 Philadelphia, two stores from the same company (Wal-Mart and Fresh Grocer, respectively)
557 were opened within two miles of each other, both through government driven interventions.

2.7.4 Commercial-driven cases

More broadly, the supermarkets which opened and then closed provide further evidence for the importance of community engagement (Table 2). All eleven of these stores closed due to low revenues, suggesting that residents did not patronize the store as much as expected. A study by TRF showed that there are added operating and ongoing costs to operating supermarkets in low-income neighborhoods (Goldstein et al., 2008) beyond the already shrinking profit margins experienced at the national level (Meyer, 2017). Community support is all the more critical against such odds. While two retailers in this study appeared to conduct informal surveys of nearby residents before opening, they simply asked about their interest in a supermarket rather than engaging them in a dialogue about what kinds of products they would want (Daniels, 2011; White, 2011). In seven of the other cases, the retailers did not survey the community at all – and in two cases, the mismatch between food preferences of local residents and food provided at the store was cited as a direct reason for the store’s closure (McCleary, 2015; Kratovil, 2014). One failed intervention did involve community engagement meetings before opening and changes to the product mix that reflected community preferences. However, the supermarket was not in a food desert by the time the store opened; rather, it was located across the street from another new retailer with similar offerings.

Limitations

Our dataset is the first open access compilation of supermarket interventions. In assembling our database, we aimed for sufficient breadth to ensure that patterns observed in our data were valid representations of wider phenomena; however, our sample only includes cases described in detail in media, industry, academic or non-profit reports. To this end, media may cover certain stores or financing models in more detail than others, thereby introducing bias into our sample and

perception of cases. Though unlikely, projects could have had community engagement that went undiscovered by this study, or may have used methods (e.g. public hearings) that we did not access in this study. However, our review of funding methods, public discourse, and trade literature is likely to reveal community engagement when it occurs because such engagement requires funding and time to plan community feedback into development schedules, and offers public relations opportunities with media coverage especially where community feedback results in changes to plans. As such, our findings identify important variations in order to highlight trends in supermarket interventions broadly, drawing attention to practices that tend to succeed and those that may be more likely to result in failure.

Conclusion and Future Direction: “Nothing About Us Without Us”

Comparing the staying power of various supermarket development and operating models provides important information for communities who wish for lasting intervention. Our finding that commercial and government-driven models with little community input have the highest rates of intervention failure should serve as a caution. Where nearly as many of the commercial and blended efforts have closed after opening as those that have stayed open, none of the non-profit or community-driven have opened and then closed (Table 3). The constellation of civil society, business and government involvement best suited to eradicating a food desert long-term appears to be significant community engagement with local government and non-profit support as well as cooperative management models. Policies to support successful interventions will want to be supportive of, if not preferential toward such models. For example, community engagement in site planning and store management can be important features of financing or land donation agreements. Such considerations are especially important when one considers the

cooperative model. Though cooperatives are a small portion of firms, they appear to be an efficient and enduring business model, but one that, like non-profits, does not necessarily benefit from tax credits that privilege investor-owned companies (Molk, 2013). In wooing successful intervention models, city finance experts will want to be savvy about how financing shapes the mode of intervention.

Findings from the 71 case studies are supported and help more broadly explain previous studies where new supermarkets built without community support are not readily adopted by local residents (Dubowitz et al., 2015; Ghosh-Dastidar et al., 2017) or where a new cooperative supermarket helped spur long-term economic development (Zitcer and Dilworth, 2017). Future studies may wish to include a community governance framework for case studies to help better explain findings related to place-based economic development and health outcomes. It stands to reason that with communities invested in the planning, siting and management process of a new supermarket, they will be more likely to use the new venue, thus helping a new store stay open. Supermarkets are anchor institutions, enterprises of high usership that are rooted in their communities by shared social values, invested capital and relationships to customers and vendors. Yet, without usership, they are vacant buildings. Further, the health changes expected from introducing a supermarket into a food desert are predicated on usership. Community engagement helps foster such usership from the host community and may be important to shifting other aspects related to health such as shopping habits, eating habits and diet (Chrisinger, 2016b).

The community governance framework also helps track the rise of the supermarket policy intervention to the directed efforts of the non-profit, The Food Trust. The geographic distribution

of intervention attempts are evidence of alliances between government, industry, non-profit and community partners particular to each location. Here, a community governance framework reveals a potent local approach, focused on community organizing rather than short-term policy benchmarks, and state-driven efforts. While state financial and policy support is helpful, local efforts drive right-sized interventions catered to their specific location.

In addition, though the Philadelphia-based FFFI flagship program set the stage for even focus on rural and urban areas in the Pennsylvania-based program, this model has not been widely replicated in rural food deserts. That few rural locations have taken advantage of the policy focus on food deserts and attending public financial aid for the array of non-profit, local government, community and commercial interests, may be a signal that rural communities have other coping mechanisms beyond supermarket interventions (Brinkley et al., 2017) such as “informal food economies” (McPhail et al., 2013). In turn, the structural social network differences in civic engagement between urban, suburban and rural areas likely have implications for both governance and health (House et al., 1998), representing unexamined considerations for healthy food policy.

In turn, projects that engage the host community may lengthen the development process but ultimately benefit from greater long-term success. This finding emphasizes the Ostromian adage that when governing the commons, all parties need a voice, including and especially those whom the policy intervention seeks to reach and serve (Ostrom, 2015). When conditions of inclusion are met, the community governance model thrives along with the communities it serves. As the food retail landscape continues to shift into the future, including additional store consolidations and closures (Isidore, 2017), investing in sustainable models will become an important protective measure for the health of individuals and their local economy.

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976 **Table 1: Sources from which database was compiled**

<i>Source Type</i>	<i>Sources Used</i>
Academic literature	Cummins, Flint and Matthews 2014; Dubowitz et al. 2015; Elbel et al. 2015; Fife 2012; Sadler, Gilliland and Arku 2013; Ulrich, Hillier, and DiSantis 2015;
CDFI / FFI / non-profit reports	Institute for Local Self-Reliance 2008; National Association of Counties 2010; Pennsylvania Fresh Food Financing Initiative 2010; The Food Trust 2013; The Reinvestment Fund 2011; Indiana Cooperative Development Center 2017
News articles	Best of New Orleans 2015; Chicago Now 2012; Civil Eats 2016; Convenience Store News 2014; KQED Berkeleyside NOSH 2015; Milwaukee Neighborhood News Service 2015; Monterey Herald 2015; Progressive Grocer 2011; WRIC Newsroom 2016; WUWM Milwaukee Public Radio 2014; other articles from local, regional and national news sources such as Cincinnati Magazine, The Daily Press (Newport News, VA), Greensboro News and Record, Village Free Press (Maywood, IL), New Orleans Advocate, MLive (Michigan), Oregon Live, Charleston Chronicle, Chicago Tribune, Kansas City Star, Philadelphia Inquirer, New Orleans Times-Picayune, The Business Journals, Forbes, Huffington Post, Washington Post, and New York Times.
Supplemental sources	Commercial websites or official Facebook pages of stores; related government, industry or non-profit press releases; local blogs; Yelp

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980 **Table 2.** Development model and status of supermarket

	Cancelled	Opened then closed	Open	<i>In progress</i>	Total by Retail Model
Blended: government	2	3	4	3	12

and community					
Government	2	5	14	0	21
Commercial interest	1	3	4	0	8
Community	1	0	13	4	18
Non-profit	1	0	9	2	12
Total by opening progress	7	11	44	9	71

Table 3. Management model in comparison to driver

	Co- operative	Nonprofit	Local retailer	Regional retailer	National retailer	n/a (never opened)
Blended: government and community	1	0	5	2	2	2
Government	0	0	9	4	8	0
Commercial interest	0	0	5	2	1	0
Community	16	1	1	0	0	0
Non-profit	1	3	2	2	4	0