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Access to Grocery Stores and Food Security in Dallas

By

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Abstract: Using geo-spatial information about the locations of grocery stores and neighborhood characteristics from U.S. Census and Texas Health and Human Services data, this paper presents a map of neighborhoods in Dallas County, Texas, classified according to the number of grocery stores within a one-mile radius. Neighborhood characteristics are compared to address the question of which residents are most affected by lack of access to grocery stores. Neighborhoods without grocery stores tend to be low-income, with the greatest concentration of no-grocery-store neighborhoods in southern Dallas. These stylized facts are considered in light of contrasting economic and psychological theories of consumers' dietary decisions and firms' choices of location.

Keywords: food security, grocery stores, neighborhoods, imitation

JEL Classifications Codes: D30, H20, I10, I30, J15, J18

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Access to Grocery Stores and Food Security in Dallas

I. Access to Stores and Food Security

Many of us take for granted that there are grocery stores in our neighborhoods selling a wide variety of nutritious foods at relatively low cost. This paper reports new evidence suggesting that access to reasonably priced, nutritious food is a much more difficult problem than is commonly recognized, affecting more than 400,000 residents in Dallas County, Texas.

The issue of lack of access to reasonably priced and nutritious food in low-income neighborhoods has been documented in a number of American cities by social scientists and medical researchers (Anderson, Butcher, & Levine, 2003; Haas, Lee, Kaplan, Sonneborn, Phillips, et al., 2003; Block, Scribner, & DeSalvo, 2004; Gary, et al., 2004; Ball & Crawford, 2005). One key finding is that healthy foods necessary for following dietary guidelines issued by mainstream medical and government health organizations are mostly unavailable in low-income neighborhoods (Jetter & Cassady, 2005). Drewnowski, Darmon, and Briend, (2004) report that healthy food costs considerably more, providing computations of the additional cost per calorie for diets rich in healthy food in the United States and abroad. In a related finding, the food that *is* available in low-income neighborhoods typically contains high concentrations of unhealthy fats, carbohydrates, and additives, which contribute to health problems such as obesity, diabetes, and heart disease (Gordon-Larsen, Adair, & Popkin, 2003; Bowman, Gortmaker, Ebbeling, Pereira, & Ludwig, 2004).

Another fact relevant for understanding recent trends in obesity and its complications (Zhang & Wang, 2004) concerns the economics of food. While the price of fresh fruit and vegetables increased substantially over the last 100 years, the average price of one calorie remained almost the same, thanks to cheap foods with high densities of energy—that is, high fat, high sugar, and high concentrations of other carbohydrates (Drewnowski, 2003; Drewnowski & Darmon, 2005).

Most policy approaches aimed at improving unhealthy diets in low-income areas have focused on education. The behavioral model underlying such interventions is essentially the economic cost-benefit framework, whereby consumers are assumed to weigh a large set of dietary alternatives, compute the costs and benefits of each, and ultimately choose the one with highest net benefits. Education interventions depend on the assumption that decisions about what to eat are a function of the information consumers possess.

Unfortunately, these interventions have not achieved much in terms of modifying observed behavior (Horgen & Brownell, 2002; Brownell, 2005), with critics pointing to neglect of the important role of the food environment, defined by either the availability or lack of healthy food. In contrast, initiatives with similar aims of modifying individual dietary decisions—but using tools based on the theory that the structure of the food environment is the most important determinant of what people eat—have achieved

impressive successes in the United States (Swinburn, Egger, & Raza, 1999; Borron, 2003; Wansink, Painter, & Lee, 2006) and abroad (Catford, 2003).

Lack of access to a grocery store typically means lack of access to fresh vegetables, fruits and meats. For those who buy food primarily from convenience stores and fast food restaurants, more than convenience is at stake. Eating healthy is notoriously difficult when one is surrounded by only unhealthy food alternatives. Eating healthy is especially difficult for low-income consumers because healthy food is significantly more expensive than the unhealthy foods that offer more calories per dollar spent. The diet that results from exposure to environments with limited access to healthy food subjects residents living in such environments to high risks of obesity and other pathological health outcomes.

This paper relies on geo-spatial data bringing together location information about grocery stores and data collected by the Texas Health and Human Services Commission (HHSC) and the U.S. Census Bureau. These data allow us to present a map classifying neighborhoods by the number of grocery stores within one mile, and facilitate computations of neighborhood-level spatial correlations linking three key variables: lack of access to grocery stores, median neighborhood income, and number of clients of HHSC programs. This empirical evidence is intended to contribute toward answering whether the current spatial distribution of food suppliers achieves satisfactory food security, indicated as a research priority in the theoretical work of Sobal, Khan, and Bisogni (1998).

As applied to Dallas County, a secondary aim is to provide policy makers with suggestions based on economic and psychological theory concerning how to improve food security. Even in the absence of consensus on any one approach to addressing food security challenges, at least observers should be able to agree on the existence of fundamental problems in food security, and the behavioral issues they imply, as seen in the data presented below.

The theoretical grounding for the policy discussions that follow derive from the general point of view that—while acknowledging the critical role of individual choice and the importance of designing policies that maximally preserve it—the food environment exerts a strong and often determinative force influencing the dietary decisions individuals make (Thaler, 1991; Estabrooks, Lee, & Gyurcsik, 2003; Molnar, Gortmaker, Bull, & Buka, 2004; Robert & Reither, 2004; Romero, 2005; Proscio, 2006)—especially when nutritional choice sets in low-income neighborhoods differ dramatically from those in affluent suburbs.

II. Theory

Roles of grocery stores and positive neighborhood externalities

There are a variety of stores that supply food, such as convenience stores, restaurants, butchers, and produce specialists. Yet grocery stores play a special role in both the health

and economic lives of neighborhoods. Contributing to healthy diets, grocery stores usually offer a wide variety of foods that meet many different nutritional needs, and provide food at lower prices than in restaurants and convenience stores, thanks to economies of scale. Contributing to neighborhood economy, grocery stores are important because other retailers often decide to locate stores in a neighborhood only after a grocery store has gone in. The implication is that grocery stores provide synergistic flows of business investment, neighborhood quality, and consequent improvements in the wellbeing of nearby residents.

Grocery stores should thrive in low-income neighborhoods

It may not sound surprising that stores gravitate toward neighborhoods where residents have high incomes, but there are at least three economic reasons why grocery stores should thrive in low-income neighborhoods. First, low-income residents spend a higher fraction of their income on essentials like food. Economic theory predicts that the typical low-income resident spends a lot less on luxuries like vacations, but not very much less on necessities like food. Everyone has to eat, after all. And because there is no good substitute for food, low-income residents spend a higher percentage of their incomes on food than do high-income residents.

A second advantage stores moving into low-income neighborhoods would be expected to enjoy is cost reductions resulting from lower rents and real estate prices. Access to greater labor supply in high-unemployment neighborhoods represents a third potentially cost-saving advantage. On the other hand, other costs—such as crime, or the perception of crime—might be higher. We return to the issue of crime below. Still another reason why stores entering urban neighborhoods would be expected to thrive is the absence of competition. With no other grocery stores for miles, a new grocery store should expect more customers per square mile and, all else equal, greater sales revenue.

Attracting stores into urban environments

Attracting retailers to be the first to move into neighborhoods without already-thriving retail areas turns out to be a much more formidable task than is predicted by standard economic theory. One important reason is that firms tend to condition their own action upon the actions of other firms (Berg, 2007a). In other words, a firm's location choices usually depend on the observed location choices of other firms. For example, some firms report that they would consider moving to a location only if that location has a laundromat and a Home Depot within one mile (Weissbourd, 1999). This implies a high degree of interdependency among firms' choices of location, and the possibility for inefficient lock-in at suboptimal spatial distributions, similar to the market dominance of the inferior VHS technology over Betamax, systematically missing business opportunities in urban environments.

Berg (2007b)'s interview data show that the theory of stores moving into neighborhoods offering more economical rents rarely happens in practice, for a variety of complex reasons that may have more to do with the psychology of business owners than with

profit maximization. When stores imitate each other in high-information environments, imitation provides a shortcut to profit maximization. However, in relatively unknown areas, about which little new information is available, imitation leads to systematic problems. The positive side of these findings is that the city possesses a number of policy tools that can be used to bring business re-development to areas such as southern Dallas. The key is to create experiential capital that inserts these neighborhoods—the more flamboyant, the better—into many potential investors’ memories. A marquee project drawing residents (i.e., potential small business investors) from throughout the city would be a likely tool for creation of new experiential capital. The project would need supplementing with an ongoing series of high-quality events to lure new visitors into these neighborhoods. Then, once a first-mover entered a previously abandoned neighborhood in southern Dallas, the imitation shortcut would quickly amplify its effect with many further and larger rounds of investment into the area. Already there are policies being discussed, for example the Mayor’s proposal to lure two new grocery stores to the southern Dallas, which could significantly improve residents’ access to nutritious food, while stimulating a broader range of complementary economic activities.

Beyond use of other firms’ locations in deciding on a new store’s location, it is no surprise that retailers use neighborhood demographics to decide where to locate stores. There is growing awareness, however, that neighborhood income is an unreliable predictor of store revenues. Recent evidence suggests that stores such as Starbucks and Home Depot have earned profits far in excess of what their own demand forecast models predicted, by investing in low-income neighborhoods previously regarded as unprofitable (Weissbourd, 1999; Helling & Sawicki, 2003; Sabety & Carlson, 2003). For example, Cydnie Horwat, Vice President of Starbucks’ Store Development, writes, “Our Urban Coffee Opportunities joint venture has essentially shown that Starbucks can penetrate demographically diverse neighborhoods in underserved communities, such as our store in Harlem, which is not something that we had previously looked at” (Francica, 2000).

This raises questions. How could Starbucks have overlooked a profitable opportunity for so long, and why did it require a new, joint initiative to discover that the coffee giant could operate profitably in ethnically-mixed, low-income neighborhoods? Are neighborhoods in central cities that retailers avoid really less profitable, or do interdependencies among firms’ location decisions lead to inefficient lock-in at a status quo biased against such neighborhoods, simply because firms have decided against them in the past? And finally, should we be surprised that sophisticated firms, even those that conduct extensive market research, base location decisions primarily on observed choices of other firms instead of independently weighing the costs and benefits associated with each of many candidates drawn from a large consideration set?

Crime and neighborhood perceptions

Interviewing top executives at a broad range of businesses in Dallas, Berg (2007b) asked these elite respondents how they had made high-stakes decisions about where to locate stores. He also asked if respondents had considered particular low-income neighborhoods in southern Dallas. The interviews revealed that most businesses

considered only a short list of potential locations, and that concerns over crime eliminated low-income areas from consideration, without any quantitative cost-benefit calculation in the vast majority of cases. A number of respondents said that even if they received a subsidy equal to their entire rental costs for a year, they would not consider locating a store in what they perceived to be high-crime neighborhoods.

Higher rates of shoplifting (i.e., shrinkage costs) and increased expenditures on in-store security certainly do affect a store's bottom line. But our data suggest that, rather than computing the costs of going into relatively unknown urban environments to see if they might be profitable, the blanket perception of crime eliminates most such neighborhoods from consideration. The distinction between actual rates of reported crime and perceptions about the likelihood of criminal incidents is important.

Bray (2007) shows that, even in neighborhoods with high rates of reported crime, it may only be one or two city blocks that generate the vast majority of criminal incidents. This raises the question of whether it is proper to classify an entire neighborhood with crime frequencies, given that these incidents may be highly concentrated within the neighborhood, and that trajectories of criminal activity change quickly and are difficult to map with precise spatial units of measure.

Bridging economic and psychological theory

The empirical results and policy discussions below draw on a mixture of standard economics and the judgment-and-decision-making literature in psychology. For example, seemingly minor environmental variables, such as distance to the nearest food source, have strong conditioning effects on the decisions consumers make, even when transportation costs are minimal. At the same time, firms use simplifying shortcuts to choose where to locate—shortcuts that approximate profit maximization in high-information regions, such as suburbs where major chain grocers have an immense amount of experience opening new stores. Yet these shortcuts systematically fail to uncover genuine economic opportunity in less well-understood urban environments.

III. Mapping Access to Grocery Stores in Dallas

In July 2006, the Williams Institute identified the location of all mainline chain grocery stores in the Dallas-Fort-Worth Metropolitan Statistical Area. The map on the next page shows the results. The map in Figure 1 codes U.S. Census neighborhood block groups according to the number of grocery stores within one mile. Neighborhoods with no grocery stores within one mile are shown in red. The map also indicates neighborhoods with one, two, three, or more than three grocery stores within one mile.

The map shows that southern Dallas clearly suffers from a lack of grocery stores, as indicated by the large island of red-colored neighborhood block groups concentrated in the southern portion of the map. This raises the question of how access to grocery stores correlates with neighborhood income and other neighborhood characteristics.

**MAP GOES
HERE.**

IV. Who Lives in Neighborhoods Without Grocery Stores?

To answer the question of who lives in neighborhoods with no grocery stores nearby, Table 1 compares the characteristics of residents in neighborhoods with zero grocery stores within a mile with residents in neighborhoods having three or more grocery stores within a mile. Table 1 shows that the ethnic compositions of these two types of neighborhoods are starkly different—no-grocery-store neighborhoods have an average Percentage White that is roughly half that of neighborhoods with an abundance of stores. No-grocery-store neighborhoods have on average twice the Percentage African American as neighborhoods with three or more stores. Interestingly, these two types of neighborhoods differ hardly at all in terms of Percentage Hispanic.

Table 1: Average Characteristics of Residents in No-Grocery-Store vs. Three-or-More-Grocery-Store Neighborhoods

<u>Neighborhood* Characteristic</u>	<u>No Grocery Stores Within One Mile</u>	<u>Three or More Grocery Stores Within One Mile</u>
Percentage White	32	57
Percentage African American	35	12
Percentage Hispanic	29	25
Median Income	\$38,869	\$58,535
HHSC Clients	120	64
Total Number of Neighborhoods	264	427

Sources: Author’s calculations based on data from U.S. Census Bureau Population Estimates (www.census.gov/popest/estimates.php), Texas Health & Human Services Commission (www.hhsc.state.tx.us), and Geolytics (www.geolytics.com)

***Note:** Neighborhoods are defined as blockgroups as defined by the U.S. Census Bureau. In the 2000 Census, there are 1,681 blockgroups in Dallas County; 264 neighborhoods with zero stores within a mile, 990 with 1 or 2 stores within a mile, and 427 with 3 or more stores within a mile.

According to the data on neighborhood income retrieved from these sources, the average median income of no-grocery-store neighborhoods is almost \$20,000 less than in three-or-more-store neighborhoods, and the number of HHSC clients in no-grocery-store neighborhoods is almost double. In ordered probit regressions of number of stores on all the variables in Table 1 (together with age-of-residents variables, physical area of the neighborhoods, and neighborhood population), the variable Percentage African American has, by far, the largest magnitude effect. A neighborhood’s total population, which averages around 1,400 residents, would have to increase by around 100,000 to increase the probability of an additional store by the same magnitude as it would decrease in response to changing the neighborhood’s ethnic composition from White to African American. And a neighborhood’s median income would have to nearly double to change the probability of an additional store by that same magnitude.

If income and population are the key demographics stores use when deciding on where to locate stores, then why does ethnic composition have such a pronounced effect in the

case of African American ethnicity, but not in the case of Hispanic ethnicity? This question is unresolved by the data currently at our disposal and would be an interesting topic for future research.

Zip-code-level analysis

Table 2 lists Dallas County zip codes without a chain grocery store. Overlaying this information about access to grocery stores and neighborhood income data indicates that the following zip codes are most likely to contain families facing the double challenge of great financial need and potential nutritional problems: 75246, 75172, 75215, and 75238. Low income means that family budgets are stretched thin, while lack of accessible supermarkets means that healthy food is costlier or unavailable.

Table 2: Dallas County Zip Codes Without a Mainline Grocery Store.

City Name	Zip Code
Irving	75039
Sachse	75048
Grand Prairie	75054
Richardson	75082
Ferris	75125
Hutchins	75141
Wilmer	75172
Sunnyvale	75182
Dallas	75201
Dallas	75202
Dallas	75203
Dallas	75207
Dallas	75209
Dallas	75215
Dallas	75226
Dallas	75233
Dallas	75236
Dallas	75246
Dallas	75247
Dallas	75249
Dallas	75251
Dallas	75253
Dallas	75261

Source: Williams Institute Calculations

One interesting implication of these patterns of grocery store access and neighborhood income is that income is, at best, a partial proxy for wellbeing. These data suggest, for example, that it is probably better to be poor in a moderate-income neighborhood than poor in a neighborhood with a high concentration of low-income households. Poor families in moderate-income neighborhoods will at least have better access to good food. In contrast, spatial concentrations of poverty are associated with poor shopping

alternatives, and safety nets such as food stamps will be less effective at mitigating nutritional deficiencies in these areas.

Problems using income as proxy for wellbeing among children

The household's economic conditions would seem to have a profound impact on the wellbeing of young children (Bridgman & Phillips, 1998). By definition, poverty is a lack of sufficient purchasing power to obtain the basic necessities of food and shelter.¹ Children living in poor households often suffer from insufficient calorie intake; an unhealthy mix of protein, carbohydrates, and fats; and living in substandard housing that is susceptible to unhealthy environmental conditions.

Health care can be one of the household's most expensive budget items, and low-income households face a distinct set of challenges with regard to health. Using data from the 1992–94 National Health Interview Survey (NHIS), Newacheck and Halfon (1989) found that the prevalence of disabilities in children was greater for populations from low-income and single-parent families than for other families; they noted that disabilities generally stemmed from respiratory and mental conditions, suggesting a link to environmental conditions and nutrition. Other studies investigating frequencies of hospitalization and emergency room visits also seem to imply that family income, even controlling for initial health status, is correlated with severity of illness in children.

Although it may seem obvious that income is a key indicator of childhood wellbeing, actually measuring economic conditions and then establishing the correct pathways linking these economic conditions to children's welfare is a difficult task involving formidable methodological challenges. For example, consider the welfare of a child in a family whose income clearly falls below the poverty line, who therefore has no difficulty qualifying for Medicaid, compared with a child in a working-poor family without insurance who does not qualify for Medicaid. The child from the slightly higher income but uninsured family may actually be worse off.

The Children's Health Insurance Program (CHIP)² is specifically designed for such children, but eligible children frequently fail to get the services to which they are entitled. In 2004, 21% of children in Texas were without private healthcare coverage, Medicaid, or CHIP. Current estimates suggest that approximately 45,000 Dallas County children are eligible for Medicaid but not enrolled in the program (Easley & Chamberlain, 2007). In testimony presented to the 80th Texas Legislature House Human Services Committee, Hagert (2007) describes a system of overloaded case workers facing ever-increasing demand for services. The result is that, in Texas, only half of the eligible households receive food stamps, and approximately half of the uninsured children who could receive Medicaid/CHIP never get enrolled in the program and receive benefits.

¹ See <http://www.census.gov/hhes/income/defs/poverty.html> for information on the definition of poverty.

² See <http://www.hhsc.state.tx.us/chip/index.html> for more information on CHIP.

Danziger, Heflin, Corcoran, Oltmans, and Wang (2002) analyzed survey data from single mothers on welfare in 1997. They found that by 1999, those who had moved off welfare and begun working were *financially* better off; however, of those working, more than a third did not have health insurance, and 13% had no insurance for their children. Conversely, almost all individuals on some form of welfare had medical coverage for themselves and their children. Therefore, “better off” in terms of earned income does not automatically translate into “better off” by other measures that clearly affect wellbeing.

The point is that the simple causal statement, “childhood wellbeing is caused by family income,” does not adequately capture the multiple dimensions of the complex economic conditions that affect childhood wellbeing. Measures of average family income, income per capita, and average household income are therefore incomplete indicators for child welfare.

Even high-quality income data do not necessarily describe the economic conditions of families without normalizing for the costs of living in particular areas. Deviney and Hager (2006) estimate that it takes a family of four more than \$43,000 to cover the basic necessities of living in Dallas. This is more than twice the poverty line for a family of four, suggesting that the federal poverty line does not provide the correct contextual information for identifying needs in Dallas County.

One way to rationalize the study of correlates of income as presented in Table 1 above is to use a household production model usually attributed to Gary Becker (Becker, 1991). The household transforms inputs and time to produce outputs it wants, and these outputs determine the overall level of wellbeing. The inputs (e.g., food) must be purchased, and time has opportunity cost in terms of lost income.

In this household production framework, income is important for wellbeing because it enables the purchase of more inputs and, hence, finances more of the outputs that improve wellbeing. With this structure, it is easy to see that there will be a considerable degree of heterogeneity (or diversity) in how households produce outputs, and hence improve wellbeing. Some production profiles will have both husband and wife working while buying childcare inputs in explicit childcare markets, while others will “purchase” childcare from grandparents. Others may form households of two or more families in order to optimize the utilization of inputs, given wages and other constraints. Therefore, to accurately indicate the wellbeing of young children with measures of income, these measures need to be parsed in such a way so as to control for this heterogeneity.

V. Barriers to Improvements in Access

In standard economic theory, firms decide on locations by considering a long list of possible locations, weighing the costs and benefits of each possible location, and choosing the one with maximum net benefits. The theory that firms are already doing the best that they possibly can leads to a stark, and misdirected, conclusion about neighborhoods without retail and business investment. This conclusion, which

economists are beginning to challenge, is that abandoned neighborhoods are abandoned for good reason—precisely because there are no profitable opportunities there.

Using interviews with local business owners, Berg (2007b) found that most businesses consider only a few locations before choosing where to locate stores, and that the locations they did consider were nearly always areas that had been discovered more or less by accident—while dining out, running errands, or driving through town on other business, rather than explicitly searching for locations. This is not necessarily a bad strategy for businesses, because when business owners find areas that appeal to them and their employees, their customers are likely to find it appealing as well. Therefore, deciding on locations by considering a few places based on positive personal experience can be a good shortcut to profits in well-established retail centers, but it can lead to an unhealthy side-effect—neighborhoods that are ignored today may stay ignored for a long time, with little chance of being discovered by store owners choosing where to invest next.

Another interesting aspect of the psychology of location choice, emerging from Williams Institute research and interview studies of business economists and other key decision makers, is that firms often imitate their peers. Ask small business owners how they chose their locations, and many will tell you that they looked for an area with a grocery store, or another form of desirable retail activity, in the vicinity, and eliminated alternatives from there. Ask larger businesses like Home Depot and Starbucks how they decide where to put new stores, and they will likely tell you that they want drugstores and other basic retail already in place before they consider investing.

But if everyone is waiting for someone else to move first into neighborhoods that badly need redevelopment, then it may never get started. This is a kind of uneconomic lock-in at a suboptimal status quo, with systematic underinvestment in neighborhoods that hold genuine economic opportunity. This opportunity will only be discovered, however, by those who are bold enough to consider new urban areas without existing retail and engage in a process of consideration—thinking through the costs and benefits to discover untapped potential in low-income neighborhoods.

VI. Policy Tools

Economists who work on urban development often analyze policy tools, such as Tax Increment Financing (TIFs), or other means of providing subsidies in the form of reduced taxes for businesses that invest in particular areas of the city. Behavioral economics models that attempt more realistic explanations of firms' location decisions suggest at least two significant problems with the standard policy approach. First, most business owners do not choose locations from large consideration sets. Rather, most business owners pay attention to only a few candidate locations before making a decision. Small changes in the costs and benefits associated with moving to a low-income neighborhood in a TIF zone are unlikely to push that location into wide consideration among potential investors.

Because most businesses, large and small, consider only a few candidates before deciding on a location, the key aim of policy should be for overlooked areas in southern Dallas to make it into psychological contention—by making it onto the short list of locations that investors can easily bring to mind. If a business owner never thinks of a neighborhood like Fair Park, for example, then a tax subsidy is not likely to change his or her mind.

A second problem with the tax subsidy approach relates to the psychology of imitation. When neighborhoods emerge as hot new destinations for business investment, one of the main mechanisms for clustering at those locations to occur is when business owners see other businesses making a similar move. When moves are motivated in part by temporary tax benefits, however, the signaling value of the observed moves is reduced. In other words, if one business owner sees another go into Fair Park because of a temporary tax subsidy, it is a less persuasive reason to follow and make the move himself. In contrast, when everyone sees a firm move to Fair Park, betting 100% of its own capital on that location, then the signal is maximally effective at attracting further rounds of investment. The best signal about a neighborhood is when other companies can be observed putting up new stores without the influence of special tax incentives.

Marquee project

One of the most promising approaches would be a so-called marquee project—a new retail development in southern Dallas with a high-quality mix of local and national retailers, together with attractions that would draw residents from other parts of the city. New developments, in areas where perceived crime problems are widespread among residents without direct experience in those areas, could benefit greatly from highly visible increases in police foot patrols, encompassing a 10-block radius around the project of note, aimed at turning impressions of the business opportunities in that neighborhood in a positive direction.

Building an attractive retail facility with distinctive cultural features drawn from the immediate neighborhoods, and turning around perceptions about safety in its vicinity, are only half of what is needed for entrepreneurs around the city to begin thinking of that location as a serious candidate for their investment capital. To make it into that short list of consideration, investors need to first experience the new redevelopment district as consumers. Once a positive consumer experience is clearly installed in potential investors' experiential capital, then the natural psychological mechanisms of recognition-based decision making and imitation can work in favor of the project. The prototypical investor has eaten dinner there, met colleagues for coffee, taken in a concert, competed in a bike race, shopped at urban vegetable markets, etc. And based on one or more such experiences, the destination comes to mind as part of the business owner's common sense.

Therefore, a significant part of planning for this project should be aimed at creating positive consumer experiences for residents who travel in from other neighborhoods. In the theoretical models and interview data, such experiential capital is a critical resource business owners draw upon when deciding where to locate new stores. By promoting

high-quality events in newly developed low-income neighborhoods, such as bike races, film festivals, family petting zoo attractions, and local food fairs, residents in these neighborhoods will benefit from increased employment opportunities, cashflows, and improvements in neighborhood quality. Beyond the immediate and direct benefits of such events, the follow-on effects should be many orders of magnitude more important—in the form of new retail investment being drawn to urban redevelopment zones, where those who own businesses elsewhere come to have direct personal experiences and positive associations with the opportunities in these neighborhoods.

It should be clear that food security—in the form of access to healthy food—plays a key role in this vision for priming investments of many kinds to flow favorably toward residents in low-income neighborhoods of Dallas. Food builds social ties. Food provides a means of articulating ethnic and cultural specificity in a way that many can enjoy. And food readies the body for school and work.

VII. Conclusion

The main contribution of this paper is to map neighborhoods in Dallas County, Texas according to the number of grocery stores in the geographic vicinity, and to compare the characteristics of residents in neighborhoods with and without stores. Neighborhoods without grocery stores are predominantly low-income and African American, with a concentration of no-grocery-store neighborhoods in southern Dallas, which has approximately 400,000 residents.

These facts are difficult to square with standard economic theory, prompting us to consider alternative hypotheses about the manner in which consumers make food choices, and the ways in which grocery stores choose locations. Given these alternative perspectives, which match available evidence from interviews and the reduced-form spatial distribution of stores, it would appear that new policy approaches are required to bring rapid improvements in food security.

Direct recruitment of stores into particular locations by city leaders could play a large role because, if successful, it would demonstrate the positive potential for investment in a highly visible manner. The theory of imitation predicts that such a success would be followed by numerous rounds of future movements into nearby destinations without further interventions or costs borne by policy makers.

In light of the shortage of food suppliers in many Dallas neighborhoods, and in other cities as well, perhaps it would be appropriate the next time we sit down to eat to express gratitude—not only for the food on our tables, but for the nearby grocery stores that allow us to conveniently stock our homes with an assortment of high quality food.

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