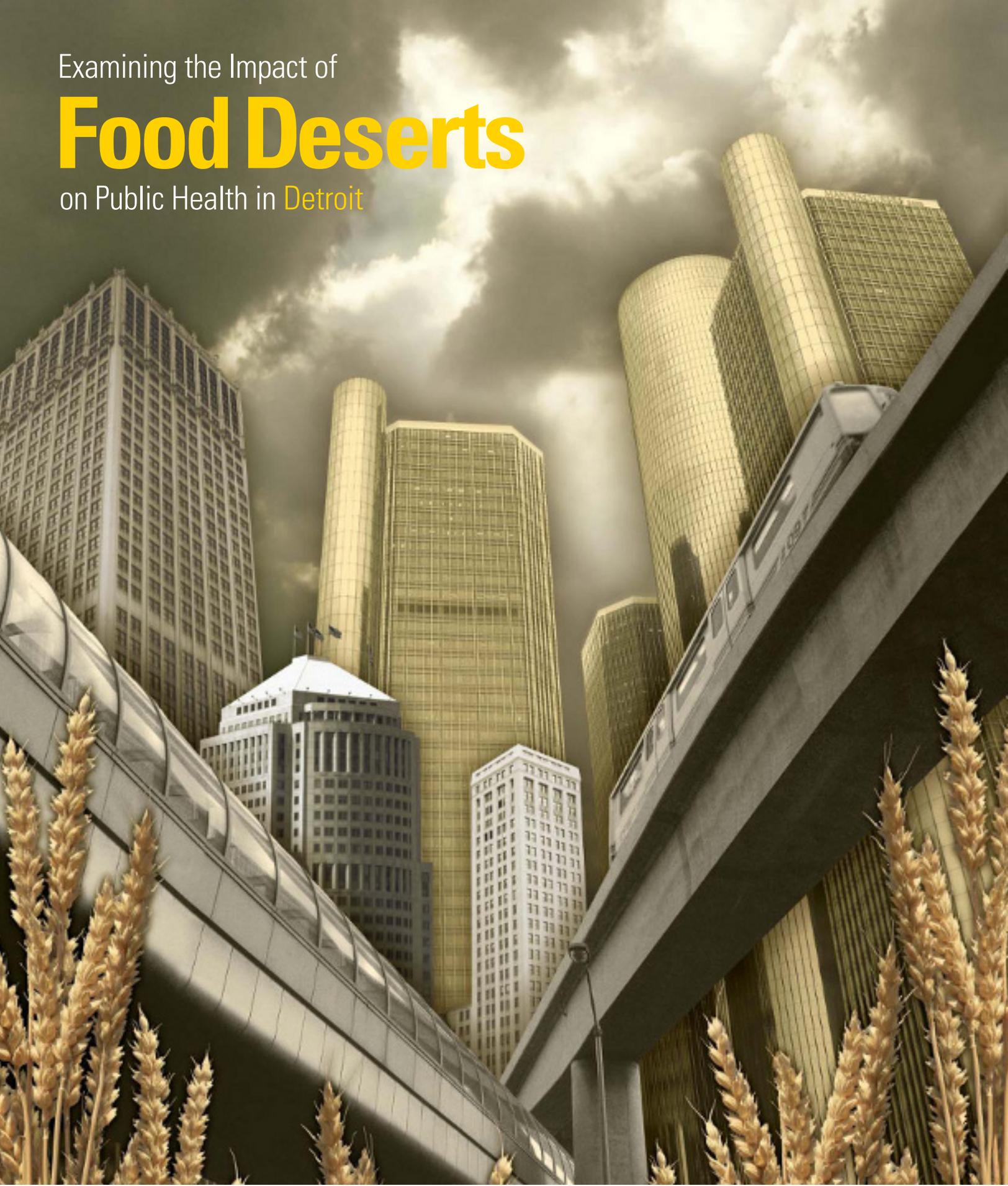


Examining the Impact of

Food Deserts

on Public Health in Detroit



MARI GALLAGHER

RESEARCH & CONSULTING GROUP

Full Report

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Dear Colleague:

For 80 years, LaSalle Bank has helped build and sustain the communities we serve by providing residents, small businesses and non-profit organizations with the resources and assistance necessary to be healthy and vibrant members of the community.

As a community bank, LaSalle is committed to understanding the needs of the neighborhoods we serve. We know that many Detroit communities are challenged by limited access to healthy food. Many areas of Detroit have been designated “food deserts,” areas with no or distant grocery stores and limited access to nutritious food options. Similarly, public health officials and community advocates have also been alarmed by the growing prevalence of diet-related diseases in Detroit, such as obesity and diabetes.

As rates of these and other chronic health problems continue to rise, researcher Mari Gallagher proposed, and LaSalle Bank commissioned, a report to explore the health consequences of food deserts. And, indeed, it appears that residents of food deserts experience higher rates of certain diet-related health conditions.

We hope that the findings herein and discussion at the *Stranded in the Food Desert* forum will reveal both the challenges and opportunities involved in providing equal access to healthy food to affected neighborhoods – and that it will inspire new understanding of this important community health issue, and action that begins to bring solutions. Thank you to Mari Gallagher, Detroit Local Initiative Support Corporation and the many organizations and individuals who contributed to this report.

Sincerely,



Robert S. Grossinger

Senior Vice President

Community & Sustainable Development

Foreword

This report ought to serve as a wake-up call, and my guess is that it will by documenting the serious problem of food deserts clearly and forcefully. It is much harder now to avoid the conclusion that action to address it in Detroit warrants a high priority.

Mounting evidence from around the country over the past few years has heightened our awareness of two facts. First, health problems in America's low-income communities generally are substantially and persistently more severe than they are in the rest of the nation. Second, poor nutrition is a major contributor to that outcome.

This report demonstrates that, in Detroit, a fundamental underpinning of poor nutrition is the dearth of retail outlets that sell a range of nutritious foods at reasonable prices. Fast food and other fringe food outlets are everywhere, yet there are comparatively few quality grocery stores where fresh and healthy foods can be purchased. Particularly striking is the evidence concerning USDA Food Stamp retail patterns. The idea behind the original Food Stamp program was that poor families could use their Food Stamp allocation to acquire the ingredients of a decent diet. In Detroit, however, the Food Stamp program consists primarily of fringe retailers such as liquor stores, gas stations, and convenience stores – retailers whose range of food offerings is limited and dominated by products that are blatantly bad for your health.

These circumstances are not news to the residents of Detroit. Yet it is often the case that problems that “everybody knows about” can go on for decades without anyone addressing them. What captures our attention is when someone finally measures and documents the magnitude of the problem in a reliable and

compelling way. That is what Mari Gallagher and her colleagues have done in this report.

Several things go into making the case compelling. One is the use of highly detailed block, tract and neighborhood level data for Detroit and the surrounding region; aggregated data for the city as a whole or for major sub-areas would not have made the point. Another is the application of the Food Balance Score – a measure developed by Gallagher's group that can describe the problem in a truly comparable way across different types of urban, suburban, and rural geographies. Evidence is presented that a balanced food environment – shorter distances to grocers and longer distances to fast food and other fringe food options – directly correlates to better diet-related community health. As we live in a time when the human and financial costs of treating diet-related diseases are skyrocketing, this might be the report's most compelling call for collective action.

So what can be done? Detroit is not alone in its problem or in its search for solutions. Fresh research in many U.S. cities shows that the market potential of inner city neighborhoods is considerably higher than retailers have typically understood it to be. Not everyone who lives in the Detroit food desert – or other American food deserts for that matter – is poor. Furthermore, even poor families buy food, as eating is a daily requirement of the human condition. The good news is that there have been notably successful supermarket investments in previously underserved neighborhoods in several cities over the past few years, and community, government, and business leaders in Detroit have also been advancing their own local solutions. Hard work lies ahead, but this is one area where hopelessness or inaction is not a warranted response.

Thomas Kingsley, The Urban Institute

Thomas Kingsley is a noted urban scholar and the head of the National Neighborhood Indicators Partnership, a collaborative effort to democratize data and neighborhood-level information systems for local policymaking, community building, and community improvement.

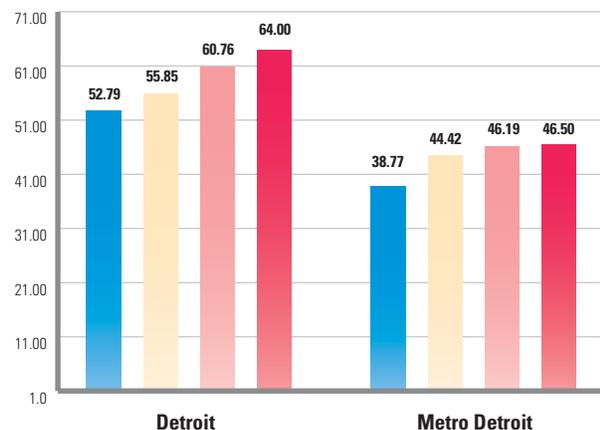
Executive Briefing

Examining the Impact of Food Deserts on Public Health in Detroit

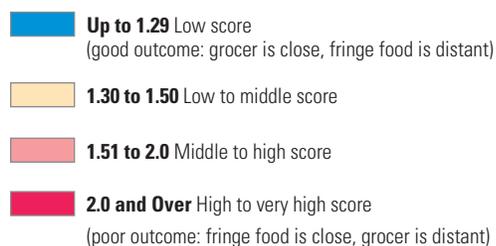
Overview

We know Detroit as the birthplace of Henry Ford's moving assembly line, an invention that put America on wheels. Detroit also installed the first mile of paved concrete, the first traffic light, and the first urban freeway. But today, the Motor City has the distinction of being the most expensive place in the U.S. in which to own and operate an automobile¹; more than a fifth of Detroit households are carless.² Never having been a city known for its public transportation, Detroit is now an even tougher place in which to do simple things, such as make a trip to the grocery store. The increased costs of driving parallel Detroit's new title: world's top potato chip consumer.³ But what are the health costs for residents of any city consuming potato chips, high fat burgers, or soda in greater and greater quantities over more nutritious, fresh foods on a regular basis? Science has repeatedly demonstrated that diet equals health, but to what degree is our health determined by the kinds of foods that are available to us?

Chart 1: Diet-Related Years of Potential Life Lost by Food Balance Scores by Detroit and Metro Detroit Tracts Per 100 Population



Food Balance Scores Chart Legend



This is the focus of *Examining the Impact of Food Deserts on Public Health in Detroit*. Our premise is that the health and vitality of urban communities are block-by-block phenomena. Therefore, we first measure the distance from every block in Detroit and the surrounding metropolitan area to the closest grocery store, fast food establishment, and other food venues. We consider the locations of USDA Food Stamp retailers and conduct an analysis of their distribution by specific retail category.⁴ Then we develop an empirical score to quantify the balance of food choices available to residents. Finally, we compare food access and food balance directly to diet-related health outcomes. Here is what we found:

1. Diet-related health outcomes in both Detroit and Metro Detroit are worse in areas of food imbalance, even after accounting for differences in income, education, and race.

2. Within the Metro Detroit area, the City of Detroit suffers most. Roughly 550,000 Detroit residents – over half of the city's total population – live in areas that are far out-of-balance in terms of day-to-day food availability.⁵ This means that they must travel twice as far or further to reach the closest mainstream grocer as they do to reach the closest fringe food location, such as a fast food restaurant or a convenience store.

3. Considerable life is lost as a result. To measure this effect, we correlated Food Balance Scores (the distance to the closest grocer divided by the distance to the closest fringe food location) with diet-related Years of Potential Life Lost (YPLL) calculations. YPLL measures the impact of premature death from a certain cause, in this case, food imbalance. In our charts and maps throughout this report, red tones signify a poor outcome, blue tones signify a good outcome, and neutral tones signify an average outcome. Chart 1 shows us that, as Census tracts in Detroit and Metro Detroit become more out-of-balance (moving toward the red zone), premature death increases, most strikingly in Detroit. The pattern repeats itself each time. How many additional years of collective life are lost in the most out-of-balance areas? For Detroit, diet-related YPLL for the average tract in the in-balance blue zone is roughly 53 years per 100 people, and for the average tract in the most out-of-balance red zone, diet-related YPLL is 64 years per 100 people. This means that there is an additional 11 years of collective life lost per every 100 people on average in those most out-of-balance Detroit tracts. In Metro Detroit, there is an additional 7 years of collective life lost in the most out-of-balance tracts per every 100 people compare to the in-balance zone. We are careful not to suggest cause and effect or to generalize our findings to the individual. However, we again find evidence that communities with food imbalance are more likely to experience worse diet-related health outcomes than other communities, even when those communities have similar socio-economic characteristics. The types of food options we live closest to – along with many other factors – are related to our health.

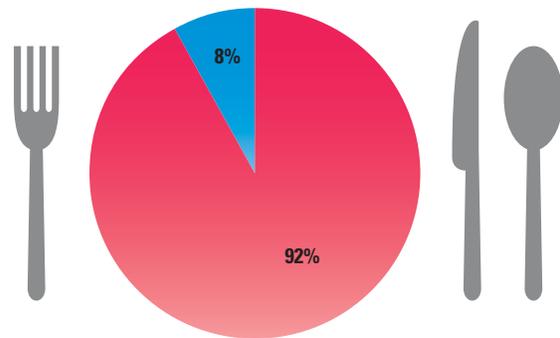
Over half a million Detroit residents live in areas that have an imbalance of healthy food options. They are **statistically more likely to suffer or die** prematurely from a diet-related disease, holding other key factors constant.

4. Why is there such a stark food imbalance in Detroit? The problem is not that there are no or few retailers that sell food. Many stores and restaurants sell food throughout Detroit. In fact, the average family would only need to travel a few blocks to reach some type of food option. The problem from a public health perspective is that there are relatively few food venues that appear to sell quality food or a good selection of healthy food. This is what creates the high degree of food imbalance that steals life and vitality from Detroit residents and from others throughout the region that live very close to many fringe food options, but far from a mainstream grocer.

5. The greatest contributor to the heavy concentration of fringe food options and to the negative diet-related health effects of food imbalance is not fast food, as we originally suspected, but USDA Food Stamp retailers. In Detroit, USDA Food Stamp retailers are primarily fringe food locations, such as gas stations, liquor stores, party stores, dollar stores, bakeries, pharmacies, and convenience stores. Only 8% of all Detroit Food Stamp retailers are small, medium, or large grocery stores or supermarkets by our definition. These fringe locations appear not to specialize in healthy foods but, instead, in the sale of 1) alcohol, 2) tobacco, 3) lottery tickets, and/or 4) a comparatively small selection of prepackaged and canned food products high in salt, fat, and sugar.

6. Because there is such wide-spread concentration of fringe Food Stamp retailers throughout Detroit, we suspect that the negative health effects associated with food imbalance impact not only the poor, but also thousands of additional moderate

Chart 2: Recoded Mainstream and Fringe Food Stamp Retailers in Detroit



Pie Chart Legend

Fringe Retailers: 92% Gas stations, liquor stores, party stores, dollar stores, bakeries, pharmacies, convenience stores, and other venues

Mainstream Retailers: 8% Small, medium, and large grocery stores and supermarkets

and upper income residents who also have difficulty reaching mainstream grocers on a regular basis or who have grown accustomed to the pervasive fringe food environment. Whether you are a diabetic, an elderly person, a young professional, or a mother trying to raise a healthy child, following a doctor's dietary recommendation is likely difficult if you live in one of these far out-of-balance areas.

The greatest contributor to the heavy concentration of fringe food options and to the negative diet-related health effects of food imbalance is not fast food, but USDA Food Stamp retailers.

7. Looking ahead, food imbalance will likely have a compounding public health effect on communities as residents age in place, and on future generations that grow up and remain in food imbalanced areas. Unless access to healthy food greatly improves, we predict that, over time, those residents will continue to have greater rates of premature illness and death from diabetes, cardiovascular diseases, cancer, hypertension, obesity, kidney failure, and other diet-related complications. Food imbalance will likely leave its mark directly on the quality, productivity, and length of life, and indirectly on health care costs, school test scores, and the economic vitality of the city and the region.

Over the course of this study, we drove up and down just about every major Detroit corridor and visited the interiors of over 200 different types of retailers that sell groceries. Certainly there are examples of quality supermarkets, grocers, and farmers markets in Detroit. There are also very capable and energetic community, market, and government leaders committed to recruiting and supporting purveyors of healthy food. Yet the preponderance of fringe food is stark. That any major city located in a state with a rich tradition of agriculture can have such a high degree of food imbalance is troubling.

So what can be done? Identifying both market and needs-based strategies that promote access to nutritious food will require input from the food desert residents themselves, as well as from grocers, bankers, brokers, developers, planners, health advocates, philanthropists, government officials – ultimately everyone – to achieve even a modest level of success. Such a coalition would have a unique opportunity, not only to recruit new grocers, but to support product and infrastructure improvements to existing convenience and corner stores. Given that these store owners have already made a local investment and are continuing to serve the market, they might be our best hope yet for bringing fresh and healthy food – and

longer and more enjoyable life – to the residents of Detroit and the surrounding region.

Details

Examining the Impact of Food Deserts on Public Health in Detroit quantifies different types of food access at the lowest geographies possible and then tests our theory that a balanced food environment – shorter distances to grocers and longer distances to fast food and other fringe food options – directly correlates to better diet-related community health outcomes. While our focus is Detroit, our findings are more meaningful when placed in the context of the Detroit region as well as other Michigan locations, particularly concerning the distribution of Food Stamp venues by retail category. Detroit is distinct from other urban areas, yet its ability to offer healthy food options is tied to these broader market and government systems.

The city of Detroit has 11,373 census-defined blocks with non-zero populations. Most are majority African American. Metro Detroit (with Detroit excluded) has 32,419 census-defined blocks with non-zero populations. Most are majority White. In both Detroit and the surrounding region, there are small fractions of majority Latino and majority diverse blocks, meaning that no one race makes up 50% or more of the population in that block. We measured the distance between the geographic center of each block and the locations of each food venue for the region using the latitude and the longitude of each food venue and of each block center. Of these distances, the minimum distance was calculated for each block to each food category, and a weight was created to reflect the share of population living in

Unless access to healthy food greatly improves, residents will continue to have greater rates of premature illness and death.

that block. The average distance in a particular geography is the weighted average distance from each block to the nearest food venue, whether it is within or outside that particular municipality, with greater weights given to blocks with larger numbers of residents. Our distance score, calculated in miles, is the distance the average person from that area would need to travel to reach a particular food venue.

Our Food Balance Score is the average distance to any mainstream food venue divided by the average distance to a fringe food venue. Diet-related death data is used to calculate Years of Potential Life Lost, a statistic that measures the total number of life years lost due to premature death per 100 people in a population from a certain cause. Driver's license data, which includes height and weight⁶, were used to calculate body mass

index (obesity) scores. Data sources included the State of Michigan, the Metropolitan Detroit Cancer Surveillance System, part of Wayne State University, and USDA data on Food Stamp retailers, among others. (See the Detroit Project Technical Appendix at marigallagher.com for more details on the methodology and findings.)

Correlating food access and community health in a city such as Detroit presents many challenges. In addition to race and genetics, there are varying factors that can contribute to premature death of any type, such as poverty, low education levels, exposure to local pollutants, direct violent crime, indirect violent crime (such as assault on a caregiver or household wage earner), fear of engaging in health-promoting activities outdoors (such as walking, playing, or exercising) and personal choices and lifestyles (such as smoking, heavy alcohol use, and regularly eating less healthy foods, either by choice or necessity). Most urban areas that have experienced downturns in their local economies tend to suffer an upward spike in one or more of these dynamics. As a result, overall life expectancy for that population in a given period is difficult to measure. Our challenge is to determine if food imbalance, as one of many competing factors, shortens life potential in Detroit, holding constant income, race, and education, the three key variables that we can control in the analysis.

In our previous “food desert” work, the Food Balance Score is the ratio of mainstream grocers to fast food restaurants only; we did not analyze or include other fringe locations that sell food in the calculation. Detroit field work and insights from local stakeholders made clear the need to account for the high concentration and wide distribution of additional fringe food establishments in our distance and food balance calculations. We found no meaningful statistical pattern in Detroit or Metro Detroit when correlating our original Food Balance Score with diet-related health outcomes. Because there are so many additional venues almost everywhere besides fast food, that also sell unhealthy food products – such as convenience and liquor stores – this was not surprising. We needed to modify the Food Balance Score to reflect this reality for a meaningful analysis to be possible.

In our work in Detroit and other locations, we find that there is no “perfect distance” to a mainstream grocery store. To best understand where access needs to be improved, we look at the range of distances comprehensively block-by-block *within* a city, municipality, or rural area. We expect rural areas, for example, to have fewer and more distant grocery stores than in urban areas, where there is higher density and where fewer households own cars. In correlating food access to diet-related health outcomes, a more important measure is *food balance*, which tells us how easy or difficult it is to choose between a mainstream and fringe food location on a daily basis. An added benefit of developing food balance scores is that they can be compared *across* urban,

suburban, and rural geographies. For example, in a particular rural area, the closest mainstream grocer might be 3 miles away, but the closest fringe food establishment might also be 3 miles away. We would consider that area to be *in balance* in terms of food access; it is just as easy or difficult to reach one of the

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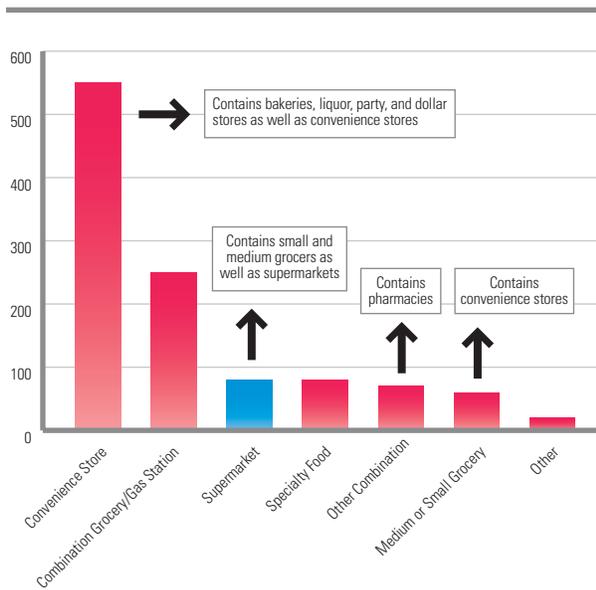
other food establishments. Our modified Food Balance Score is the distance to any mainstream food venue divided by the distance to a fringe food venue which includes but is not limited to fast food. As we see from maps 1 and 2 (pages 12 and 14), Metro Detroit has many out-of-balance areas, but the starkest patterns are in Detroit itself. Roughly 550,000 Detroit residents – over half of the city’s total population – live in areas that are far out-of-balance in terms of day-to-day food availability. This means they must travel twice as far or further to reach the closest mainstream grocer as they do to reach the closest fringe food location. How does this impact community health?

To understand the relationship between food balance and community health, we calculated Food Balance Scores for every tract in Detroit and the vast majority of tracts in the Detroit Metro area, built up from the block level each time, and cor-

“The Food Stamp Program serves as the first line of defense against hunger. It enables low-income families to buy nutritious food with Electronic Benefits Transfer cards.”

*- United States Department of Agriculture
Food and Nutrition Service website, March 2007*

related them with diet-related Years of Potential Life Lost (YPLL) scores. We see that, as tracts become more out-of-balance in terms of food access, YPLL increases. We are unable to control for other variables in Chart 1; the findings are suggestive, not conclusive. However, we used regression analysis to measure the impact of food balance on diet-related YPLL, this time holding education, income, and race constant. (See the Appendix at marigallagher.com for more details) We found that food imbalance is a statistically significant contributor to worse diet-related health outcomes in both Detroit and in Metro Detroit. Detroit suffers most. Roughly 550,000 Detroit residents – over

Chart 3: Official Food Stamp Retail Categories and Distribution for Detroit

half of the city's total population – live in areas that are far out-of-balance in terms of day-to-day food availability. This means they must travel twice as far or further to reach the closest mainstream grocer than they do to reach the closest fringe food location. Unless access to healthy food greatly improves, we predict that, over time, those half million Detroit residents will continue to have greater rates of premature illness and death from diabetes, cardiovascular diseases, cancer, hypertension, obesity, and other diet-related conditions.

Because most Detroit retailers that sell any type of groceries choose to participate in what is commonly referred to as the Food Stamp program, we turned to Food Stamp retailer data as our key method of sorting and quantifying local food choices. What we found surprised us. The data are accurate in terms

*Roughly 550,000 Detroit residents – **over half of the city's total population** – live in areas that are **far out-of-balance** in terms of day-to-day food availability.*

of all-food-store inclusion and specific business address, but misleading in terms of official categorization. Furthermore, we found that Food Stamp retailers are the biggest contributor to food imbalance and the negative diet-related health effects associated with food imbalance.

We analyzed roughly 1,100 Food Stamp retailers. According to their official categories as provided in the original dataset, the majority are “convenience stores.” As we can see from

Chart 3, only a small fraction are listed as supermarkets or small or medium grocers. Already we can see that most of these retailers are fringe by nature; they are not grocers or supermarkets. Furthermore, we found that the data often required recoding to more accurately reflect the true nature of the establishment. We were able to do this through four key

Official food stamp data required recoding to reflect the true nature of the establishment.

steps. First, we conducted a manual record-by-record review of all Detroit food venues in the database. Second, we ran an electronic search for keywords in the business name, such as liquor, bottle, beer, wine, party, dollar, and bakery to flag venues we otherwise might miss that should be examined for possible recoding. Third, we conducted field inspections to check overall data accuracy. (Field inspections consisted of driving up and down most Detroit corridors and visit-

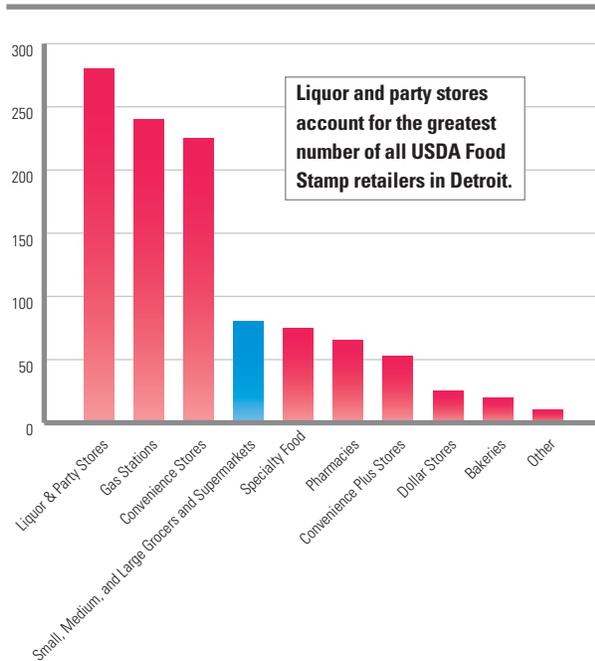
Food Balance Theory

As communities become more out-of-balance in terms of food options, negative diet-related health outcomes increase, holding constant other key factors

Food Balance Score Description	Examples
Far above 1: High score and worst outcome	Mainstream food venue is 1 mile away, and fringe food venue is .5 miles away $1/.5 = 2$
Around 1: Average score and Average outcome	Mainstream food venue is 1 mile away and a fringe food venue is 1 mile away $1/1 = 1$
Far below 1: Low score and best outcome	Mainstream food venue is .5 mile away and a fringe food venue is 1 mile away $.5/1 = .5$

ing the interiors of over 200 food venues. In many cases, the official name of the store did not reflect its appearance or the name on its exterior. For example, a store might have a neutral or upbeat name such as “Happy Foods,” but on the store sign and/or building, the most prominent words might include some combination of liquor, beer, wine, party, lotto, and money orders, followed by food or groceries, in smaller type.) Fourth, we manually revisited each business record for final recoding decisions.

Fifty-six percent of “convenience stores” were recoded into party stores, liquor stores, dollar stores, bakeries, and other venues. “Supermarkets” often contained not only supermarkets but what we consider small or medium size grocers. Many establishments in the official category of “small or medium grocer,” however, appeared to function more like convenience stores. “Other combination” mostly consisted of pharmacies, but pharmacies were also found in other categories. We did not evaluate whether or not Food Stamp retailers met either the technical or intended federal require-

Chart 4: Recoded Food Stamp Retail Categories and Distribution for Detroit

ments for participation, but we suspect that many do not. For example, an inspection of a Food Stamp dollar store revealed very little food available for purchase: paprika, cans and packages of soup, candy, and ice cream. Two buy-and-fry establishments were observed. They are coded by the USDA as “specialty stores” but function more like fast food restaurants: raw fish can be purchased with a “Food Stamp” card, after which the fish is fried for immediate consumption for free or for a small cash surcharge. It was not our goal to inspect all stores; additional scrutiny would likely lead to more recoding. For example, we suspect that the number of Food Stamp liquor stores is actually higher than what our current recoding reveals.

Our toughest recoding decision concerned the original category of “small and medium” grocers, which we recoded into “convenience ‘plus’ stores.” Overall, they did not quite meet our definition of mainstream establishments yet they offered more than regular convenience and specialty stores. No data set is perfect. We suspect that a small number of retailers that are in our fringe category might be mainstream food venues, and that a small number of our mainstream retailers might be fringe venues. However, we believe that our overall characterization and splitting of stores into mainstream and fringe categories accurately reflects the range and distribution of the types of food stores and food options available today in Detroit.

Majority Latino Census tracts, although comparatively few in number in Detroit, are the shortest average distance to small, medium, and large grocers or supermarkets (.41 miles) and majority White tracts are the farthest distance (.75 miles).

Majority African American tracts (.56 miles) and majority diverse tracts (.61 miles) score in the middle. By contrast, fringe food options are nearby and plentiful throughout Detroit. For example, in Detroit, more than half of all USDA Food Stamp

56% of USDA Food Stamp ‘convenience stores’ were recoded into party stores, liquor stores, dollar stores, bakeries, and other venues.

retailers are a liquor store, party store, gas station, dollar store, or bakery. On average, the closest fringe venue of any type is 0.2 miles away; mainstream grocers, by contrast, are two or three times that distance. We did not review Food Stamp data with the same record-by-record scrutiny for non-Detroit locations as we did for Detroit. Additional analysis is needed to understand if recoding of “small or medium grocers” and other official categories would be warranted. However, it appears that mainstream food access is a greater percentage of total Food Stamp retailers in every other non-Detroit location that we examined.

We demonstrate in this study that primarily poor food purchasing options are available through USDA Food Stamp retailers in Detroit and that it is highly likely that their widespread concentration negatively impacts not only poor families, but also thousands of middle and upper income residents who also have difficulty reaching mainstream grocers on a regular basis or who have grown accustomed to the pervasive fringe food environment. Fast food is also a contributor to food imbalance, but residents on average live closer to Food Stamp convenience, liquor, and party stores; the distance to the closest mainstream grocer can be two or three times farther. Whether you are a diabetic, an elderly person, a young professional, or a mother trying to raise a healthy child, following a doctor’s dietary recommendation is likely difficult if you live in one of these far-out-of-balance areas. Food imbalance is a serious public health concern and will likely have compounded effects on Detroit and the region unless access to healthy food greatly improves. Identifying market as well as needs-based solutions that promote access to nutritious and healthy food choices will require input and support from the food desert residents themselves as well as from grocers, banks, brokers, developers, planners, health advocates, educators, government, and foundations if we plan to achieve even a modest level of success.

We hope this study provides one small step in the direction of understanding the complex relationship between food balance and community health in Detroit.

We invite your comments and participation moving forward.



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Vegeta

In search of Food Balance. In our study, we found that the vast majority of places to purchase groceries in Detroit are fringe locations, such as convenience stores, liquor stores, and gas stations. Unless access to healthy food greatly improves, Detroit residents will continue to have greater rates of premature illness and death from diet-related diseases, after controlling for other key factors.

Map 1: Detroit Out-of-Balance Census Tracts *Food Balance Scores of 2 or More by Range*

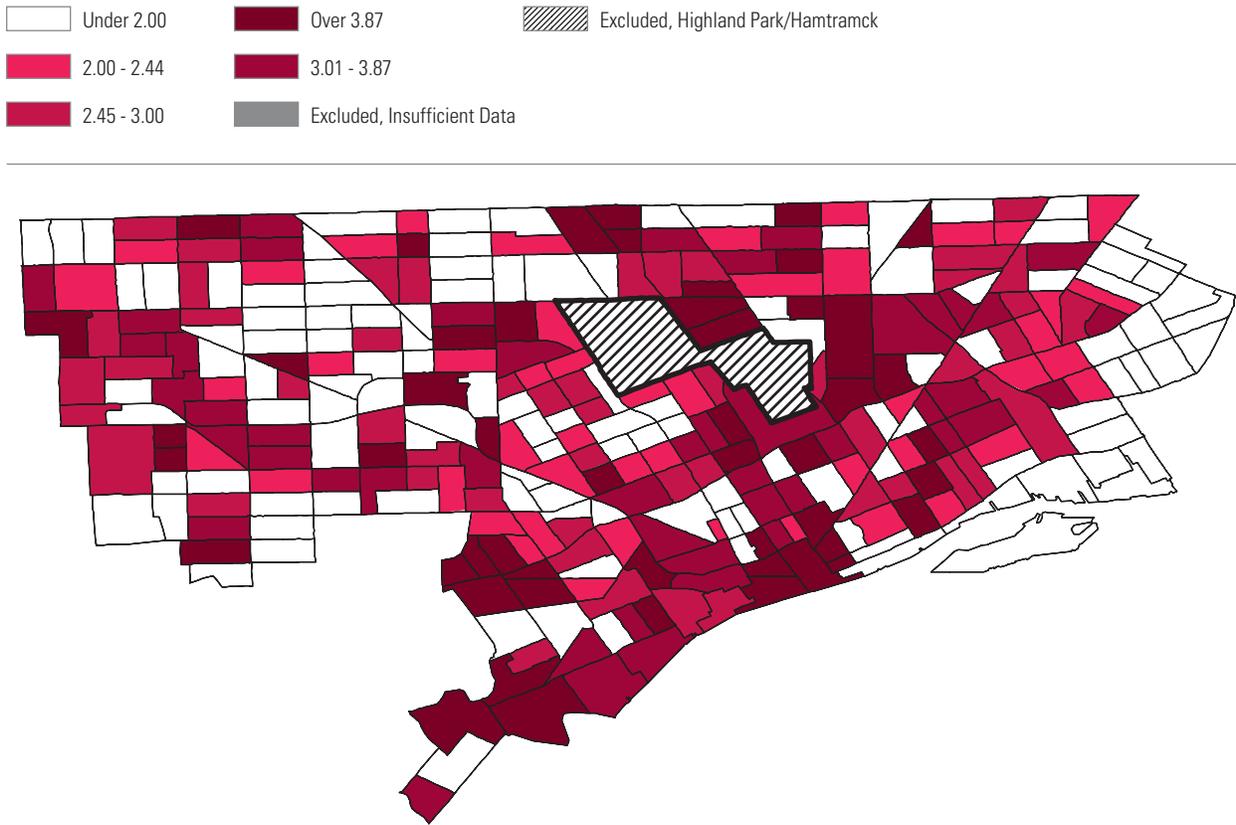


Table 1: Average Distance by Tract in Miles to Food Venues in Detroit

Any Food Stamp Venue	.21
Recorded Food Stamp Convenience Stores	.25
Recorded Food Stamp Liquor and Party Stores	.37
Fast Food	.38
Food Stamp Gas Stations	.40
Recorded Food Stamp Small, Medium, or Large Grocers or Supermarkets	.57
Recorded Food Stamp Pharmacies	.74
Food Stamp Specialty Food	.81
Recorded Food Stamp "Convenience Plus" Stores	1.04

*While our focus is Detroit, our findings are more meaningful when placed in the context of the Detroit region as well as other Michigan locations. **Detroit is distinct from other urban areas**, yet its ability to offer healthy food options is tied to these broader market and government systems.*

Average Relative Distance by Census Tract to Food Venues in Detroit

	Food Stamp Convenience Stores	Food Stamp Liquor and Party Stores	Fast Food	Food Stamp Gas Stations	Food Stamp Small, Medium, or Large Grocers or Supermarkets	Food Stamp Pharmacies	Food Stamp Specialty Food	Food Stamp "Convenience Plus" Stores
All	.25	.37	.38	.40	.57	.74	.81	1.04
African American	.25	.37	.38	.40	.56	.75	.84	1.10
Latino	.17	.30	.25	.33	.41	.46	.45	.35
White	.25	.42	.42	.37	.75	.80	.64	.65
Diverse	.25	.37	.39	.35	.61	.61	.56	.89

Table 2: Food Stamp Retail Categories and Distribution for Metro Detroit

	Detroit Only ^{**}	Wayne, All	Wayne Minus Detroit	Macomb	Monroe	Washtenaw	Oakland
Recorded Liquor and Party Stores	25.63%	21.20%	14.14%	15.15%	20.45%	12.63%	11.38%
Recorded Dollar Stores	2.52%	2.87%	3.42%	3.33%	—	1.05%	1.85%
Recorded Bakeries	1.58%	1.72%	1.93%	1.52%	2.27%	1.05%	1.32%
Recorded Convenience Stores	21.44%	17.82%	12.05%	13.03%	9.09%	14.74%	9.26%
Gas Stations	21.99%	18.34%	12.50%	6.67%	13.64%	10.53%	4.50%
Specialty Food	6.99%	8.94%	12.05%	10.30%	6.82%	6.32%	2.91%
Supermarkets	8.01%*	10.54%	14.58%	18.18%	25.00%	26.32%	24.87%
Small or Medium Grocery Stores	4.75%**	5.39%	6.40%	4.85%	11.36%	8.42%	7.94%
Recorded Pharmacies	6.06%	9.51%	15.03%	19.39%	6.82%	11.58%	33.07%
Other	1.03%	3.67%	7.90%	7.58%	4.55%	7.36%	2.90%
Count	1073	1745	672	330	44	95	378

* In Detroit, "Supermarkets" also include small and medium size grocers by our definition.

** For Detroit, "small or medium" grocers are recoded into "convenience plus" stores. Recoding for non-Detroit Areas was done by computer programming that searched for keywords in the business name. Unlike for Detroit, additional field checks and record-by-record inspections were not conducted. Therefore, we can make no determination about the true nature of "small or medium" grocers or "supermarkets" in non-Detroit locations.

Table 3: Supermarket* and Fast Food Distance Scores by Race

Average Distance by Tract to Food Stamp **Supermarkets** in Miles for Metro Detroit

	Detroit Only	Wayne, All	Wayne Minus Detroit	Macomb	Monroe	Washtenaw	Oakland
Majority White	.75	1.02	1.03	.90	3.26	1.57	1.23
Majority African American	.56	.57	.75	1.00	—	.86	—
Majority Latino	.41	.41	—	—	—	—	—
Majority Diverse	.61	.72	.99	—	—	1.14	.90

Average Distance by Tract to **Fast Food** in Miles for Metro Detroit

Majority White	.42	.60	.61	.52	2.64	1.15	.71
Majority African American	.38	.39	.58	.66	—	.57	.48
Majority Latino	.25	.25	—	—	—	—	—
Majority Diverse	.39	.41	.44	—	—	.88	.47

* For Detroit, Food Stamp Supermarkets is roughly equivalent to all small, medium, and large grocery stores and supermarkets by our definition. We can make no determination about the true nature of "supermarkets" in non-Detroit locations.

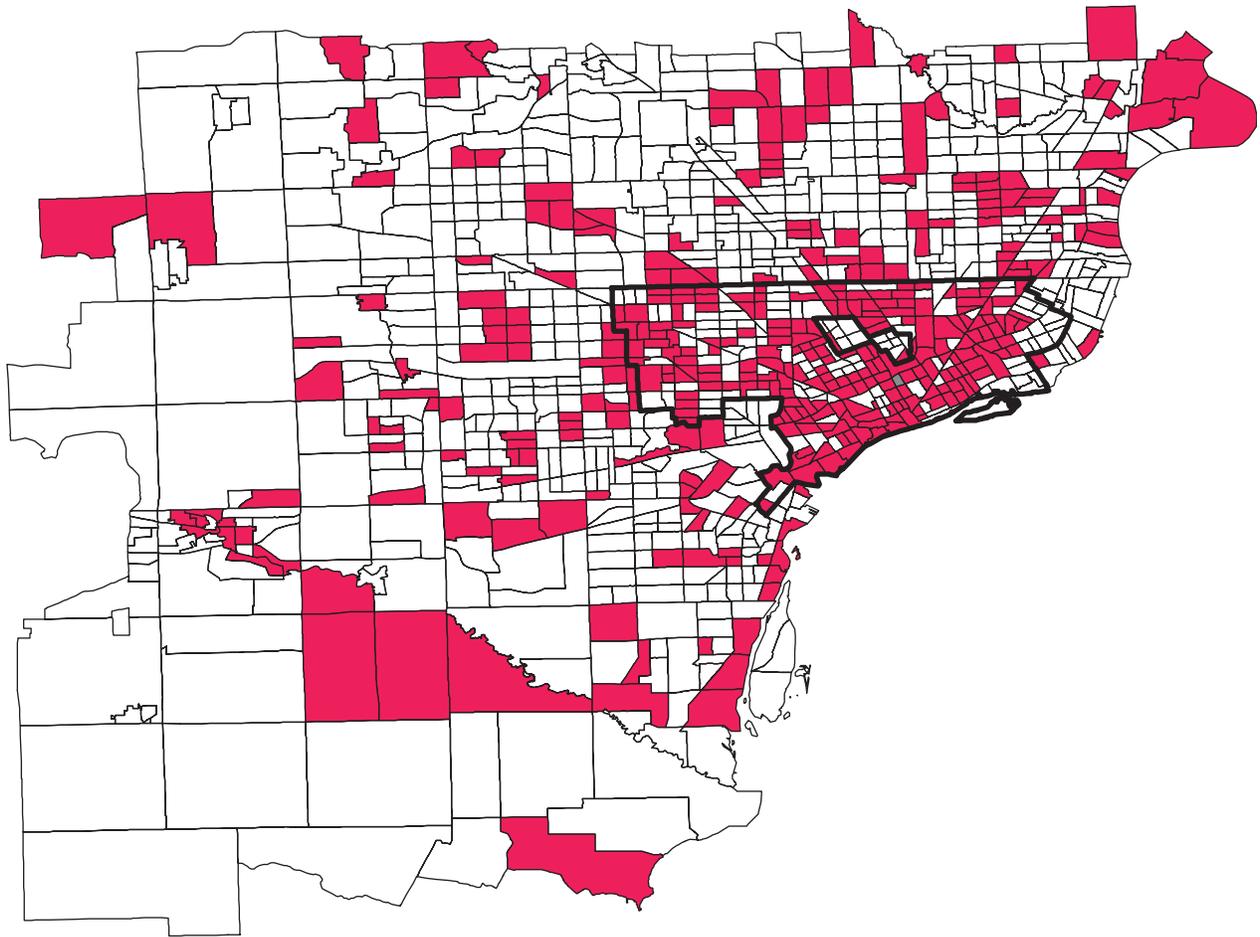
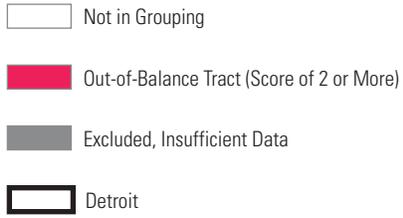
Note: Where dashes are given, there were not enough tracts in that racial category to make a meaningful calculation. For more distance scores, see the Detroit Project Technical Appendix at marigallagher.com.

Table 4: Food Stamp Retail Categories and Distribution for the State of Michigan and Key Michigan Locations

	Michigan	Lansing	Grand Rapids	Flint	Kalamazoo	Benton Harbor	St. Joseph
Supermarkets	19.95%	15.87%	21.05%	12.14%	19.54%	18.92%	37.50
Specialty Foods	7.06%	5.56%	7.24%	4.37%	6.90%	0.00%	0.00%
Recorded Convenience Stores	17.77%	24.60%	15.13%	34.47%	26.44%	18.92%	25.00%
Recorded Pharmacies	9.92%	5.56%	10.53%	6.80%	10.34%	5.41%	12.50%
Recorded Liquor & Party Stores	12.29%	13.49%	11.18%	13.11%	6.90%	18.92%	12.50%
Medium or Small Grocery	8.78%	11.90%	15.13%	6.80%	8.05%	16.22%	0.00%
Gas Stations	12.41%	7.14%	6.58%	7.28%	11.49%	13.51%	0.00%
Other	11.92%	15.88%	13.16%	15.03%	10.34%	8.10%	12.50%
Total	5989%	126	152	206	87	37	8

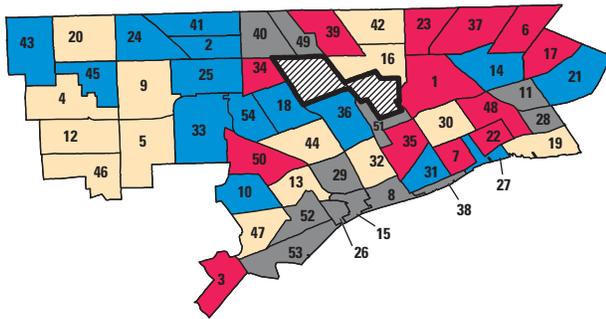
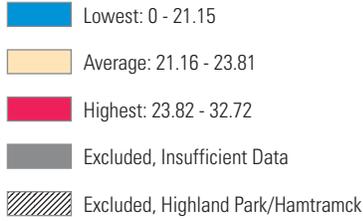
Note: Recoding for non-Detroit Areas was done by computer programming that searched for keywords in the business name. Unlike for Detroit, additional field checks and record-by-record inspections were not conducted. We can make no determination about the true nature of "small and medium" grocers or "supermarkets" in non-Detroit locations.

Map 2: Detroit and Metro Detroit Out-of-Balance Census Tracts
Food Balance Scores of 2 or More



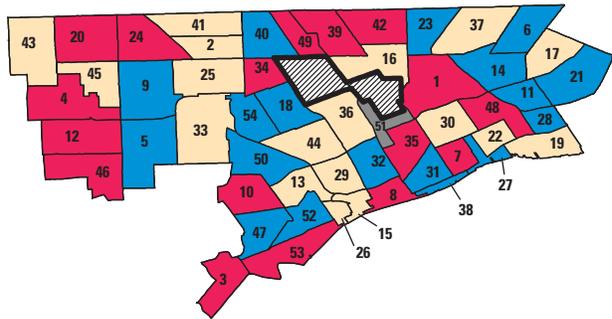
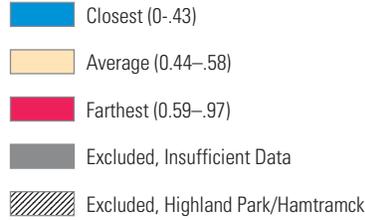
Map 3: Detroit Years of Potential Life Lost for Diet-Related Deaths Per 100 Population *by Tertiles*

Each tertile contains one third of the data set after it has been sorted from lowest to highest.



Map 4: Distance to Small, Medium and Large Grocers and Supermarkets in Detroit

Each tertile contains one third of the data set after it has been sorted from lowest to highest.



Detroit Communities

- | | |
|------------------------------|--------------------------|
| 1. Airport | 28. Jefferson/Mack |
| 2. Bagley | 29. Jeffries |
| 3. Boynton | 30. Kettering |
| 4. Brightmoor | 31. Lower East Central |
| 5. Brooks | 32. Lower Woodward |
| 6. Burbank | 33. Mackenzie |
| 7. Butzel | 34. McNichols |
| 8. Central Business District | 35. Middle East Central |
| 9. Cerveney/Grandmont | 36. Middle Woodward |
| 10. Chadsey | 37. Mt. Olivet |
| 11. Chandler Park | 38. Near East Riverfront |
| 12. Cody | 39. Nolan |
| 13. Condon | 40. Palmer Park |
| 14. Conner | 41. Pembroke |
| 15. Corktown | 42. Pershing |
| 16. Davison | 43. Redford |
| 17. Denby | 44. Rosa Parks |
| 18. Durfee | 45. Rosedale |
| 19. East Riverside | 46. Rouge |
| 20. Evergreen | 47. Springwells |
| 21. Finney | 48. St. Jean |
| 22. Foch | 49. State Fair Grounds |
| 23. Grant | 50. Tireman |
| 24. Greenfield | 51. Upper East Central |
| 25. Harmony Village | 52. Vernor/Junction |
| 26. Hubbard Richard | 53. West Riverfront |
| 27. Indian Village | 54. Winterhalter |

Additional technical details, tables, maps, and author's comments and acknowledgements are available in the Detroit Project Technical Appendix at marigallagher.com

Source Notes

- 1: www.consumeraffairs.com/news04/2005/car_costs.html
- 2: http://en.wikipedia.org/wiki/List_of_U.S._cities_with_most_households_without_a_car. Also note that some estimates are higher.
- 3: www.visitdetroit.com/media/aboutdetroit/funfacts
- 4: Technically, Food Stamps no longer exist, although this is still the common name for Electronic Benefits Transfer (EBT).
- 5: The exact population number calculated for those living in Detroit's out-of-balance areas is 591,849. All population numbers are from the 2000 Census, so the exact number today would slightly vary.
- 6: Small numbers of non-retail establishments were excluded from the data set, such as drug and alcohol treatment programs, group living arrangements, communal dining facilities, and private restaurant meal deliveries. Source: 2005 USDA Food Stamp data

YOU BUY, WE FRY SNACKS BEER FAST FOOD
STATIONS
CONVENIENCE
WE ACCEPT FOOD STAMPS \$1.00
Dollar Store PHARMACIES
BAKERIES \$1.00
LIQUOR LOTTO
WINE N' SPIRITS BEER SNACK
DOLLAR STORE
YOU BUY, WE FRY

Report authored by
Mari Gallagher Research & Consulting Group
1929 West Patterson
Chicago, IL 60613
312.339.0640
www.marigallagher.com
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