

GROWING IDEOLOGY: URBAN AGRICULTURE IN VANCOUVER AND DETROIT

by

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Abstract

This thesis is an investigation of the urban agriculture movements in Vancouver, British Columbia, and Detroit, Michigan. I use both quantitative and qualitative methods and an urban political ecology theoretical framework to unpack how urban agriculture fits within the foodscapes of these two cities. My quantitative method draws on recent critique of food desert studies, avoiding an epidemiological method that seeks to statistically measure health outcomes in favor of an ecological approach with social inequalities as the primary focus of inquiry. Through the use of cluster analysis, multidimensional scaling, and local indicators of spatial association, I conclude that foodscape composition and the location of urban agriculture is influenced by the housing and land markets, income inequality, and racial segregation. Drawing on interviews conducted in both cities, in my qualitative section I seek to understand how urban agriculture is seen as a sustainable solution to the very different problems faced by these two cities. I argue that urban agriculture has an ambivalent relationship to neoliberalism: it emerged largely as a Polanyian counter-movement to urbanized inequalities, but has more recently been enrolled as a device by the local state through which sustainability planning is seen to enhance economic competitiveness. Finally, I present vignettes of individual farms and gardens that show the political potential of urban agriculture to be closely linked to theories of political change and socionatural metabolic rifts.

Preface

This thesis is an original, unpublished, independent work by the author, Samuel Walker. The fieldwork and interviews for this thesis took place in Detroit, Michigan from July 3 to July 14, 2012, and in Vancouver, British Columbia from January 9 to February 21, 2013. Approval for the interviews was granted through the University of British Columbia Behavioral Research Ethics Board, Ethics Certificate Number H12-01096, titled “Detroit and Vancouver Urban Agriculture.” The research was funded by the University of British Columbia through the Graduate Support Initiative Award and the Department of Geography. Figure 18 in this thesis is reprinted with written permission from the City of Vancouver.

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List of Abbreviations

A&P	The Great Atlantic & Pacific Tea Company
AAFNs	Alternative agrifood networks
ACS	American Community Survey
AFM	Alternative food movement
ALEC	American Legislative Exchange Council
ALR	Agricultural Land Reserve
BC	British Columbia
BMI	Body Mass Index
CAD	Canadian dollar
CAFO	Concentrated animal feeding operations
CBD	Central business district
CEO	Chief Executive Officer
CFS	Community Food Security
COPE	Coalition of Progressive Electors
CSA	Community-supported agriculture
DAN	Detroit Agriculture Network
DBCFSN	Detroit Black Community Food Security Network
DCPC	Detroit City Planning Commission
<i>DFC</i>	<i>Detroit Future City</i>
DFPC	Detroit Food Policy Council
DTES	Downtown Eastside (of Vancouver)

EFMEmergency Financial Manager

EMEAC..... East Michigan Environmental Action Council

EYAEnvironmental Youth Alliance

GAAMPsGenerally Accepted Agricultural and Management Practices

GDPGross domestic product

GIS Geographic Information Systems

GRPGarden Resource Program

HFFI Healthy Food Financing Initiative

LGBTQLesbian, Gay, Bisexual, Transgender, Queer

LISA..... Local indicators of spatial association

MD..... Midtown Detroit Inc.

MDARD..... Michigan Department of Agriculture and Rural Development

MDS..... Multidimensional scaling

MIMichigan

NASS National Agricultural Statistics Service

NCCG North Cass Community Garden

NPA..... Non-Partisan Association

PAHs Polycyclic aromatic hydrocarbons

POIsPoints of interest

RTFA Right to Farm Act

SMC & ZAEC Serecon Management Consulting & Zbeetnoff Agro-Environmental Consulting

SNAPSupplemental Nutrition Assistance Program

SOLE Save Our Living Environment or Sustainable Organic Local Ethical
SPIN Small plot intensive (gardening)
SRO Single room occupancy
SSI Social Security Insurance
UA Urban agriculture
UBC University of British Columbia
US United States
USD United States dollar
USDA United States Department of Agriculture
YEA Young Educators Alliance

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Introduction

Vancouver and Detroit

Vancouver, British Columbia (BC), and Detroit, Michigan (MI) are 1,962 miles away from each other in traditional Cartesian space; in the more dynamic economic and social space of the world's cities, they are perhaps even farther apart. Although both North American cities colonized by Europeans, they exist on very different socio-economic timelines.¹ Detroit is renowned as one of the world's former industrial giants, the Motor City, where the American Dream of automobile-centric urban sprawl was born. Most accounts of this famous city start by rolling off a list of impressive – and depressing – statistics (e.g. Binelli, 2012: 9), some of which are duly repeated here (see also Table 1 below).

Detroit is the only city in the United States to have surpassed and then fallen below one million people in population: approximately 1.9 million in 1950 to just over 700,000 in 2010 (see Figure 1 below). The city's demographic transition encapsulates post-war white flight through suburbanization and the Great Migration of African Americans² from the rural South to the urban North: in 1920, four percent of Detroit's 993,678 people were black (Gavrilovich & McGraw, 2000); by 2010, the city's population of 713,777 was 84% black, making it the city with the highest percentage of African Americans in the United States (2010 American Census). While the majority of Rust Belt deindustrialization occurred from the 1960s to 1980s, Detroit continues to be hit hard by a changing economy. Between 2000 and 2008, one out of every four private-sector jobs lost in the United States occurred in Michigan (Little, 2009); 150,000 of

¹ Note that although this thesis has been influenced by comparative urbanism, this approach and its literature is largely implicit in the analysis. For a recent review of the field, see McFarlane & Robinson (2012).

² The terms black and African American will be used interchangeably in this thesis.

these were automobile industry jobs in Detroit (Platzer & Harrison, 2009). Detroit has seen all of the major American urban transitions of the 20th and 21st centuries play out in microcosm:

Table 1. Selected demographics for Vancouver and Detroit. Note that currency data is presented in CAD or USD depending on country and has not been adjusted from the years they were created. Sources: 2006 and 2011 Canadian censuses, 2010 American Census, 2011 American Community Survey, Davidson (2012), and Canada Mortgage and Housing Corporation (2012).

Variable	Vancouver	Detroit
Evidence of human settlement	~8,000 BCE	~11,000 BCE
European contact	1791	1670
Founded	-	1701
Incorporated	1886	1806
Population (2011, 2012)	603,502	701,475
Land area (square miles, 2011, 2012)	44.39	142.87
Population density (people per square mile, 2011, 2012)	13,590	5,142
Residential vacancy rate (2006, 2011)	7.5%	28.9%
Residential rental vacancy rate (2011, 2011)	1.9%	12.5%
Residential parcel vacancy rate (2010)	-	39.1%
Percentage land vacant* (2010)	-	15.4%
Median household income (2006, 2011)	\$47,299	\$27,603
Median rent (2006, 2011)	\$940	\$779
Median home value (2006, 2011)	\$604,983	\$69,125
Unemployment rate (2006, 2011)	6.2%	27.5%
Percent automobile commuters (2006, 2011)	83.3%	79.9%
Percent with high school education or more (2006, 2011)	82.4%	76.3%
Percent Native American/Aboriginal identity (2006, 2011)	2.1%	0.2%
Percent foreign-born (2006, 2011)	48.0%	5.3%
Percent non-white (2006, 2011)	49.6%	87.7%
Percent owner-occupied housing (2006, 2011)	51.4%	50.5%
Percent receiving public assistance (2011)	-	9.4%
Percent receiving SNAP* benefits (food stamps) (2011)	-	35.9%
Percent receiving Social Security Insurance (SSI) (2011)	-	13.1%
Percent of incomes composed of gov't transfer payments (2006)	10.4%	-

* Note that the Supplemental Nutrition Assistance Program (SNAP) referred to in the table is the current name for the federally-funded, state-distributed food purchasing financial assistance program historically known as the Food Stamp Program.

industrialization, unionization, the rise of the middle class, racial segregation, suburbanization, postindustrial economic decline, race riots, the crack cocaine wars and neoliberal retrenchment of the 1980s and 1990s, the foreclosure crisis of the late 2000s, and perhaps even a glimpse of

America's urban future with the city filing for Chapter Nine bankruptcy on July 18, 2013, becoming the largest American city ever to do so.³

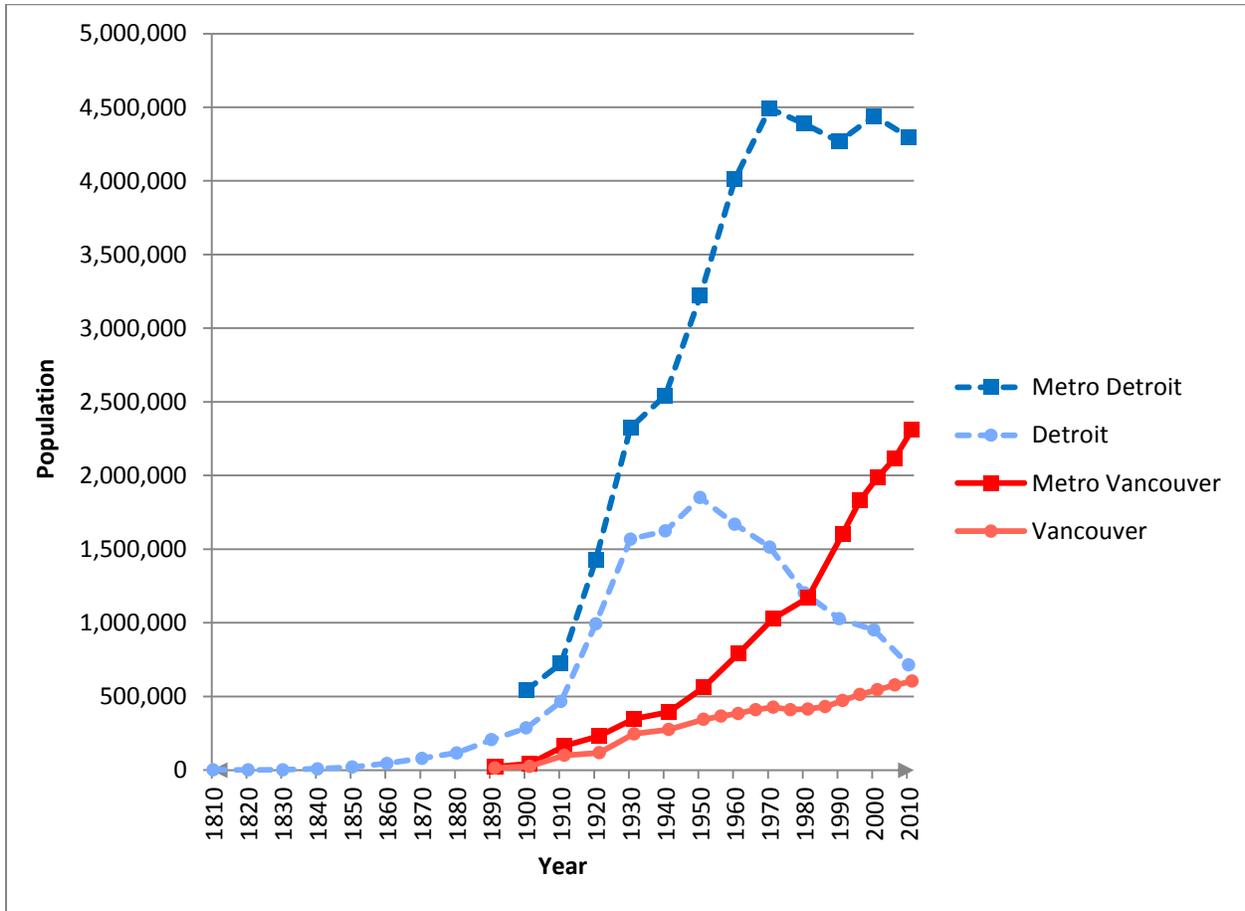


Figure 1. Populations of Vancouver and Detroit and their metropolitan (statistical) areas, 1810-2011. Source: Canadian and American censuses.

Vancouver stands in stark contrast to the shrinking Eastern city of Detroit as a rapidly growing Western city (see Figure 1). While Detroit is often pointed to as an example of a city with very low population density (though see Clement, 2013: 66-67), Vancouver's dense

³ Several events stand out in this chronology: Henry Ford's innovations of the assembly line and the five dollar a day wage, the 1974 *Milliken v. Bradley* Supreme Court decision against the forced desegregation of schools through bussing, the 1943 and 1967 race riots, some of the largest and most devastating in the country, and the deadly Stop the Robberies, Enjoy Safe Streets (STRESS) paramilitary police team that was responsible for 500 warrantless-raids and 20 killings over its 30 month existence until the election of Coleman Young, the city's first black mayor, in 1974 (see Georgakas & Surkin, 1998: 168). For a historical overview of many of these events and others, see Sugrue (2005), Conot (1974), or the work of Clarence M. Burton (e.g. 1930). For a more popular take on Detroit's history and current situation, refer to Chafets (1990) or Binelli (2012).

downtown residential development makes it a star example of planners' recent obsession with density (see Quastel et al., 2012). Although it is a relatively small city (Canada's eighth largest), Vancouver has actively pursued world city status, especially since the late 1990s. Combining a booming tourism industry and a globalized real estate market with the natural attractions of its Pacific Northwest environment has made Vancouver a global consumption city (Siemiatycki, 2013). Regularly high rankings on inter-urban league tables measuring sustainability and livability are an asset highly valued by the City government, which has actively marketed Vancouver as a place ideal for a cosmopolitan upper class. This trend largely reflects the decrease of traditional (i.e. resource-based) economic activity in the Lower Mainland and the rise of consumption-based – and to some degree, creativity- or knowledge-based – industries. While often pointed to as a paragon of 21st century urban planning and development (e.g. Punter, 2003; Harcourt & Cameron, 2007), Siemiatycki nicely summarizes why the much-praised model of Vancouverism ultimately rests on significant and often unjust changes in the urban economic order:

Vancouver is simultaneously the most livable and unaffordable city in the world; Vancouver is a leading creative city in which creative firms and workers alike struggle under conditions of precariousness; Vancouver is mythologized as a healthy, sustainable, lifestyle city while these very qualities often must be sacrificed by working Vancouver residents. (2013: ii)

What then, do these two cities have in common? In this thesis, I will explore a phenomenon both cities share: urban agriculture.⁴ With farmer-turned-mayor Gregor

⁴ A note on terminology: through the thesis, I will refer to the general phenomenon of growing food in cities as urban agriculture. My definition of urban is loose, but for purposes of analysis my study areas are restricted to the municipal boundaries of the cities of Vancouver and Detroit, except where noted. Urban gardening will refer to smaller scale urban agriculture and urban farming to larger scale operations. See Table 3 for more information. Additionally, this thesis deals exclusively with urban agriculture in the Global North; for an overview of the urban

Robertson and City Council supporting sustainability efforts and a regional history of environmentalism, Vancouver has recently received national media attention for its urban agriculture efforts (e.g. Elton, 2012; CBC News, 2013). For quite opposite reasons, abandoned and vacant land in Detroit has been farmed by residents for decades, with some simply trying to subsist and others hoping to improve the health and economic wellbeing of their neighborhoods. With high levels of diet-related diseases such as diabetes and heart disease, urban agriculture has often been touted as a solution to Detroit's food inaccess problems and related health issues (e.g. Romm, 2010). Motown has often stood as a bellwether for the rest of the United States (Herron, 2007; Millington, 2010, 2013), and in recent years the nation has kept a close eye on the city, with some commentators reveling in the seemingly post-apocalyptic landscape (e.g. Boileau, 1997; Vergara, 1999) and others looking to the city as an example of postindustrial ingenuity (see Solnit, 2007; Binelli, 2012: 62). The cases of Vancouver and Detroit urban agriculture make for romantic news stories about the promise of urban sustainability, but their juxtaposition begs further questions. How is urban agriculture seen as a sustainable solution to the very different problems faced by these two cities? What does this tell us about how individual actors and municipal governments view the idea of sustainability? What is the relationship between differently neoliberalizing urban political economies and urban agriculture?

Research goals

In answering these questions, my project has several goals, both scholarly and political.

My contribution to geographic knowledge centers around determining how urban agriculture

agriculture movement in the Global South, see Smit et al. (1996) and Bakker et al. (2000). In tables in this thesis, urban agriculture will sometimes be abbreviated UA.

fits in the urban landscapes of these two cities: what conditions lead to its emergence, what spatial patterns it displays, and in what kinds of neighborhoods it appears. To investigate this phenomenon I employ both quantitative methods employing geographic information systems (GIS) and statistical analysis and a qualitative approach drawing on interviews with urban agriculture movement participants. More broadly, I also seek to understand how it emerges in different urban political economies, hence my decision to analyze the very different cities of Vancouver and Detroit.

The political influence behind my subject of research comes from the food justice movement. Food justice is defined by Robert Gottlieb and Anupama Joshi as “ensuring that the benefits and risks of where, what, and how food is grown and produced, transported and distributed, accessed, and eaten are shared fairly” (2010: 6). Food justice activism has been heavily influenced by the environmental justice movement, which seeks to simultaneously make visible and work to change unequal exposure to environmental harms such as industrial pollution, the risk of which is generally greater to marginalized people in racialized and low-income communities (see Gottlieb & Fisher, 1996). Food justice is also considered to be part of the alternative food movement (AFM), which has arisen in the Global North as a reaction against the industrialized food system and its negative health, economic, environmental, and social impacts. Recent scholarly work (Guthman, 2004, 2011; Slocum, 2007; Gottlieb & Joshi, 2010) has critiqued how the mainstream AFM would benefit from better incorporating the antiracist and social justice goals of food justice. I join other scholars (e.g. Alkon & Agyeman, 2011; McClintock, 2011) in studying urban agriculture as a self-reflexive, critical AFM participant seeking to strengthen the transformative political potential of the movement.

Most urban agriculture projects are inspired by to some degree by the alternative food and food justice movements. Many also stress the importance of food security, which is defined by the United Nations as “when all people, at all times, have physical, social and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (Food and Agriculture Organization, 2013). By growing their own food, urban gardeners and farmers hope to improve their own and their communities’ access to fresh, organic produce. Some organizations also work under a community food security (CFS) paradigm, which emerged in the United States largely in response to the shortcomings of the emergency or charity food sector (see Morales, 2011). By only providing temporary relief and not addressing the root cause of poverty and lack of self-determination in food insecure communities, the CFS perspective sees emergency food sources like food banks and soup kitchens as unable to provide long-term food security. CFS organizers use urban agriculture as one tool in a multifaceted approach designed to allow communities to generate their own means of creating food security.

Food system scholars have also examined the relationship between the AFM and neoliberalism, although this literature has been much less influential on the mainstream AFM and its media portrayals. In this thesis, I draw on this literature to explore the role between urban agriculture and neoliberalization. This involves tracing how the economic restructuring of the late 1970s to today – especially policies reducing state services and encouraging inter-urban entrepreneurial competition – has created the landscapes in which urban agriculture has (most recently) emerged. By treating neoliberalization as a process instead of a static series of events, I hope to first, see how this process works differently in the contexts of Vancouver and Detroit,

and second, assess which kinds of urban agriculture more actively resist the injustices of neoliberal urbanism.

Chapter summaries

Researchers and educators have also played an important part in mainstreaming the AFM through concerns over food security. Highly influential in scholarly responses to problems of food inaccess is the food desert method. This method draws on epidemiology and GIS technology to determine which areas of cities lack access to fresh food. In Chapter 1, I briefly review the food desert literature with an eye towards both methodological and sociological critiques. With these short-comings in mind, I present my own method for measuring food access that seeks to avoid the epidemiological method of food access studies in favor of an ecological approach with social inequalities as the primary focus of inquiry. To do so, I build a dataset with a wide range of food sources beyond full-service supermarkets. Instead of using the food desert concept, I work with the idea of a *foodscape*. The foodscape can simply be defined as “the spatial distribution of food across urban spaces” (Johnston et al., 2009). While quite a general concept, it presents a more holistic view of the food retail environment than the food desert, which starkly separates urban space into areas of access and inaccess. The foodscape concept more accurately describes my method because I seek to measure all food access, from restaurants to corner stores and including AFM sources like urban agriculture.

In Chapter 2, through the use of cluster analysis, multidimensional scaling, and a method combining multidimensional scaling with local indicators of spatial association, I present my findings regarding the distribution of food sources within the cities of Vancouver and Detroit. Three primary themes emerge from the results: first, the foodscape is significantly

influenced by the housing and land market of each city. In Vancouver, high-value waterfront and downtown real estate supports relatively dense food retail, while less dense residential areas – especially those on the West side – have relatively few food sources. As has been discussed widely, Detroit’s postindustrial landscape has large areas of vacant land where the primary source of food is corner stores, although the emergency and alternative food systems present efforts to improve access. Income inequality also plays a role in the contours of the foodscape, with wealthier areas in Vancouver having relatively fewer food sources due to their quasi-suburban neighborhoods of single family housing. Finally, the effects of racial segregation and inequality can be detected in the data, illustrating both the historical legacy and continuing presence of racism in the food systems of each city.

Chapter 3 serves as a brief transition between the quantitative methods employed in the first half of the thesis to the qualitative exploration of the economic context and political contestation of urban agriculture of the second half. In Chapter 4 I present the history of local and urban agriculture in each city and examine recent efforts by the local state to selectively support urban agriculture as part of a sustainability fix. Drawing on an urban political ecology framework, I use the concept of metabolism to unpack urban agriculture’s relationship to neoliberalization. The comparison of such different cities illustrates how urban agriculture gets picked up in different regulatory and economic sites. Under conditions of austerity in Detroit, large scale urban agriculture becomes the solution to devalued postindustrial land, facilitating the densification and targeted investment of gentrifying neighborhoods while city services are withdrawn from those deemed destined for agricultural use. On the other hand, the City of

Vancouver's use of sustainability as a tool in inter-urban competition has facilitated the expansion of certain forms of urban agriculture.

Finally, in Chapter 5, I draw on interviews conducted with farmers, gardeners, and other urban agriculture supporters and practitioners to explore the connections between metabolic rifts, theories of change, and the political projects wrapped up in urban agriculture. My results point to a diversity of rationales for pursuing urban agriculture and suggest that while neoliberalization has created the political-economic context whereby urban agriculture flourishes as a Polanyian (1944) counter-movement, only urban agricultural projects targeting all three metabolic rifts as presented by McClintock (2011) effectively resist the market logic that supports urban inequality. By actively resisting the ecological (contamination and environmental degradation of industrial agriculture), the social (commodification of land and labor), and the individual (dual alienation from products of labor and the land) metabolic rifts, radical grassroots urban agriculture holds the potential to make food justice part of a broader agenda for social justice.

Chapter 1: Quantifying the Urban Foodscape

Where do you go to buy your groceries? Or pick up your free meal? Or harvest your weekly vegetables from the soil? Most urban dwellers are proud owners of an intimate mental map (Gould & White, 2004) of where they go to get food, whether it is the best restaurant to go for a weekend brunch, the safest places to go dumpster-diving, or the hidden gem of a deli that is the cheapest place in the city to get organic Italian Parmesan (see, for example, Rowntree, 1997, Forsyth et al., 2010; Hashimoto, 2012). Where they go to find the fuel required to get through the day can say quite a bit about their material wealth, social capital, and personal beliefs or politics. As the epidemiology and public health literature tells us, it can also be a significant factor affecting their physical and mental health (see Walker et al., 2010). Therefore, a central challenge confronting social scientists interested in studying urban foodscapes and food access is leveraging these diverse mental maps to gain a better understanding of the factors influencing where people are able to find sustenance. This challenge can be even greater when the focus of inquiry shifts from an individual level to a neighborhood and from a neighborhood to a city or region. The foodscape concept is helpful here because it focuses on empirically describing the range, type, and mix of food sources available across space in the urban environment (Mikkelsen, 2011; Sulaiman & Haron, 2013), a concept that is in many ways a useful generalization of these individual mental maps.

Thus, a problematic for this study is how to describe the foodscapes of two drastically different cities at a level where generalizations can be supported by empirical data. While qualitative research – and especially ethnography – of individual, community, or neighborhood foodscapes can reveal the contours of social and spatial difference influencing food access (see

Cummins et al., 2007: 1826), such a nuanced and ‘close-up’ approach is less helpful when thinking at the level of the city or for asking how foodscapes interact with different paths of urbanization and the resulting sedimentation of inequality. Therefore, my goal for this chapter is to present a method that facilitates making empirical and quantitative generalizations about neighborhood-level foodscapes. This objective will be accomplished through *expanding* the notion of what counts as a food source in food access studies by including a diverse range of sources including food retail, alternative food organizations, and urban agriculture. By expanding the methodology to include urban agriculture, a quantitative and empirical base will be established for the discussion in later chapters regarding how growing food in the city fits into the metabolism of nature and circulation of capital within both Vancouver and Detroit.

Proximity = access: the food desert approach

Perhaps the most recognizable effort to quantitatively measure food access at the level of neighborhoods and cities has come from research into food deserts. In fact, this term has become common parlance within the AFM and the mainstream media (Guthman, 2011: 67, 154). Considering that this body of research has been influential in my response to the above problematic, in this section I will provide an overview of the history and theoretical assumptions of the food desert approach.

The food desert approach started as an epidemiological investigation into the relationship between dietary disease (e.g. diabetes mellitus type two and coronary heart disease), food access (usually understood as distance to a full-service supermarket) and

neighborhood – or ‘foodshed’⁵ – demographics. Central to this approach was a concern with obesity; the first major use of the food desert concept came about during investigation into ‘obesogenic environments’ and health inequalities in the United Kingdom during the 1990s (Department of Health, 1996; Whelan et al., 2002). Concern over rising rates of obesity and diet-related illnesses in the Global North have been central in spurring this research, which has led to one of the central insights of public health and epidemiology coming to the forefront of academic research and public concern: that people who are socially marginalized and oppressed along many lines of difference (most notably the familiar triad of race, class, and gender) are much more likely to suffer ill health (see Schulz et al., 2002 for a discussion of racial health disparities in Detroit). While this insight has been mainstreamed by the environmental justice movement’s work linking everyday exposure to toxic chemicals to disease, more recent food justice activism has highlighted the connections between social marginalization and diet-related disease (Gottlieb & Joshi, 2010; Alkon & Agyeman, 2011). In this regard, recent interest in food deserts has reflected a challenge to the individualized analysis of health in terms of personal choices and moral obligations; it is now understood that health outcomes are deeply shaped by social, institutional, and geographical context. This shift in health discourse is due in large part to the influence of academic and activist approaches in the environmental and food justice movements, which since the 1980s have presented strong evidence of the ways in which bodily harm is unevenly distributed within society. The more radical political stance taken by

⁵ Foodshed is a term applying the idea of a watershed, or catchment area, to local food production: the area covered by food production supplying a certain place. For example, Kremer & DeLiberty (2011) delineated the local foodshed of Philadelphia by mapping all of the farms that supplied local produce to the city.

these justice-oriented perspectives stands in contrast to the liberal, often technocratic position prevalent in public health and epidemiology.

Therefore, several issues are worth emphasizing in this regard. Most fundamentally, food desert research represents a particular way of investigating the relationship between health and social inequality that has both positive and negative aspects from a food justice perspective. To overcome the challenge of scale presented at the beginning of this chapter, the food desert approach draws heavily on three research traditions (see Shannon, 2013). First is the Chicago School of Sociology's social ecology framework that has heavily informed modern epidemiology. This approach sought to apply models from the natural scientific field of ecology to human communities and privileged the effect of the urban environment on individuals to the detriment of human agency. The second tradition comes from obesogenic environment studies, which make many significant assumptions, including the energy-balance model of weight change (i.e. calories in minus calories out equals weight change), a relatively straightforward understanding of access as spatial proximity, and a conception of obesity (as opposed to adiposity or related ailments like diabetes) as a pathological disease more than a reference to body size (see Guthman, 2011: 25). The third tradition is the methodological approach of GIS, the proliferation of which has facilitated the relatively simple creation of quantitative models of food access. The combination of these three streams has created a body of work that has the ultimate goal of quantitatively measuring the relationship between demographics, health, and food access (see, for example, Gallagher 2006, 2007).

There are many variations in the exact methods employed in food desert studies, but the overall method for GIS-based assessments follows the same general model. Access is

operationalized as the distance between the center point (centroid) of a census aggregation unit, usually a census tract, and the closest food source, usually a full-service supermarket. The type of distance measure used varies from straight line Euclidian distance, right angle Manhattan distance, or 'networked' distance measured along road and/or footpath networks (for more discussion, see McEntee & Agyeman, 2010: 169; see also Figure 2 below). After this measurement has been made the resulting distances are compared to the demographic variables from each census tract to see if factors like race, median income, or automobile commuting have statistically significant relationships to food access, often through correlation or linear regression models (Walker et al., 2010). Variations on this approach are also common. Perhaps most significant is the method employed by the Mari Gallagher Research and Consulting Group, who carried out one of the first widely-publicized food desert studies in the United States in Chicago (2006). Their approach measures what they call the 'Food Balance Score' (2006: 22), where the Euclidian distance to the closest grocery store is divided by the distance to the closest 'fringe food' (e.g. fast food or convenience) store at the census block level. These distances are then averaged at the census tract level to develop an overall measure of 'food balance'.

While the 'Food Balance Score' method does overcome several of the methodological difficulties inherent in public health studies of urban food access, it still ultimately relies on a conception of access understood strictly as spatial proximity. By adopting such an approach, researchers have documented statistically significant relationships between social marginalization, poor food access, and health outcomes measured as cardiovascular disease

prevalence or mean body mass index (BMI) (see Holsten, 2009 for a review).⁶ However, the use of distance from centroids to food sources as a meaningful continuous variable against which socio-economic data can be compared statistically is still a fundamentally troubling practice. It is important to acknowledge the contributions of the food desert method, but to also recognize the limits of such an approach.

Taking to heart the technical critiques of the food desert method (see, for example, Cummins & Macintyre, 2002) and the theoretical critiques of its methodology and politics leveled effectively by Julie Guthman (2011) and Jerry Shannon (2013), the fundamental issue of access as spatial proximity is central. This assumption becomes especially troubling in efforts to incorporate urban agriculture and other alternative food sources into food desert studies. While attempts have been made to see if urban agriculture exists in food deserts quantitatively (Mann, 2009), and through more qualitative and ethnographic work showing how the food desert concept is mobilized in food justice organizing (see Guthman, 2011: 153-155), the challenge of placing urban agriculture in the existing quantitative food desert model highlights the problem with assuming that proximity equals access. Some urban agriculture models – community gardens, for example – provide food directly to residents living nearby. On the other hand, models such as community-supported agriculture (CSA) or market gardens often grow in areas spatially distant from their customers, due mostly to their greater demand for land and water access.⁷ Additionally, a central concern in critical food studies literature is the social role played by urban agriculture: in building community cohesion or inclusion (see Guitart

⁶ Body Mass Index (BMI) is a measure of body mass calculated by dividing weight in kilograms by height in meters squared. BMI is the main epidemiological measure of fatness in populations, but has significant limitations, most obviously that it is a measure of total body mass, not body fat (or adiposity). For a history of the concept, see Guthman (2011: 27-30), and for scientific and sociological critiques of its use, see Gard & Wright (2005).

⁷ See page 19 for a more detailed discussion of different models of urban agriculture.

et al, 2012); creating alternative moral economies (e.g. Rosol & Schweizer, 2012); or effecting neighborhood change (e.g. Reynolds, 2010). While food access plays a central part in these processes, the simple *presence* of urban agriculture in particular neighborhoods may also be very important.

With this in mind, my study starts with the technique of food desert analysis but modifies two of its central assumptions. First, I reject the assumption of access in matching food sources to census tracts in favor of a focus on presence. Second, I do not treat the distance linking centroids and sources as a meaningful continuous variable but instead only as a method for matching tracts and sources. The resulting method focuses on how food sources are distributed in relationship to the built environment and provides the means to answer the research question, ‘What kinds of neighborhoods have what kinds of food sources?’ By taking this approach, in this thesis I seek to integrate the empirical generalizations made possible by ecological approaches to understanding urban inequality with the political motivations of the critical political ecology and food justice movements. While inequality in the distribution of food sources between neighborhoods may not map directly onto larger measures of socio-economic and health outcome inequality, investigating both together can better describe and provide grounds to combat the spatial injustices created by urbanization.

My method

My work in this chapter aligns with recent studies (An & Sturm, 2012; Lee, 2012) in using new methods and data in an attempt to gain a broader understanding of the spatial variation in urban foodscapes. I also aim to join other geographers critically using quantitative methods as part of a “strategic positivism” (see Wyly, 2009, 2011) that does not try to resurrect objective

spatial social science, but rather brings statistical techniques to bear on pressing issues of social injustice. Specifically, the method I use facilitates the incorporation of urban agriculture into the overall picture of spatialized inequality in Vancouver and Detroit. In contrast to food desert analysis, my approach does not attempt to calculate the *degree of access* to food sources as a continuous variable; instead, it simply *matches* food sources to their ‘neighbourhood’, i.e. census tract. While this process still uses distances to assign sources to census tracts, it does not then use that distance as a meaningful continuous variable in statistical analysis. This method still allows socio-economic data from the census to be analyzed with food source data, but seeks to better understand what determines the *presence* of food sources in a neighborhood instead of what determines *access*.⁸ By avoiding the simplistic understanding of access as proximity, this method avoids drawing on narratives in which discourses of obesity and dietary disease are constructed as either entirely environmentally determined or as the result of immorality. My approach opens up discussions for alternative understandings of issues of food access and how they should be addressed.

Still, I use several techniques from food desert studies designed to more accurately reflect access. First, census tract centroids are population-weighted by 2010 (Detroit) and 2011 (Vancouver) census total population by blocks. This step shifts the ‘center of gravity’ of each

⁸ Although my method does have its advantages, it must be noted that this shift from a continuous to a binary relationship between food sources and census tracts exacerbates the modifiable areal unit problem (MAUP) in my analysis. This statistical problem arises when the districts (areal units) used to aggregate data points are arbitrary (modifiable), in this case the census tracts and food source points. A continuous variable is better able to account for this issue by establishing a *degree* of connection between points and tracts instead of a *binary* condition (in or out). The central issue here concerns what kinds of points are being used in the analysis, however. In a simple food desert analysis focusing solely on supermarkets, it is logical to measure the distance from tract centroids to the nearest supermarket. Because my method uses multiple different categories of food source points and seeks to measure the total number (or population-adjusted level) of different kinds of food sources present in each neighborhood, a single continuous measure cannot be assigned to each tract. Capturing the level of food source presence requires using a binary relationship.

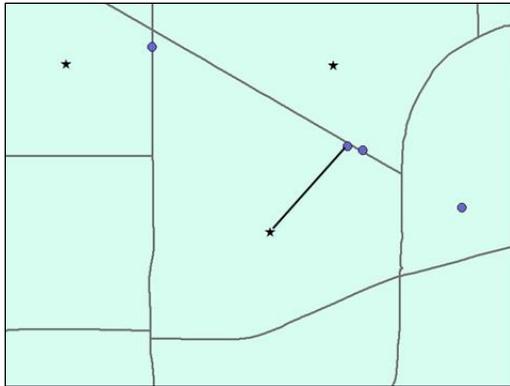
census tract to more accurately reflect areas where people live, an important consideration for census tracts containing large public parks or industrial areas.⁹ Additionally, instead of using straight line Euclidean distances, networked distances along roads were used (see Figure 2 below). This technique accounts for the disruptions in urban mobility caused by large highways and dead-end streets, an issue especially apparent in certain areas of Detroit (see Ryan, 2008). Taken together, these techniques allow the investigation of the relationship between a wide variety of food source types and socio-economic variables. Before presenting the results of this analysis, however, an extensive explanation of the data is warranted, as data quality and availability play a vital role in foodscape measurement (see Walker et al., 2010).

Data sources

The data for this study fall into three general categories. Demographic data and census blocks and tracts geodata are from national censuses: the 2006 Canadian quinquennial census¹⁰ and the 2011 American Community Survey (ACS) (2006-2011 averages). The road layers used in the network analysis were acquired from CanMap Streetfiles (DMTI Spatial Inc., 2010) and the State of Michigan (2011). Food source locations were taken primarily from a file of point of interest (POI) locations released by SimpleGeo Places, a now-defunct startup mobile software company. In addition to the SimpleGeo data, several smaller databases – as well as manual data-gathering – aided in building the sample of food sources. It is worth noting here that while the demographic data are based on large-sample census estimates with established degrees of reliability, the sample of food sources was not created systematically and, if anything,

⁹ This procedure is done as follows: first, the center point (centroid) of each census tract is determined. Then, census population counts at smaller levels of aggregation are obtained, in this case from census blocks. Finally, the position of the tract centroid is altered based on the ‘weight’ of population distribution by blocks using the Mean Center tool in ArcGIS.

¹⁰ At the time of analysis, detailed data tables for the 2011 Canadian quinquennial census were not released.



Euclidian distance to closest grocery store



Networked distance to closest grocery store



Networked distance to many sources

Figure 2. Three different methods for matching food sources (circles) with census tract centroids (stars). Note that the first two more prevalent methods measure distances to the single closest grocery store, while the third – my method – measures distances to many different kinds of food sources.

represents a convenience sample. However, in the era of ‘big data’,¹¹ such sources are quickly becoming the de facto standard: companies without the kind of digital presence picked up by

¹¹ ‘Big data’ is the term used to describe the increasing amount of data being generated since the advent of the internet and increased computer memory storage capabilities. In the case of this study, the so-called ‘social data revolution’ (see Hubbard, 2011) plays a major role in this trend, with information being generated at extremely high rates through the activities of internet users on social media, Web 2.0 (or 3.0), and crowd-sourcing websites. It should also be noted that because the data from this study come from a much larger dataset, they are not ‘big data’ on their own, but their creation would not have been possible without large-scale data mining.

firms like SimpleGeo that generate revenue through data collection are rapidly becoming extinct. In this light, my study comes at what is likely a unique point in the history of social science research where it is still possible to combine data from disappearing large-sample, long-form, governmental censuses with the new paradigm of big data. That said, the time spent building both samples and the internal reliability of the databases used does mean that the data should be generally reliable at the neighborhood level.

The scope of the study was restricted to the municipal boundaries of the City of Vancouver and the City of Detroit primarily in an effort to maintain focus and create a dataset of a manageable size. An effort has been made to place these city-level findings in their regional contexts in Chapter 4. Also note that the cities of Hamtramck and Highland Park, both contained within the boundaries of the City of Detroit, were included in the data to reduce the boundary problem.¹² Table 2 below shows the census variables used for each city. These variables were chosen based on the common findings of other food desert studies as outlined in Walker et al. (2010). SimpleGeo was an Application Programming Interface (API)-based¹³ geolocation service that has since been acquired by Urban Airship (2011). Upon being acquired

¹² The boundary problem is one of the four major issues with spatial analysis and occurs when calculated values or statistics in a given areal unit (in this case the Detroit census tracts abutting the Hamtramck or Highland Park tracts) change due to the exclusion of values in bordering areal units (in this case the Hamtramck or Highland Park tracts). Because points are matched to their census tracts based on distance, excluding the Hamtramck or Highland Park tracts, roads, or food sources would have affected the results in Detroit tracts. Of course, this problem is largely unavoidable in food desert-style analysis because it requires constantly expanding boundaries; however, while it still exists to some degree in tracts located around the border of the city, it was at least reduced through the inclusion of Hamtramck and Highland Park data. This issue was not resolved for the Vancouver – Burnaby border. See also Sadler et al. (2011) for a discussion of this problem in rural food desert studies.

¹³ An Application Programming Interface (API) is a method of allowing software components to interact with each other, e.g. a script could be written to use an API to query a website's online database. A user who has an API key can query the database through methods established in the API documentation using a programming language like Java. Companies like SimpleGeo and Urban Airship focus on giving these tools to software developers who wish to incorporate location-aware features into their mobile applications.

Table 2. Variables and corresponding census source.

Variable	Source
<i>Vancouver, 2006 Census</i>	
POP	Total population (100% sample data)
MEDINC	Total (before-tax) income in 2005 of population 15 years and over - 20% sample data / Median income \$
UNEP	Unemployment rate
AUTO_COMM	Total employed labour force 15 years and over with usual place of work or no fixed workplace address by mode of transportation - 20% sample data. Included both categories: Car, truck, van, as driver and Car, truck, van, as passenger
HSORMORE_P	Total population 15 to 24 years by highest certificate, diploma or degree - 20% sample data, minused and divided category: No certificate, diploma or degree
ABORIG_P	Percent total population by Aboriginal identity population - 20% sample data
INDIAN_P	Percent total population by Registered Indian status - 20% sample data
IMMIG_P	Percent total immigrant or non-permanent resident population - 20% sample data (as in foreign-born whether citizen or not)
NONWHITE_P	Percent total visible minority - 20% sample data
FAM_TP	Composition of family income in 2005 for all economic families % - 20% sample data / Government transfer payments %
INDIV_TP	Composition of income in 2005 for persons 15 years and over not in economic families % - 20% sample data / Government transfer payments %
COMB_TP	Estimated composition of income for economic families and individuals not in economic families. This was Calculated as $((((\text{percent economic families TP}) * (\text{number economic families} * \text{average census family size})) + ((\text{percent non-economic family individual TP}) * (\text{number non-economic family}))) / (\text{Number non-economic family} + (\text{number economic family} * \text{average census family size})))$, i.e. composition weighted by relative share of economic family members and noneconomic family individuals.
RENT	Tenant-occupied private non-farm, non-reserve dwellings / Average gross rent \$
VALUE	Owner-occupied private non-farm, non-reserve dwellings / Average value of dwelling \$
<i>Detroit, 2011 American Community Survey</i>	
POP	B01003 Total population
MEDINC	B19013 Median family income in the past 12 months (in 2011 inflation-adjusted dollars)
UNEP	B23025 Employment status for the population 16 years and over
AUTO_COMM	B08101 Means of transportation to work by age
HSORMORE_P	B15001 Sex by age by educational attainment for the population 18 years and over
NONWHITE_P	B02001 Race
ABORIG_P	B02001 Race
IMMIG_P	B05002 Place of birth by nativity and citizenship status
PUB_ASSIST	B19057 Public assistance income in the past 12 months for households
FOOD_ST	B22003 Receipt of food stamps/SNAP in the past 12 months by poverty status in the past 12 months for households
SSI	B19056 Supplemental security income (SSI) in the past 12 months for households
ASSIST_ALL	B09010 Receipt of supplemental security income (SSI), cash public assistance income, or food stamps/SNAP in the past 12 months by household type for children under 18 years in households
RENT	B25064 Median gross rent (dollars)
VALUE	B25077 Median value (dollars)

by Urban Airship on April 20, 2011, SimpleGeo announced it was releasing its entire database of approximately 20 million points of interest (POIs) (called SimpleGeo Places) located in many

countries around the world under a Creative Commons Zero, or 'No Copyright' license (SimpleGeo, 2011a). This database of business and landmark locations was created with a combination of user-generated or user-volunteered geographic information and automated gathering of information by 'internet bots', which are programs that search, download, and fact-check geographic information from websites like Yelp¹⁴ or Yellow Pages¹⁵ (SimpleGeo, 2011b).

Because this file was released in June 2011, it represents a snapshot (or cross-sectional) sample of food sources existing in the SimpleGeo database at that time. While there is certainly some temporal inaccuracy caused by lags between businesses closing and opening and then establishing an online presence significant enough to be captured by SimpleGeo, the data are assumed to be a relatively accurate sample as of summer 2011. This database was downloaded in GeoJSON format from SimpleGeo's Amazon-hosted .zip file (SimpleGeo 2011c) through a link on Robin Wilson's webpage (2012), and the points within the City of Detroit and the City of Vancouver were extracted into two separate files using findstr in Windows command line. The resulting GeoJSONs were cleaned to remove special characters, written as comma-separated values using a Python script based on Dalton (2011), and then converted to ESRI Shapefile format using the OGR2OGR function of the Geospatial Data Abstraction Library 1.9.0 (GDAL; Open Source Geospatial Foundation, 2011), and finally imported into ArcGIS 10 (ESRI, 2011).

Because the SimpleGeo database focuses on businesses, it provides a breadth of information on food retailers that is missed when food desert analyses only use data on major chain grocery stores. Additionally, because the data are classified into categories and sub-

¹⁴ www.yelp.com

¹⁵ www.yellowpages.com

categories, it is possible to organize these food sources by type, e.g. grocery store, fast food restaurant, or even donut store. This database is also an extremely valuable resource for students as it is available for free, while most other POI databases (e.g. from InfoUSA or DMTI Spatial) charge a significant fee for their use. Combining the existing SimpleGeo categories with my own decision-rules made to facilitate analysis (as described below), my food source dataset was classified into 33 specific food source types and then into nine general food source categories. In the next section, I will now explore how this database was built and how choices were made regarding the classification of food source type.

Building the food source dataset

After successfully getting the SimpleGeo data ready for use in ArcMap, the SimpleGeo categories were then reclassified to match my own, more specific classification system. The SimpleGeo data points were categorized at three levels of detail: Category, Type, and Subcategory. In Appendix A: Category Table I indicate how the SimpleGeo classification system maps onto mine, with some notable exceptions that will be discussed further below. Note that for some broader SimpleGeo categories, like Restaurant, keywords in the name of the source were used to identify more specific categories like Fast Food/Pizza or Bakery/Deli.

While the SimpleGeo data were precise enough to identify most of the kinds of food sources important to my study, there were two areas in which they were lacking specificity. Due to the fact that SimpleGeo gathered information primarily on businesses, the first major issue is that less-publicized entities like urban agriculture sites and some nonprofit emergency food organizations (like soup kitchens) were not included in this database; to properly expand the kinds of food sources used in describing the urban foodscape these kinds of alternative sites

are key to my study. To remedy this issue, several methods were employed to gather the locations of these POIs in Vancouver and Detroit. Further, as noted above, due to the SimpleGeo data being released in June 2011, only food sources known to be open at that date were included in the sample.

Two significant databases were found to fill in the gap on emergency food locations in both cities. For Detroit, the website www.foodpantries.org (Food Pantries, 2013) was used to build a database of 119 food pantries or banks and nine soup kitchens. This database is manually maintained by a webmaster and was built through user- and organization-submitted data. Vancouver Coastal Health maintains a listing of free and low-cost meal programs on their website (2011), which was categorized into 52 community meal programs, ten food pantries, 30 free meal programs, one low-cost grocery store, and fifteen low-cost meal programs. It is important to note here that the fifteen food distribution depots of the Greater Vancouver Food Bank Society are not available publicly for “confidentiality and security reasons” and so the food bank data in my Vancouver sample is underrepresented (Greater Vancouver Food Bank Society, 2012). A second note is that the categorization of emergency food sources differs slightly between the two cities and that this difference is due to gathering information from two different databases. While this does mean the 33 specific categories are not directly comparable, the general category of emergency food remains accurate.

Urban agriculture and alternative food organization points were gathered through the use of existing datasets and manual data entry based on internet searching, first-hand observation, and second-hand information gathered in conversation. Several pre-existing databases contributed to my sample. First, the City of Vancouver maintains a geodata file of the

location of public community gardens (2012a). Second, the Vancouver urban agriculture program Lawns to Loaves published the location of all the plots of wheat being grown on private property throughout the city as part of their program (2011), which was included in the sample as its own category. Such pre-existing databases did not exist for urban agriculture in Detroit. While the Garden Resource Program (GRP, funded in part by the University of Michigan and the United States Department of Agriculture, USDA) provides help to 1,400 community, market, and backyard gardens in Detroit (The Greening of Detroit, 2012), their database is private due to the understandable fact that most individuals – gardeners or farmers – do not want to share their private information, often due to fear of theft (A. Atkinson, personal communication, February 15, 2012). For this reason, my database only used publicly available information in an effort to allow urban agriculture to be studied without violating the privacy of any individual or institution. Data on public school gardens were available for both cities and were added to the dataset (Detroit Public Schools, 2011; Public Health Association of BC, 2012). The final pre-existing data drawn on were lists of farmers' market locations for Vancouver (Vancouver Farmers Markets, 2011) and Detroit (Michigan Farmers Market Association, 2011).

In addition to pre-existing databases, additional urban agriculture and alternative food sources were added to the sample manually. Locations were gathered directly from news stories, Facebook pages, forum discussions, online videos, and first-hand observation during fieldwork in Detroit during July 2012 and Vancouver from July 2012 to January 2013. Data gathering worked with a snowball sample-type strategy: reading one news article profiling urban farms would lead to searches for individual farms and to other news articles in which they were mentioned; Facebook searches would reveal farms or organizations that had

numerous connections to other sources that had a Facebook presence, etc. Through this method 118 urban agriculture and 36 alternative food sources were added to the Detroit database and 167 urban agriculture and thirteen alternative food sources were added to the Vancouver database.

The classification of different models of urban agriculture presents a significant obstacle for researchers (Mougeot, 2000). Typologies have been developed that differentiate urban growing operations, for example, by location, primary activities, market engagement, and scale (Schutzbank, 2012: 10). For this study, general classifications were developed that could easily be applied with a minimum amount of information. The main focus of the classification was primary activity: for what reasons does this urban agriculture source exist? Because of the primarily online nature of gathering the urban agriculture sample, it was important that these sources could be classified based on the limited amount of information available publicly. Other researchers like Schutzbank (2012), who undertook a detailed economic census of urban farms in Vancouver, were able to develop precise classifications due to their access to detailed information on operation size and productivity. Given the wider approach and classification by primary activity in this study, I therefore developed several classes for each city: for Vancouver, community garden, community orchard, CSA, dairy farm, educational garden, Lawns to Loaves, market garden, and school garden; for Detroit: CSA, educational garden, kitchen garden, market garden, and school garden. Table 3 summarizes the primary activities associated with each type.

While most urban agriculture sources were assigned one type, several operations fit into both categories (e.g. run a CSA and sell produce on the market) and so were assigned to

Table 3. Urban agriculture definitions.

Urban agriculture type	Primary activity
Community garden	Only in Vancouver, an allotment garden whose operation is facilitated by the city government.
Community orchard	An orchard managed cooperatively among members of the local community.
Community-supported agriculture (CSA)	A for-profit farming model that sells shares at the beginning of each season to distributes weekly boxes of produce to shareholders.
Dairy Farm	Only in Vancouver, the Avalon Dairy Farm.
Educational garden	A garden with a wide variety of ownership and distribution models, but whose primary purpose is not the production of large amounts of food, but rather education and community-building.
Kitchen garden	Only in Detroit, a garden supplying a restaurant kitchen.
Lawns to Loaves	Only in Vancouver, a program where participants grow wheat in their yards to eventually be milled into flour.
Market garden	A for-profit farm growing to sell on the market.
School garden	A garden established at a school, usually for educational purposes.

two classifications. It is vital to note here that private or backyard growing of food is not accounted for, despite the fact that this form of agriculture is often the most significant source of urban food production (Taylor & Lovell, 2012). However, it is not feasible for this study to account for such small-scale growing that has no internet presence. Recent developments in remote sensing and online space-sharing networks (e.g. City Farmer Sharing Backyards¹⁶) do suggest that such data may become available for future studies. A similar method was used to classify alternative food sources. The classes used are explained in Table 4. Like emergency food sources, classification here differs by city due to differences in how programs and organizations self-described; the categories here were created to reflect these differences.

The second major issue with the SimpleGeo data regards the inclusion of supermarket

¹⁶ www.sharingbackyards.com

Table 4. Alternative food source definitions.

Alternative food source	Primary activity
Community Food Program	Only in Detroit, these organizations represent emergency food provision that takes a community food security approach by integrating local produce, donations, and sliding scale prices.
Community Kitchen ¹⁷	Only in Vancouver, these locations provide meals based on a gift economy and volunteer labor model, with diners paying what they are able for their food.
Co-op (cooperative)	Consumer-owned, membership-based grocery stores that adhere to common alternative food movement ethics.
Farmers' Market	Markets organized for local farmers and artisans to sell their products, generally seasonally.
Homesteading Supplies	Only in Vancouver, this store (Homesteader's Emporium) offers training, equipment, and food products for home food production.

locations and the accuracy of classifications for grocery stores. Here my study runs into a central problem with data in food access studies: even if location data are available, very rarely do they specify what kinds of food are available. As a central method for assessing the validity of the SimpleGeo data, initial fact-checking focused on verifying the locations and existence of supermarkets in the database. Comparisons with chain website store locators for the most prevalent chain stores in Vancouver (see footnote 21) revealed that the coverage of supermarkets appeared weak in the SimpleGeo database. This was surprising considering the fact that similar brief searches for corner grocery stores or produce markets revealed strong coverage. While this investigation into supermarket accuracy was in no ways systematic, as such an undertaking would require significant investments in time and money to allow for

¹⁷ Several of these alternative food sources are under-represented due to the difficulty of gathering information on them via the internet. A glaring example in Vancouver, for example, is the lack of representation for Sikh temple community kitchens. However, an effort was made to incorporate alternative sources for which information was readily available.

ground-truthing (such as those employed by Dunn et al., 2012), it did suggest that further manual editing and additions were required to ensure accurate data on supermarket locations.

This task was accomplished by a different method for each city. For Detroit, I learned during my research and fieldwork that the common conception that Detroit does not have any supermarkets is in fact false. The key piece of information sometimes included in media discussion of food access in Detroit, but often overlooked, is that there are no *chain* grocery stores in the city (Griffioen, 2011). The Detroit-based chain Farmer Jack had more than 100 stores open in southeastern Michigan at its peak during the 1980s until the supermarket ‘merger mania’ of the late 1980s and early 1990s (see Wrigley, 2002). The chain was acquired by The Great Atlantic & Pacific Tea Company (A&P) in 1989, and A&P eventually decided to abandon all stores in southeastern Michigan in 2007. The last Farmer Jack store – and last chain grocery store still open in Detroit – shut its doors in July, 2007 (Youssef & Hurst, 2007).¹⁸ What I discovered through my own attempts to find fresh food in the Motor City is that there are in fact quite a significant number of independent or franchise supermarkets operating in Detroit, most of which are supplied by Grand Rapids, Michigan-based Spartan Stores Incorporated, the nation’s tenth largest grocery distributor (2013a) and supplier of forty independent grocers in Detroit. Due to Spartan’s focus on full-service supermarket distribution, these forty stores generally resemble a typical Midwestern discount supermarket, with fresh produce, processed

¹⁸ In a surprising turn of events, a chain grocery store is scheduled to open in Midtown Detroit in the summer of 2013, and it is by no means an average Midwestern supermarket chain that is moving in. In fact, taking advantage of \$4.2 million in incentives (Duggan & Skid, 2011), the store that is opening is part of the world’s largest natural and organic grocery chain: a Whole Foods Market (Aguilar, 2011). While the neighborhood context surrounding this new business will be discussed further in Chapter 5, for now it can be ignored as it is not part of the 2011 food source sample.

and canned food, a deli, a freezer section, and a bakery.¹⁹ Spartan maintains a database of store locations on their website (2013b), which I used to add these 40 supermarkets to my database. An additional 22 supermarkets were identified through keywords in the source name of supermarket and supermercado. An effort was made to check the size of these additional sources by viewing them in Google Maps Street View to assess their size, presence of shopping carts, and advertisements. Sources that appeared to be full-service supermarkets (large building, parking lot, shopping carts, advertisements for produce and meat, etc.) were classified as such.²⁰

Data on supermarkets in Vancouver was collected manually through first visiting the store locator pages of all major chain supermarkets in Vancouver²¹ (determined based on Tyghe & Kobodi, 2012) and then adding any additional locations that came up in a Google Maps search for ‘supermarket’. To ensure internal accuracy I checked for duplicates between the manually-collected and SimpleGeo data, eventually resulting in 62 supermarkets in Detroit and 51 in Vancouver.

¹⁹ It is important to recognize that even full-service supermarkets in Detroit have been criticized for selling produce and meat of sub-standard quality (see Devries & Linn, 2011).

²⁰ Building on the use of big data in the SimpleGeo dataset, the method of verifying supermarket locations through Google Street View comes with several advantages and disadvantages. An obvious advantage is the scope of coverage: both cities had basically full coverage imagery, allowing remote exploration of the urban foodscape. While fieldwork is irreplaceable for getting a feel for neighborhoods, being able to see an image of basically any food source from the computer is truly remarkable. Detroit even has numerous locations that are part of Google’s trial Business Photos program, where stores can pay a fee to have a virtual tour of the interior of their retail locations added to Google Street View. With this option, potential customers can virtually walk right into retail space from their computer. While this technology does provide a glimpse of faraway food retail, the image it provides is of course limited. In addition to being susceptible to censorship and political sanitization (Power et al., 2012), a more practical limitation of the technology is its static nature. Images for both cities were mostly taken in 2009, a full two years before the data from the SimpleGeo sample, making identification of sources that have moved, closed, or opened problematic. Overall, however, this kind of technology offers another glimpse of how big data is changing social science research.

²¹ Loblaw Companies Limited: Canadian Superstore, SuperValu, T & T Supermarket, and No Frills; Jim Pattison Group: Buy-Low, Save-On-Foods and Urban Fare; Independent: Choices, Costco, Marketplace IGA, Nesters, Safeway, Walmart, and Whole Foods.

Efforts were also made to improve the accuracy of grocery store classifications to distinguish between stores that carry fresh food and those that do not. The accuracy of the data in this regard is important to the study's overall goal of measuring a wider variety of food source types. The exact classifications differed slightly for both cities to reflect differences in the retail environment. In Detroit, the classes were convenience store, grocery store, party store, and supermarket; in Vancouver, convenience store, grocery store, produce market, and supermarket. The 'party store' is a fixture of the Detroit urban environment (see Chafets, 1990: 30-44). These small corner stores sell liquor, processed food, lottery tickets, and sometimes hot food in the form of hot dogs ('Coneys' for Coney Island-style hot dog), fried chicken, hamburgers, etc. While party stores make up a visible part of the urban foodscape in Detroit, in my database they only accounted for 62 sources. I distinguished them from other stores through two criteria: first, they had to be classified in the SimpleGeo dataset as 'Food & Beverages – Retail Goods – Liquor and Beverages', i.e. establishments serving primarily as liquor stores, instead of 'Food & Beverages – Retail Goods – Groceries & Convenience Stores', i.e. establishments serving primarily as food stores. Secondly, sources from the Liquor and Beverages category were only classified as party stores if they explicitly referenced being a market, party store, grocery, or food source in their name, like Basil's Party Store shown in Figure 3. Looking for these keywords in the source name helped to exclude stores that only sell liquor. Additionally, stores classified as 'Food & Beverages – Retail Goods – Groceries & Convenience Stores' and also containing the keyword party were included.



Figure 3. A typical Detroit party store. Photo © Hawk (2010).

Sources from the 'Food & Beverages – Retail Goods – Groceries & Convenience Stores' or 'Autos & Motor Vehicles – Retail Goods – Fuel & Gas Station' SimpleGeo categories were classified as convenience stores if they were part of chains associated with gas stations. This form of classification was done by searching for several keywords in the source name. In Detroit: BP, Convenience, Fill Up, Food Store (Valero), Fuel, Gas, Mini Mart, Minimart, News, News Stand, Newstand, Petro, Petroleum, and Service Station; in Vancouver: 7-Eleven, 7-11, Convenience, Esso, Food Store, Food Stop, Mac's, Minimart, Mini Mart, Seven-Eleven, Shell, Stop N' Go, Town Pantry, and Quick Pick. Several convenience store sources were also added from the 'Shopping - Retail Goods – Tobacco' SimpleGeo category that also matched these keywords or contained the keyword News.

Produce markets fill a specific retail niche in Vancouver, offering primarily fresh produce in a small retail space along major arterial roads like Broadway (see Figure 4). These locations



Figure 4. A typical Vancouver produce market. Photo © Hamilton (2005).

were also identified by keywords in the source name: fresh, fruit, Kin's (for Kin's Farm Market, a chain of produce markets), market, produce, farm, farms, vegetable, and vegetables. While some small corner store groceries in Detroit also sell fresh produce, they were harder to identify by name and therefore produce store was not included as a category in the Detroit data. It is also interesting to note that the SimpleGeo category used to classify produce stores in Vancouver, 'Food & Beverages – Retail Goods – Fruits & Vegetables', did not have any entries in Detroit.

The final category in the food retail classification was grocery store, which was comprised of the sources included in the SimpleGeo 'Groceries & Convenience Stores' category that were not added to other classes based on keywords. These stores generally sell a mix of fresh and processed food in a smaller, corner store format. However, due to the wide scope of the 'Groceries & Convenience Stores' category and the necessarily narrow scope of the keywords used to categorize convenience, party, and produce stores, an indeterminate amount of these sources likely sell only processed food. This category was assigned to 242 sources in Detroit and 162 in Vancouver, making it the most prevalent food retail source in both cities.

The final food source dataset

After successfully combining the SimpleGeo data with manually gathered data and classifying food sources according to their type, the dataset of food source locations was nearly complete.²² The final step involved grouping the 33 classifications into nine simpler categories to ease interpretation. These categories were designed to capture important divisions in the availability of fresh food, the scale, and the organizational goals of these food sources. The count of sources for both cities is displayed in Table 5. This dataset represents a necessarily limited, but ultimately useful sample of food sources in Vancouver and Detroit as of June 2011.

Conclusion

In this chapter I have presented my method for taking another approach to food desert studies. My contribution makes several decisions that differ from most food access studies in order to avoid some of the common problems – technical and socio-political – with the epidemiological approach. First, the focus of my method is less on access and more on

²² The dataset of food sources used in this study is available for replication. Please contact the author directly.

Table 5. Final food source dataset with frequencies by type.

Vancouver		Detroit	
Food source type	Frequency	Food source type	Frequency
<i>Alternative</i>	<i>13</i>	<i>Alternative</i>	<i>18</i>
Co-op	2	Co-op	3
Community Kitchen	2	Community Food Program	4
Farmers' Market	8	Farmers' Market	11
Homesteading Supplies	1		
<i>Convenience</i>	<i>46</i>	<i>Convenience</i>	<i>177</i>
Convenience Store	33	Convenience Store	47
Pharmacy	13	Party Store	62
		Pharmacy	68
<i>Emergency</i>	<i>108</i>	<i>Emergency</i>	<i>128</i>
Community Meal	52	Food Pantry	119
Food Pantry	10	Soup Kitchen	9
Free Meal	30		
Low-cost Groceries	1		
Low-cost Meal	15		
<i>Fast food</i>	<i>122</i>	<i>Fast food</i>	<i>219</i>
Fast Food/Pizza	122	Fast Food/Pizza	219
<i>Grocery</i>	<i>162</i>	<i>Grocery</i>	<i>242</i>
Grocery Store	162	Grocery Store	242
<i>Service</i>	<i>1212</i>	<i>Service</i>	<i>1160</i>
Bakery/Deli	203	Bakery/Deli	88
Bar/Brewery/Winery	48	Bar/Brewery/Winery	208
Cafe/Coffee/Tea	208	Cafe/Coffee/Tea	32
Donut Store	3	Donut Store	13
Restaurant	750	Restaurant	819
<i>Specialty</i>	<i>120</i>	<i>Specialty</i>	<i>115</i>
Candy Store	17	Candy Store	10
Dairy/Ice Creamery	3	Dairy/Ice Creamery	34
Meat/Fish Market	60	Meat/Fish Market	71
Produce Market	40		
<i>Supermarket</i>	<i>51</i>	<i>Supermarket</i>	<i>62</i>
Supermarket	51	Supermarket	62
<i>Urban agriculture</i>	<i>167</i>	<i>Urban agriculture</i>	<i>118</i>
Community Garden	102	CSA	2
Community Orchard	3	Educational Garden	49
CSA	12	Kitchen Garden	2
Dairy Farm	1	Market Garden	8
Educational Garden	11	School Garden	57
Lawns to Loaves	22		
Market Garden	8		
School Garden	8		
Total	2001	Total	2239

presence. By evading the conflation of proximity with access, my method is better suited to look at the distribution of food sources through a political economic lens at the level of the city,

much like other studies that have taken a historical materialist approach (e.g. Eisenhauer, 2001; McClintock, 2011). Second, I avoid a single continuous measure of access (like distance to a grocery store) in favor of count variables for a wide range of food source types, including alternative sources like community kitchens, urban agriculture, and emergency food sources like food pantries. This more comprehensive approach seeks to capture variation in the entire foodscape across the city, instead of only focusing on supermarkets. The third and final major difference between my method and traditional foodscape studies is that I do not use regression analysis to measure the effect of socio-economic variables on access, but instead use more descriptive methods of cluster analysis and multi-dimensional scaling to examine the connections between foodscape composition and inequality. In the next chapter I will present the results of the cluster analysis in order to begin describing the foodscapes of Vancouver and Detroit. Additionally, I will introduce an additional method of multidimensional scaling as another way of looking for the influence of demographic variables on the wide range of food sources in each neighborhood.

Chapter 2: The Urban Foodscapes of Vancouver and Detroit

In this chapter, I present the results of the quantitative analysis of Vancouver and Detroit's foodscapes using the methods described in Chapter 1. First, the clusters generated for both cities will be presented, including analyses based on demographics, all food sources, and urban agriculture specifically. Second, a novel method using multidimensional scaling and local indicators of spatial association will help unpack the relationship between foodscape composition and socio-economic inequality. To ground my discussion of urban foodscape variation, it is necessary to present the general picture of where certain kinds of food sources exist. For this reason, my cluster analyses speak to the specific variation in urban agriculture location and serve as a starting point for asking questions about why urban agriculture flourishes in certain parts of the city and not others, questions that I address in Chapters 4 and 5. Evidence regarding the effect of demographics on foodscape composition will also serve as a starting point for these discussions by illustrating how racial and class inequalities contribute to the uneven geography of food sources in Vancouver and Detroit.

Cluster analysis

With the food source dataset complete, analysis of the data was undertaken in ArcGIS 10. Population-weighted census tract centroids were matched to food sources using Network Analysis' Closest Facility tool. Summary tables were created to calculate the averages of census variables for each food source type and to generate counts of each type for every census tract. After I generated the counts of each food source type for each tract, the next step requires analyzing the distribution of these values and assessing how they covary with the demographic variables. While most food desert studies use some form of regression to control for the

influence of socio-economic variables on a continuous measure of access, that option would not work for my study. Due to the fact that my method generates several count variables for each tract instead of a single access variable, some statistical method is required that can accommodate all of these variables. Therefore, the primary method used to analyze the distribution of food sources was cluster analysis. While cluster analysis has been used in assessing food deserts before (e.g. Apparicio, 2007), this study expands on the use of this method to better account for the diversity of food sources by including sources like urban agriculture and emergency food aid. Cluster analysis addresses the research question, ‘What kinds of neighborhoods have what kinds of food sources?’ by grouping census tracts by their levels of different food source types.

The counts of food sources by type were normalized by tract population, transformed to z-scores,²³ and used as variables in *k*-means clustering through ArcGIS’s Grouping Analysis tool.²⁴ Tracts with populations less than 100 were excluded from the analysis as they would skew cluster means significantly. *K*-means clustering is a good method for assessing the variability of food source presence by tract because it is a purely descriptive tool that seeks to group data based on proximity in variable space. In this sense, cluster analysis is well-suited to capture variability among many measures, which will help make sense of the many variables employed in this study. To aid interpretation, clustering was based on the nine broad categories

²³ One z-score (also known as standard score or z-value) is equivalent to one standard deviation from the mean. Low absolute values indicate the observation is close to the mean, high absolute values indicate the observation is far from the mean. Positive z-scores are above the mean and negative z-scores are below. Such scores give a good idea of how different a given observation is from the average in the sample.

²⁴ The parameters for the tool were left to defaults with one exception: no spatial constraint was used.

instead of the 33 specific ones. Additionally, the algorithm was specified to create four clusters.²⁵

Vancouver

A cluster analysis of demographics (Figure 5 and Table 6 below)²⁶ serves as a good starting point for a discussion of the foodscape of Vancouver. A color-coded table of cluster means has been included so that more detailed information about the differences between clusters can be referred to. Variables are listed in descending order of their R^2 value, which represents how well each individual variable discriminates among tracts based on the total variation of the dataset. The results of this clustering highlight several important aspects about the distinct divisions across lines of race and class that are present in Vancouver. Cluster one (in blue) could tentatively be called the ‘livable’ city. This area of the city is composed primarily of high density residential zoning with a focus on retail in the central business district (CBD) and along main arterial streets like Broadway and Fourth Avenue, which run east-west just south of downtown. As urban planner and researcher Andrew Yan points out, this pattern is largely due to Vancouver’s colonial British planning tradition, which concentrated retail along ‘high streets’ (2013e). As the numbers indicate, the neighborhoods of Kitsilano, Downtown, the West End, False Creek, and Fairview in this cluster have a high prevalence of well-educated renters with

²⁵ Note that statistical methods exist for determining the ‘best’ number of clusters to generate (based on amount of variance captured), but these options were not employed. By simply specifying the number of clusters to generate, some accuracy is lost in attaining the best clustering result. The chief advantage of specifying four clusters is that all the analyses for both cities will have the same number. That said, future studies should use Pseudo F-statistics to determine the best number of clusters.

²⁶ Cartographic note: all maps are projected in Universal Transverse Mercator unless specified otherwise. For Vancouver, Zone 10 North is used, and for Detroit, Zone 17 North. The labels for neighborhoods were created manually, but are based on official city neighborhood designations retrieved from City of Vancouver (n.d.) and the City of Detroit (2006).

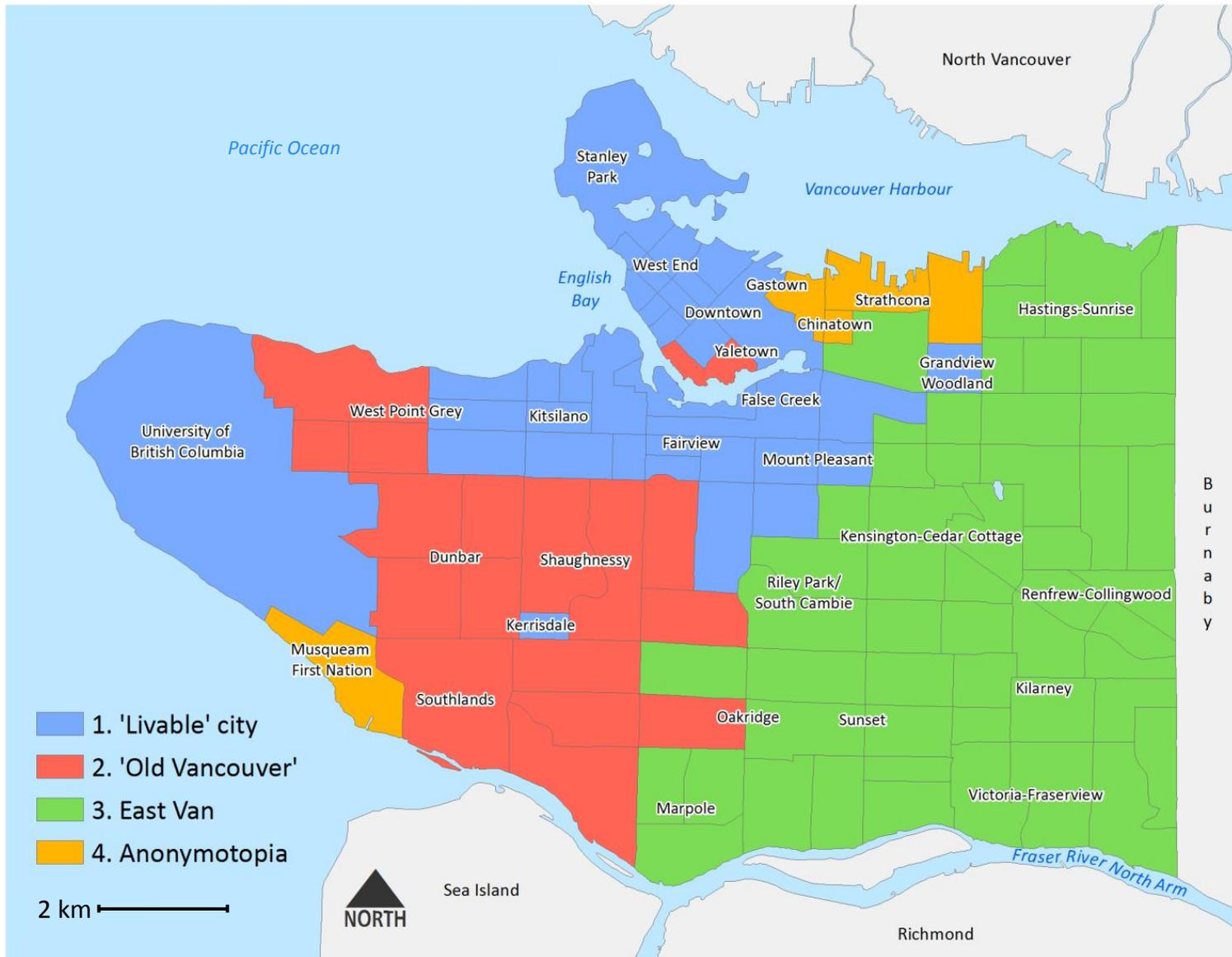


Figure 5. Cluster analysis of demographics, Vancouver.

Table 6. Cluster means of demographic cluster analysis, Vancouver.

Variable	R ²	1	2	3	4
Percent of family income composed of government transfer payments	0.73	5.3%	4.0%	12.6%	20.2%
Median income	0.68	\$30,591	\$31,244	\$20,092	\$14,091
Median rent	0.65	\$981	\$1,316	\$827	\$408
Percent non-white	0.64	26.7%	41.8%	68.2%	35.4%
Median home value	0.60	\$514,532	\$1,067,108	\$537,734	\$398,597
Percent of incomes composed of government transfer payments	0.60	6.0%	4.7%	13.2%	27.5%
Percent automobile commuters	0.57	39.2%	61.4%	60.6%	33.0%
Percent Aboriginal identity	0.56	1.7%	0.6%	1.9%	19.4%
Percent owner-occupied housing	0.54	35.0%	72.7%	58.9%	19.9%
Percent of individual income composed of government transfer payments	0.52	6.9%	9.9%	16.6%	35.5%
Unemployment rate	0.51	5.1%	5.4%	6.6%	12.2%
Percent foreign-born	0.46	37.5%	44.6%	56.7%	30.8%
Percent Indian status	0.45	0.7%	0.2%	1.2%	15.4%
Percent with high school education or more	0.44	82.5%	69.2%	70.0%	61.6%

above-average incomes. A large majority of the condominium-driven real estate development that is part of the housing boom in Vancouver has been concentrated in this cluster. Media representations and tourism marketing material employ images of Vancouver drawing heavily on this 'livable' (i.e. amenity-driven) city, despite it being out of reach for most Vancouverites. Due to the rapid gentrification occurring east of downtown in the neighborhoods of Gastown, Strathcona, and Chinatown, these outdated demographics from 2006 do not fully represent the degree to which cluster one has most likely expanded eastward (see Blomley et al., 2011; Carnegie Community Action Project, 2013).

Cluster two (in red) highlights Vancouver's historically wealthy and powerful neighborhoods like West Point Grey and Shaughnessy (see Ley, 1993: 219-220). Initially established by the Canadian Pacific Railroad as an exclusive alternative to the West End,

Shaughnessy has by-laws that promote homeownership and limit density (Berelowitz, 2005: 97). This history points to the importance of homeownership in cluster two, where the percent of owner-occupied housing is much larger than the other three clusters at 73% and the median home value also stands out at \$1,067,000.

Cluster three (in green) illustrates quite clearly the divide between the east and west sides of Vancouver. East Vancouver (colloquially known as East Van) has historically been more racially and ethnically diverse, economically disadvantaged, and politically left than the west side (Davis, 1975; Demers, 2009). As indicated by the cluster means, today the census tracts east of Main Street share many demographic characteristics, although this general pattern is disrupted by cluster four in orange to the north, the spread of cluster one east into Mount Pleasant, and the expansion of cluster three westward in South Vancouver. Tracts in cluster three have low average incomes coupled with relatively high proportions of non-white and foreign-born population and owner-occupied housing. However, it is important to recognize that the variable choice of measuring race as the percentage of the population identifying as non-white (where white is non-Hispanic for the US ACS and non-white is visible minority for the Canadian census) likely has an effect on the spatial contiguity of cluster three. This variable was chosen primarily to capture the much more bipolar nature of race in Detroit; it fails to do justice to the racial and ethnic diversity found in east Vancouver.

The final cluster (in orange) is comprised mostly of the area known colloquially as the Downtown Eastside, but also contains the census tract containing the Musqueam First Nation reserve in the southwestern area of the city. The Musqueam are the indigenous people who have inhabited the area now known as Vancouver and its region for thousands of years. The

land currently occupied by the University of British Columbia is in fact the unceded and untreated ancestral home and territory of the Musqueam (see Harris, 1977; Musqueam Band, 1976). The variable that makes the Musqueam reserve and the neighborhoods of the Downtown Eastside stand out from other tracts is percent Aboriginal identity, which had a mean of 19% for this cluster compared to one or two percent for the other clusters. Despite this striking similarity, there are important differences between these two areas of the city; for this reason the cluster has been labeled 'anonymotopia' (unnamed place) on the map to indicate the difficulty of giving these tracts a unified name. This difficulty also stems from the problematic and uncritical representations of this historically dynamic and socially diverse area of Vancouver as the abject Downtown Eastside (see Culhane, 2003; Sommers, 2001), especially in the context of mapping and cartography (Blomley & Sommers, 1999).

The Downtown Eastside is one of the oldest neighborhoods in the city and served as the city center at the turn of the 20th century and a retail and shopping hub until the late 1970s. Since that time the neighborhood has seen increasing levels of poverty, drug use, and homelessness while also being a center for political activism and artistic expression (Robertson & Culhane, 2005). This area undoubtedly suffers from multiple and overlapping social deprivations (Ley & Smith, 2000), yet it is important to recognize how this inequality is perpetuated by its enrollment in racist and classist explanations for poverty (England, 2004). Additionally, the current gentrification pressures and changes in government involvement in social service provision in the Downtown Eastside position it as an important place of political struggle in Vancouver; the role that urban agriculture plays in this gentrifying neighborhood will be discussed in Chapter 5.

Several of the trends apparent in the demographic map also appear in the cluster analysis of all food sources, displayed in Figure 6 below, though there are notable differences. Cluster one, containing the majority of tracts, is primarily residential and contains many neighborhoods that have high proportions of single family housing. These tracts have overall low levels of food sources, with all categories below average levels; this cluster also exists both on the west and east side. Following Black et al. (2011), this cluster points to the fact that most low density neighborhoods with high proportions of single family housing in British Columbia have overall low access to food sources.

Cluster two is characterized by high (over three z-scores) levels of emergency food sources like soup kitchens, reflecting the considerable social service infrastructure in place in the lower-income neighborhoods in the East End and Mount Pleasant. In fact, emergency food source levels had the highest R^2 value (0.8) for this cluster analysis. Interestingly, the tracts in cluster three also have the highest levels of urban agriculture of the four clusters with a 0.95 z-score, although the R^2 value of urban agriculture is only three percent, meaning that very little of the variation in UA is actually associated with the four clusters identified. Overall, these tracts represent a relatively dense mix of food sources, including above-average presence of supermarkets and corner grocery stores. However, this cluster does contain tracts with quite different demographics, especially noticeable when comparing the neighborhoods around the Downtown Eastside and the tract located more centrally downtown. The fact that these different tracts share similar foodscape composition highlights factors other than access that determine food insecurity. For instance, it has been demonstrated that many people living in the Downtown Eastside are food insecure due more to factors such as poverty, mental and

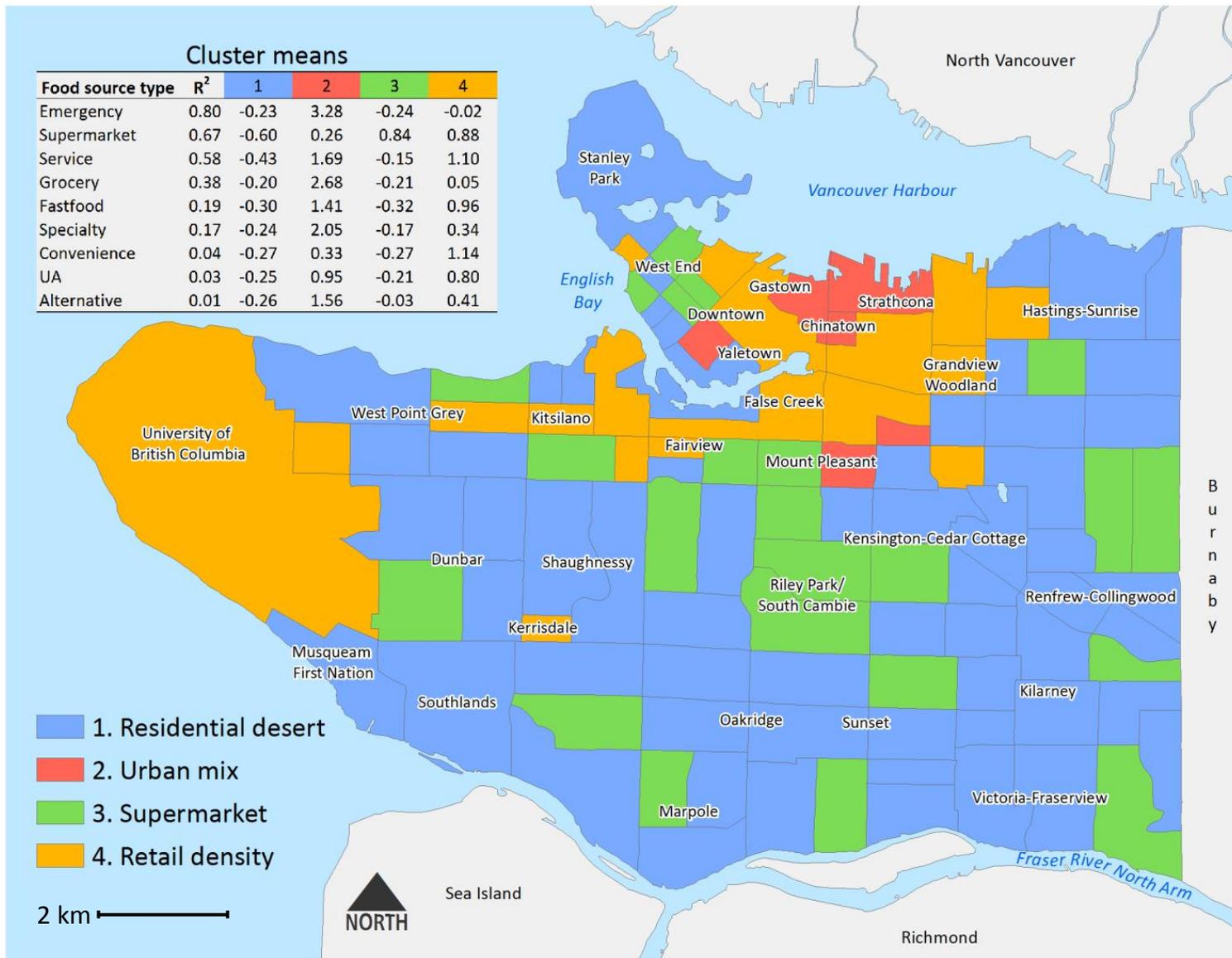


Figure 6. Cluster analysis of food source type presence by population, Vancouver. Cluster means table shows z-scores.

physical illness, and drug addiction than to problems of access (see Miewald, 2009, for example).

Another important tract found in cluster four is Chinatown. As both a major residential, cultural, and retail hub for the large Chinese-Canadian population living in Vancouver and a popular destination for tourists, Chinatown has a high amount of grocery (7.9 z-scores) and specialty food stores (8.7 z-scores) in addition to restaurants and other service industry food retail (3.7 z-scores). This pattern of retail density reflects the legacy of both a strong immigrant social and business community and a process of racialized ghetto formation and xenophobia (see Anderson, 1991). Like Strathcona, Chinatown also has a low-income population and is served by many emergency food providers, although both areas share a threatened future due to increasing gentrification pressures moving east from downtown and north from Mount Pleasant and Southeast False Creek. Its importance as a cultural center for Chinese and Chinese-Canadians has also been deeply affected by the suburbanization of immigrant and ethnic Chinese populations in 20th and 21st century Canada (Ray et al., 1997; Zucchi, 2010).

Amid the tracts in the 'residential desert' cluster there are a number of tracts in cluster three. The distinguishing variable for these neighborhoods is the presence of supermarkets, with this group having the second highest level of the four clusters (0.84 z-score). What is notable in addition to this number is the fact that all other food sources are well below average in these tracts. The highly polarized nature of these tracts stems most likely from their position as primarily residential areas containing intersections of major north-south and east-west arterial roads; many of these intersections contain shopping centers with chain supermarkets and large parking lots.

Cluster four captures the second highest number of tracts and they have much more food sources on average than the other tracts. Tracts belonging to this cluster are located mostly along the main east-west arterial road, Broadway, and also in high-density areas downtown, reflecting the prevalence of mixed-use development and the highly planned and zoned presence of food retail. The concentration of retail along high streets and the relative absence of food access in residential areas points to both Vancouver's British 'high street' planning tradition and the more recent disappearance of many neighborhood corner stores, although the recent focus on walkability has seen a slight resurgence in small, independently owned grocery and convenience stores in primarily residential areas (see Bula, 2013; Statler, 2013; Yan, 2013e). Also of interest is the fact that cluster two contains very high levels of convenience stores and restaurants and high levels of grocery stores and supermarkets.

The final map from Vancouver (Figure 7 below) displays the results of clustering only the urban agriculture sources. It illustrates the prevalence of urban agriculture on the east side, showing that much of it occurs in the Mount Pleasant and Strathcona neighborhoods around Main Street and Commercial Drive and extending to the southeast. Cluster one contains overall high levels of urban agriculture, with above-average presence of educational and community gardens and other not-for-profit urban growing, as well for-profit farming in the form of market gardens. The second cluster, comprising the vast majority of tracts, contains areas with relatively low levels of urban agriculture. The only type found at above-average levels in this cluster are school gardens. The tract west of Cambie Street near the Oakridge area is an outlier with high levels of urban agriculture due to the presence of Farmers on 57th. Cluster four is another outlier, in this case due to the presence of an urban dairy farm, Avalon Dairy, which

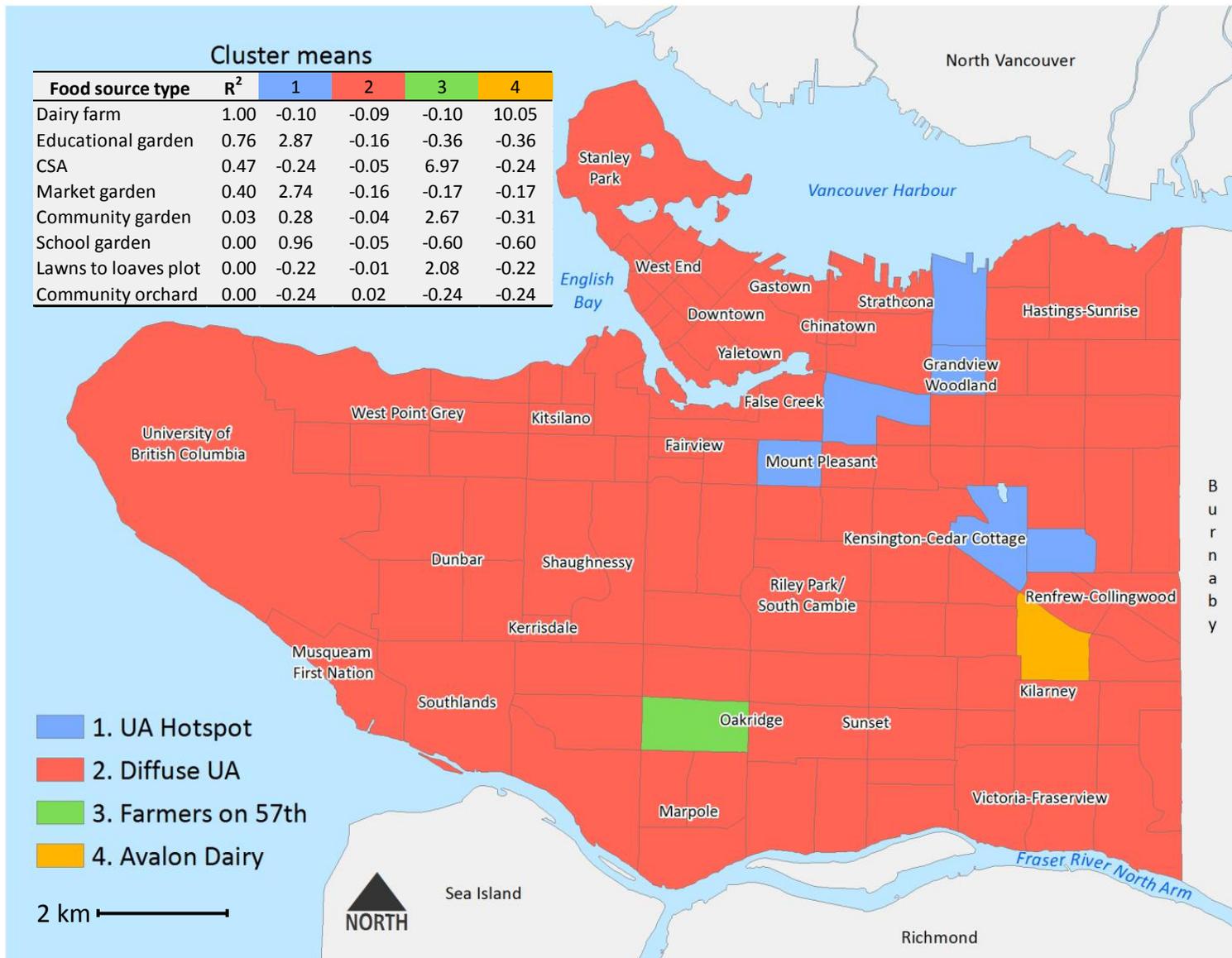


Figure 7. Cluster analysis of urban agriculture source presence by population, Vancouver. Cluster means table shows z-scores.

was still in operation in the Killarney neighborhood before selling their 1.25 acres to a real estate developer and relocating the business to Burnaby in June 2011 (Ryan, 2011).

Detroit

Applying the same cluster methods to Detroit highlights differences and similarities in neighborhood ecologies of food. Separate cluster analyses are performed on Vancouver and Detroit, such that each resulting classification reflects the distinctive local geographies of neighborhood inequality and retail structure. Several important trends are apparent in Detroit. In the clustering of demographic variables (Figure 8 and Table 7 below), the first cluster could be placed somewhere in the middle of socio-economic status in the city, although nationally its status is below average. These tracts are located primarily in a ring starting about six miles out from the city center, but also have a heavier concentration on the west side than the east and along the Detroit River to the east of downtown. They are, like most of the city, primarily black working class, ranking below cluster three (black urban middle class) and above clusters two and four in median income and home value. The metropolitan region of Detroit does have a black upper middle class population, but that group does not have a significant presence within the city itself.

Cluster two is the most spatially distinct, located almost exclusively in Mexicantown, also known as Southwest Detroit, and Hamtramck. It has a much higher level of foreign-born population (29%) than the other clusters (two percent), which reflects the diverse immigrant communities living in Hamtramck (many South Asian and Middle Eastern) and Southwest Detroit (many Latino and Middle Eastern). It is also quite economically disadvantaged, with an

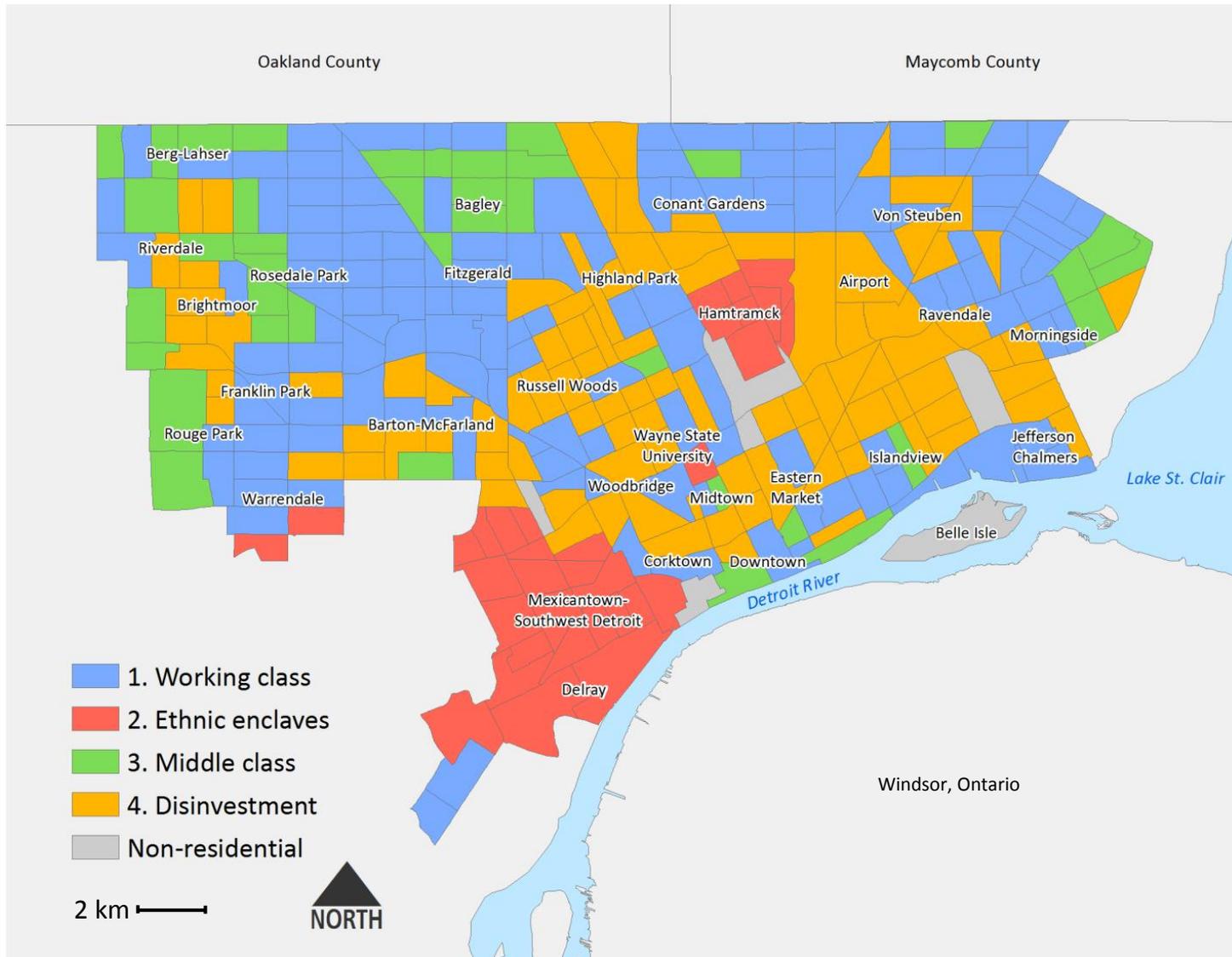


Figure 8. Cluster analysis of demographics, Detroit.

Table 7. Cluster means of demographic cluster analysis, Detroit.

Variable	R ²	1	2	3	4
Percent foreign-born	0.70	1.5%	29.0%	2.3%	2.2%
Percent non-white	0.58	94.1%	49.7%	88.5%	94.1%
Median income	0.55	\$28,982	\$23,265	\$48,605	\$19,843
Percent receiving food stamps	0.54	33.5%	32.9%	17.1%	47.1%
Percent with high school education or more	0.53	79.6%	50.2%	89.5%	72.2%
Percent receiving any kind of public assistance	0.37	61.8%	50.4%	31.9%	75.1%
Unemployment rate	0.33	26.5%	19.8%	17.0%	35.7%
Median home value	0.31	\$72,266	\$57,470	\$117,749	\$53,948
Percent receiving public assistance	0.28	8.4%	10.2%	3.6%	12.7%
Percent owner-occupied housing	0.22	55.1%	44.6%	69.0%	41.1%
Median rent	0.18	\$835	\$625	\$898	\$711
Percent receiving social security insurance	0.11	11.7%	11.9%	9.8%	17.5%
Percent automobile commuters	0.11	83.4%	78.2%	89.0%	73.5%
Percent Native American identity	0.06	0.1%	0.7%	0.1%	0.2%

average median income of \$23,265 and only 50% of the population having an educational attainment of high school or beyond.

Cluster three captures most of the tracts with above average socio-economic status, highlighting the areas of the city that could be considered middle class; their average median income of around \$48,000 is approximately twice that of the other clusters, and they have much higher levels of owner-occupancy (69%) and education (89% with high school or higher). Although dispersed, many of these tracts can be found in some of the historically black middle class neighborhoods on the west side, such as Bagley, on the east side near the border with the wealthy suburb of Grosse Pointe, and in some tracts downtown and along the waterfront. This cluster captures some of the recent economic and population density regrowth that is occurring in certain sections of the city; while the city continues to lose population overall, recent efforts to attract major corporations to relocate downtown and the subsequent development of condominiums and lofts downtown and along the waterfront in areas like southern Corktown

and Rivertown have seen an influx of young people to the downtown core (Ali et al., 2013; Conlin, 2011; see also Wylie & Hammel, 1999).

Cluster four is the Detroit that most Americans think of due to the media's focus on the city's decline. These neighborhoods are those that have been hit hardest by the process of racial segregation, deindustrialization, white flight, and disinvestment that began in the 1950s (see Sugrue, 2005). The population of predominantly black people living in cluster four has extremely low average median incomes (under \$20,000), slightly below city average education levels (72% with high school or higher), high levels of public assistance like SNAP (75% receiving some kind of assistance), and an official unemployment rate of 36%, although the actual rate is likely much higher (Wilkinson, 2009). Cluster four tracts are spread out across the city, but tend to group together, likely due in some part to the patterns created by redlining and the spread of blight and abandonment. They are found primarily in the ring between downtown and the areas of cluster one, but are concentrated more heavily on the east side.

Figure 9 below shows the results of clustering tracts by food source presence. A few of the spatial patterns found in the demographic clustering (Figure 8) appear here, but overall there is much less order in the distribution of clusters than in the Vancouver results (Figure 6). Perhaps this trend reflects the differences in historical approaches to planning in the two cities, with Vancouver carefully zoning and developing retail along main roads and Detroit concentrating more on freeway construction to facilitate movement between the suburbs and the downtown core. While the 'polycentric' structure of Vancouver reflects population growth and planning-driven densification, Detroit's emerging 'multi-center' pattern reflects neighborhood-level variations in regional population decline, with broad outmigration

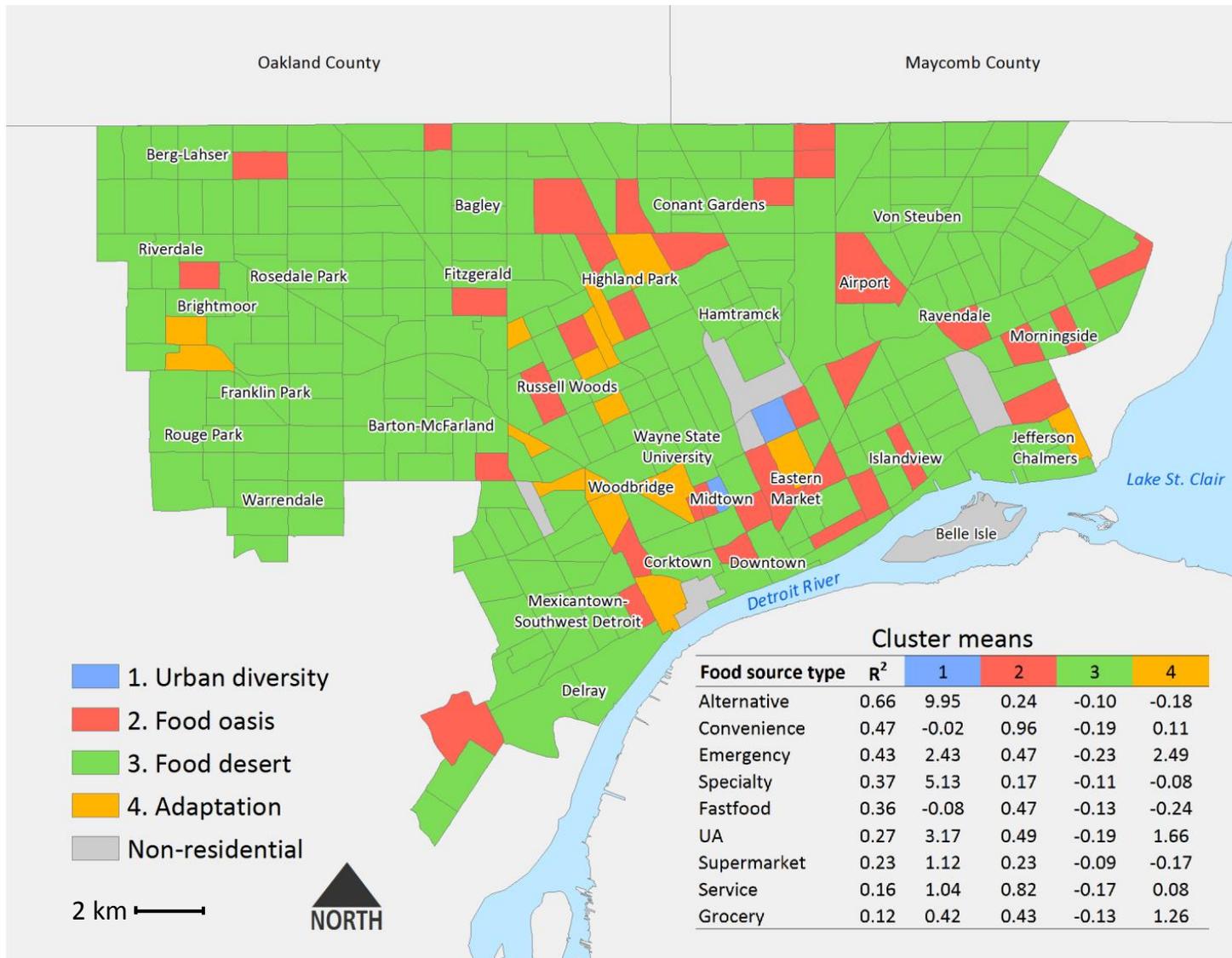


Figure 9. Cluster analysis of food source type presence by population, Detroit. Cluster means table shows z-scores.

intermixing with a few sites of gentrified redevelopment.²⁷ From this perspective, Detroit has “islands of renewal in seas of decay” (Berry, 1982) and Vancouver has “islands of decay in seas of renewal” (Wyly & Hammel, 1999). Cluster one captured two outlier tracts located in Midtown and to the northeast of Wayne State University near Poletown East. These tracts have a very diverse range of food sources, with high levels (over nine z-scores) of alternative food movement sources like the organic, locally-owned Avalon Bakery and urban agriculture (3.17 z-scores) in addition to above-average levels of industrialized food system sources like supermarkets (1.12 z-scores) and corner grocery stores (0.42 z-score). These two tracts reflect the small but burgeoning alternative food movement in the city.

Cluster two accounts for a large number of neighborhoods that serve as ‘food oases’ (see Raja et al., 2008) within the larger food desert of Detroit. Often home to large strip malls or shopping centers, these tracts contain above-average levels of all food sources, but particularly of industrialized food system sources like fast food (0.47 z-score), convenience stores (0.96 z-score) and service industry sources like restaurants (0.82 z-score). The presence of alternative food sources in this cluster seems to vary; overall the cluster tracts have above average levels of these sources and urban agriculture, but there is some variation. For example, this cluster includes Eastern Market, the largest open-air market in the United States and home to many farmers’ stands and artisan food producer stalls, but also includes the tract comprising the northwestern quarter of downtown, which is home mostly to restaurants, convenience stores, and bars.

²⁷ Indeed, this very pattern of uneven development has been presented as the key to economic growth through planned shrinkage by the *Detroit Future City* planning framework released in December 2012 as part of the Detroit Works Planning project. See Chapter 4: Urban Agriculture and the Local Sustainability Fix for more discussion of the implications for food access and justice in the wake of this report.

The overwhelming majority of tracts in this analysis fall into cluster three, which like cluster four in the demographic analysis represents the Detroit of the popular imaginary: a food desert. These tracts have below average levels of all food sources, but the differences by food source type are interesting. First, the types closest to average are alternative food sources and supermarkets. This result illustrates that while these tracts have below-average AFM and supermarket sources, these kinds of food retail are not as unevenly distributed in the urban foodscape as other types. A second result is that the types most below average are emergency, convenience, service, and urban agriculture. The fact that even the tracts seemingly most in need of emergency food aid or the community food security benefits of urban agriculture are lacking these sources shows how dire a situation is faced by many of these neighborhoods.

On the other hand, the residents of neighborhoods found in cluster four appear to be adapting to these issues. These tracts have below average numbers of supermarkets (-0.09 z-scores), but have greatly above average levels of emergency food aid (2.49 z-scores) and urban agriculture (1.66 z-scores). Party stores and small grocery stores, which make up such a prevalent part of the local foodscape in Detroit, are also present in these areas, highlighting the pervasiveness of corner stores in communities without supermarket access (see also Raja et al, 2008; Hadwin, 2012). Although there are not nearly as many party stores in cluster four as in cluster three, here one can see the response made by community organizations and retail when supermarket capital retreats from or cannot be supported by these populations.

The final map (Figure 10 below) shows the results of clustering just urban agriculture sources in Detroit. Like the Vancouver analysis, the majority of tracts fall within the cluster containing overall low average levels of urban agriculture, with the only above average source

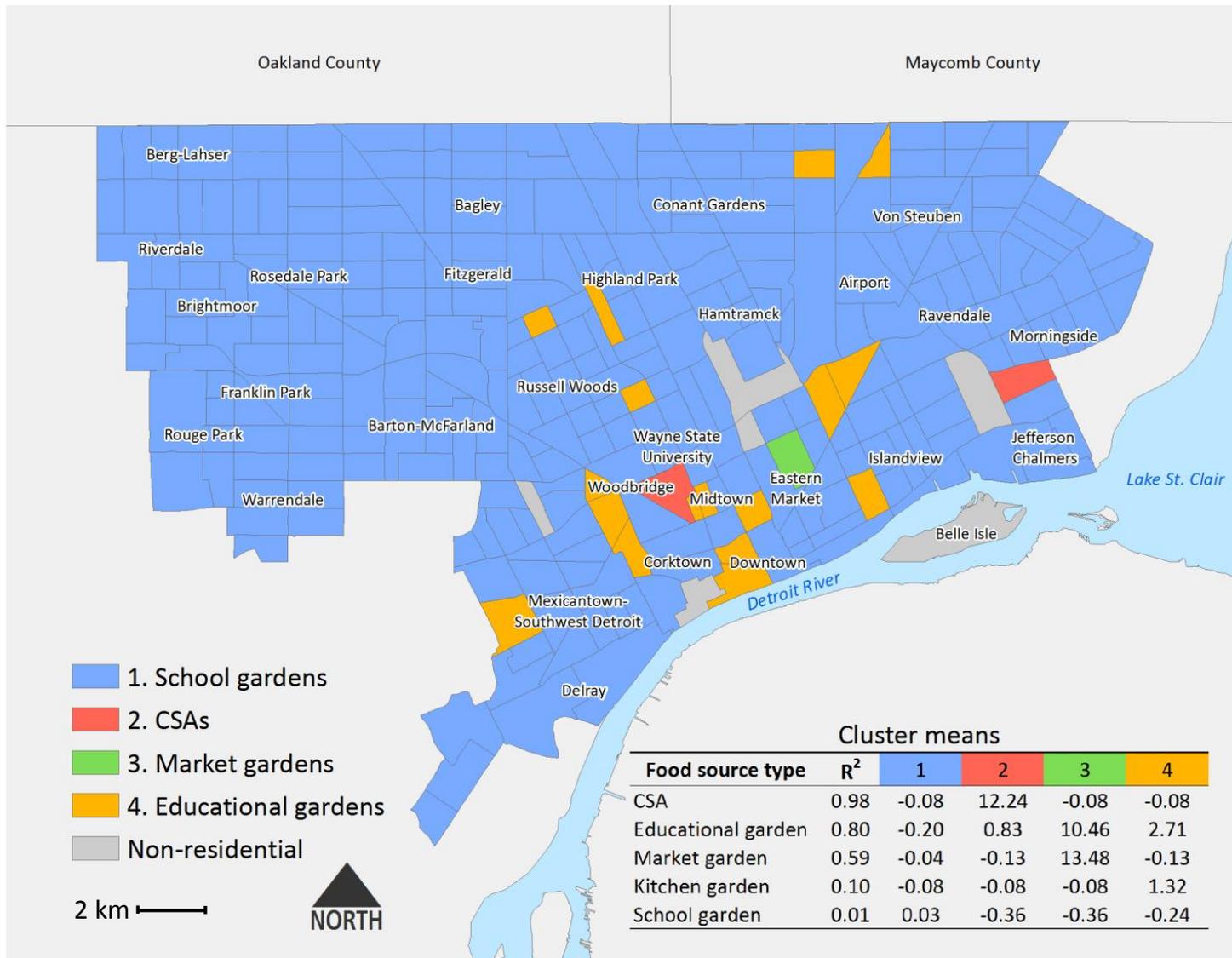


Figure 10. Cluster analysis of urban agriculture source presence by population, Detroit. Cluster means table shows z-scores.

being school gardens, which like Vancouver's are distributed rather evenly throughout the city. Cluster two in this analysis stands out due to the presence of two of the city's CSAs, both of which are found in neighborhoods also containing above average levels of educational gardening. Cluster three, located at the eastern edge of the Forest Park neighborhood, stands out due to its well-above average levels of educational gardens and market gardens. It must be noted that this is likely due in part to the low population (812) of this tract, but it stands out nevertheless with two gardens in a small area. Finally, cluster four captures many of the areas that have been highlighted in both the media and by urban agriculture organizations as hot-spots for growing. Therefore it makes sense that these tracts would contain mostly educational gardens, which often have explicit or implicit public outreach goals. These areas are scattered throughout the city, but are primarily located near the major roads serving as the 'spoke' in the wheel-shaped design of Detroit's road system. Many are located in the hip and gentrifying areas of Midtown, downtown, and Woodbridge, but also have a presence in disinvested neighborhoods of the east side, such as the two tracts north of Gratiot Avenue on either side of its intersection with Mount Elliot Street.

Both cities

As a final step in the cluster analysis, it is possible to bring together the previous two sections by performing a cluster analysis on *all* of the tracts; that is, on both cities at once²⁸. In a manner similar to the analysis performed by William (Bill) Bunge and Ronald Bordessa (1975) in their study comparing Toronto and Detroit, such analysis provides a glimpse of neighborhoods

²⁸ Note that for the demographic clustering, raw census data was clustered, and for the foodscape clustering, the number of sources per 5,000 residents was adjusted to z-scores based on the distribution of data from *all tracts in both cities*.

in these cities that share similar demographic or foodscape composition. The cluster analysis of demographics (Table 8 and Figure 11 below) illustrates quite starkly how different these two cities are. With R^2 values of 0.87 and 0.75 respectively, percent foreign-born and median home value were extremely important in forming these clusters; this suggests two major influences separating Vancouver demographics from Detroit. First, the large immigrant population living in Vancouver, which although more concentrated in the east and southern areas of the city, is overall quite prevalent throughout the city in comparison to Detroit’s largely endemic population. The second factor is home value, which differentiates between the large real estate bubble currently found in Vancouver and the depressed housing market of Detroit. These differences are not enough to completely sever Vancouver from Detroit, however. As cluster two illustrates, there is a space of ‘koinótopia’, of shared or common place, between the two cities. With their slightly higher median income, relatively more valuable real estate, and more foreign-born residents, the two tracts near Wayne State University in the Cass Corridor are the most like Vancouver in terms of these demographic measures. The other three clusters are largely unchanged from the Detroit analysis, although the distinction between the middle class and working class clusters has disappeared to make room for cluster two’s koinótopia.

Table 8. Cluster means of demographic cluster analysis, Vancouver and Detroit.

Variable	R^2	1	2	3	4
Percent foreign-born	0.87	1.6%	47.7%	1.9%	31.9%
Median home value	0.75	\$85,153	\$604,758	\$61,036	\$61,845
Percent non-white	0.64	93.8%	50.0%	93.0%	56.7%
Unemployment rate	0.61	24.0%	6.3%	32.0%	22.4%
Percent automobile commuters	0.48	83.2%	83.3%	74.0%	54.6%
Percent with high school education or more	0.48	87.4%	58.2%	75.1%	89.6%
Median income	0.40	\$37,320	\$24,832	\$21,065	\$25,717
Percent owner-occupied housing	0.25	64.9%	50.9%	41.1%	51.5%
Median rent	0.23	\$896	\$937	\$723	\$716

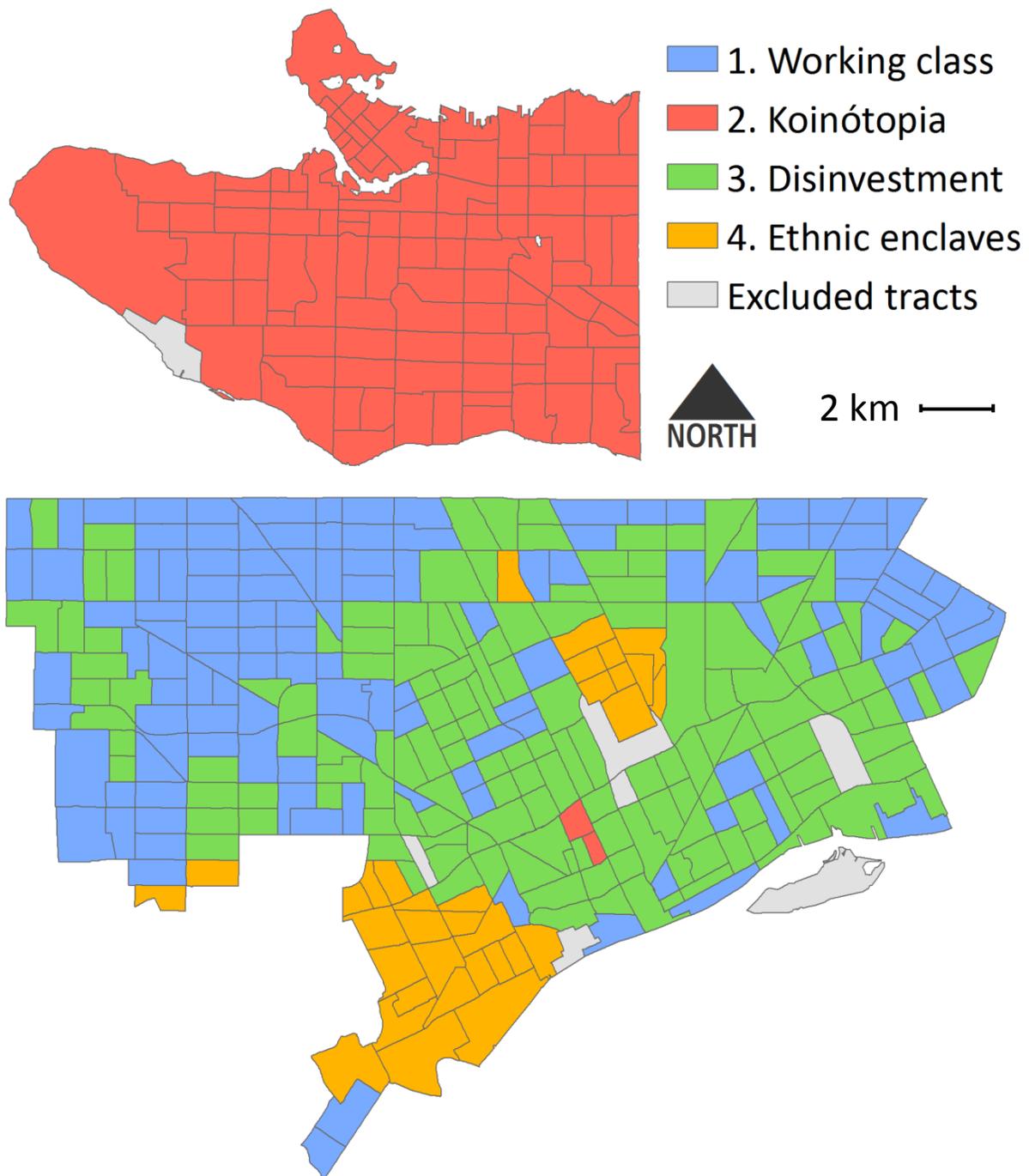


Figure 11. Cluster analysis of demographics, Vancouver and Detroit.

Is the distinction between these cities just as clear when the foodscape variables are clustered instead of demographics? Not exactly. In fact, the results shown below in Table 9 and Figure 12 illustrate that – according to this study’s variables – Vancouver as a whole shares similar food presence levels with many of the food desert tracts in Detroit. This curious result

(seen in cluster one) needs some unpacking. Perhaps this result is partly a function of population density. The levels of food sources were adjusted by population to account for differing sizes of census tracts, but this method could lead to underestimating the effect of population density on levels of food availability. Vancouver as a whole has much higher population density than Detroit (nearly three times as much according to the most recent censuses), and so while tracts in Vancouver may have similar numbers of sources as those in Detroit, the much higher density could discount the variables used in clustering. This result does suggest then, that on a per capita basis, Detroit’s food inaccess problem may not be as simple as it first appears. Delving more into the political economic and ecological dynamics affecting the presence of urban agriculture in the next chapter will illuminate some of the factors at play in a conception of access beyond simple proximity.

Table 9. Cluster means (z-scores) of food source type presence by population cluster analysis, Vancouver and Detroit.

Food source type	R²	1	2	3	4
Specialty	0.95	-0.09	19.75	0.49	0.04
Convenience	0.58	-0.33	2.16	3.77	0.76
Alternative	0.55	-0.13	14.50	1.10	0.17
Fast food	0.44	-0.21	1.44	3.83	0.30
Service	0.38	-0.22	5.37	3.03	0.42
Grocery	0.37	-0.31	4.34	1.38	1.00
Emergency	0.29	-0.25	2.60	2.25	0.67
Supermarket	0.27	-0.18	-0.31	2.90	0.33
UA	0.26	-0.21	5.59	1.98	0.51

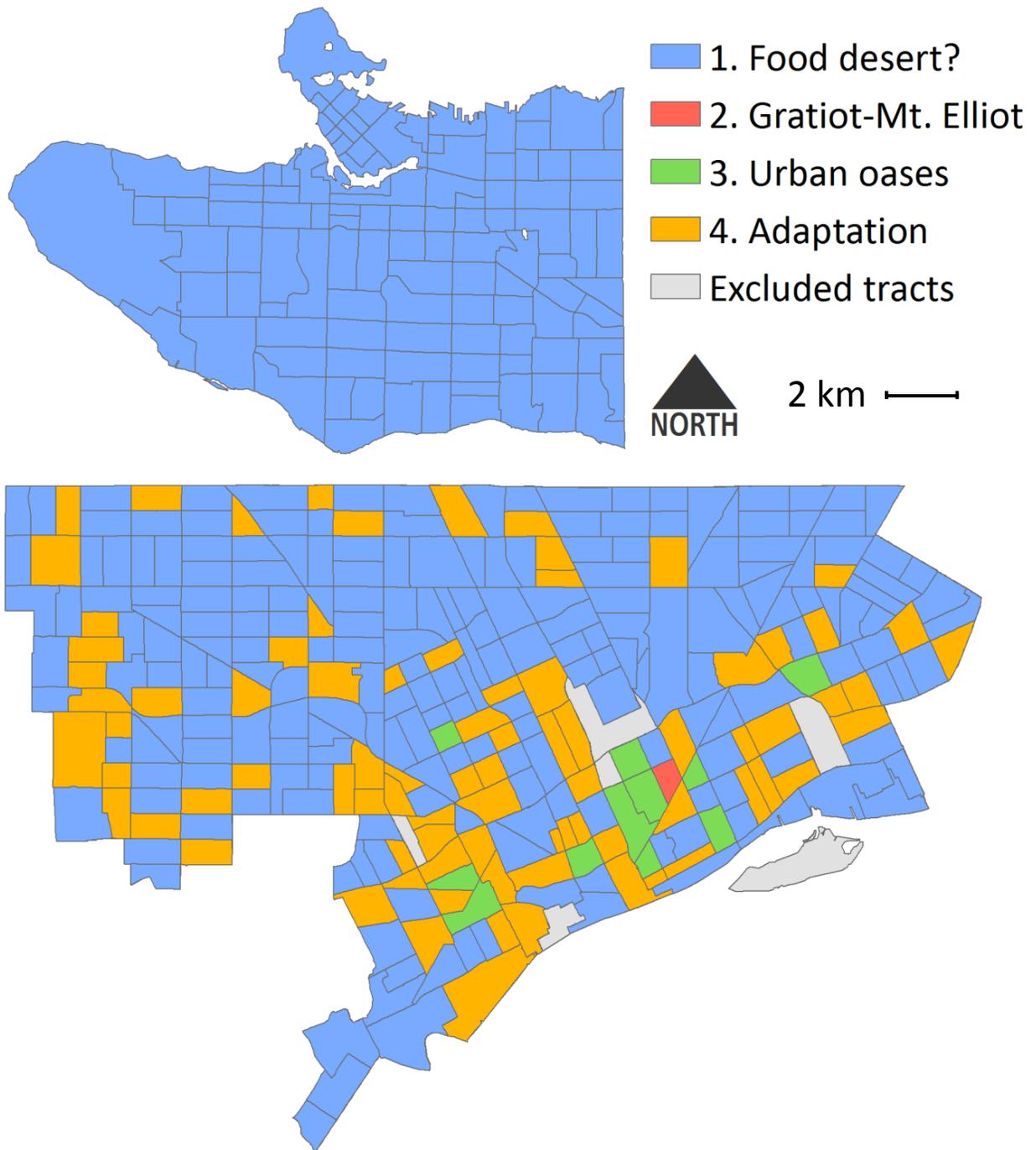


Figure 12. Cluster analysis of food source type presence by population, Vancouver and Detroit.

Multidimensional scaling

While the series of cluster maps presented above provides a good overall picture of the distribution of food sources in Vancouver and Detroit, it is still not clear exactly what the

relationship is between the demographic variables and the mix of food sources present in each neighborhood. The statistical technique of multidimensional scaling (MDS) provides a helpful way to explore this connection. MDS is capable of taking a matrix of dissimilarities and creating a coordinate matrix with as little as two dimensions, effectively taking all of the dimensions inherent in the original data and reducing them to the point that they can be displayed on a scatterplot (Borg & Groenen, 2005; see also footnote 29). This procedure allows for the creation of a graph plotting census tracts according to the similarity of their foodscapes. In this sense, it shares the goal of cluster analysis in that it seeks to create a descriptive taxonomy useful for better comparing observations; however, it differs in that the final output is two continuous variables (coordinate pairs) instead of a categorical variable representing cluster membership. In the remainder of this chapter, I will first interpret the results of the MDS, followed by a novel method for exploring for the relationship between demographics and foodscape composition.

In order to carry out the MDS, the same variables used in the cluster analysis (number of food sources per 5,000 people in the nine categories) were normalized to a zero to one scale by food source category, with zero being the minimum and one the maximum. These variables were then used in a classical²⁹ MDS executed in Stata 11 (StataCorp, 2009a). Figure 13 below shows the results obtained by performing an MDS on all tracts from both cities, with the tracts colored to differentiate each city. The labels for each axis were developed by interpreting a

²⁹ Classical MDS uses a strain loss criterion and an identity transformation (disparities are equal to dissimilarities). See Young and Householder (1938) and Torgerson (1952) for the roots of this method and StataCorp (2009b) for information on its implementation in Stata. This classical implementation of MDS is equivalent to principal component analysis of the correlation matrix of the variables (see Mardia, et al., 1979: sec. 14.3).

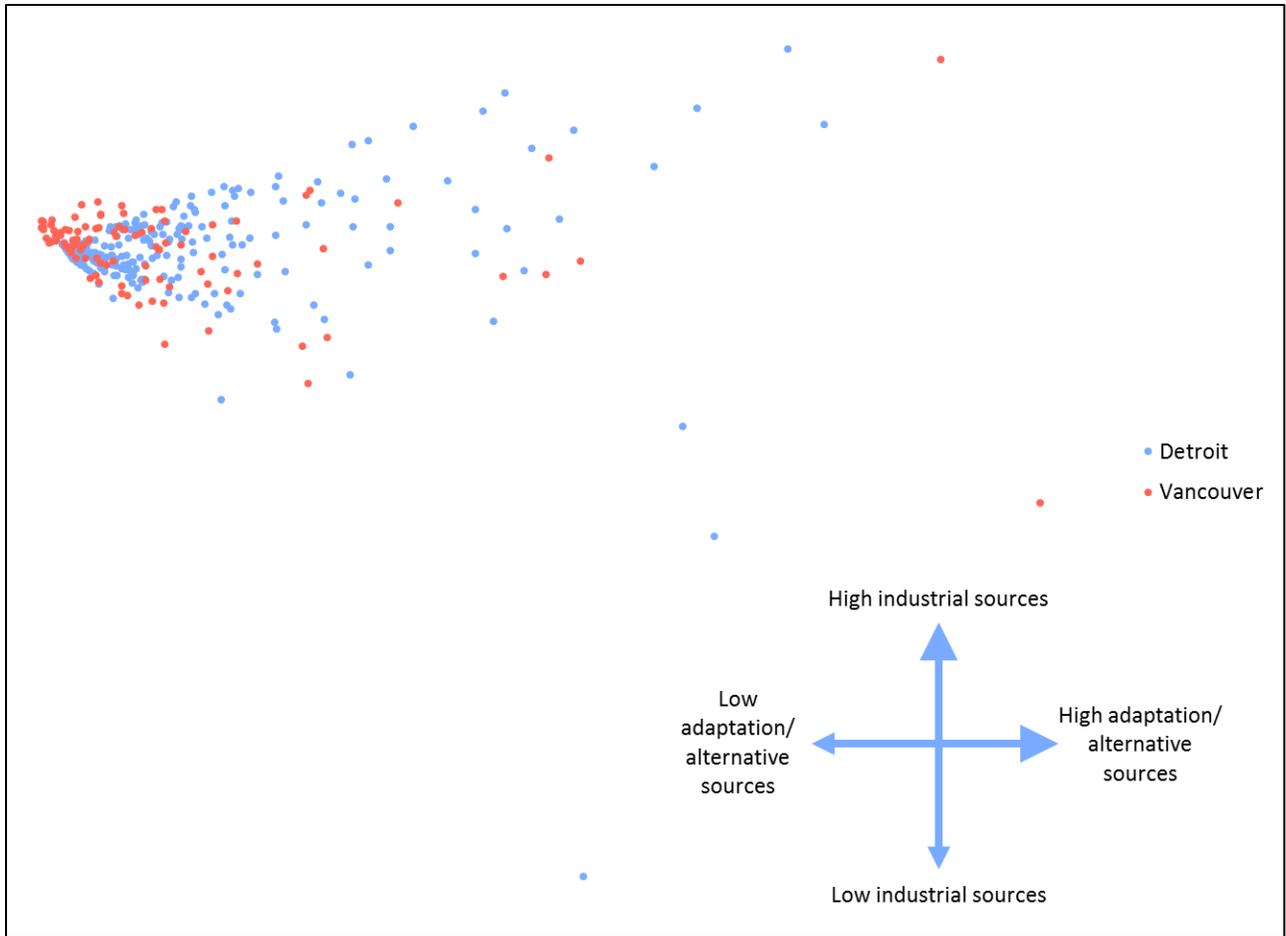


Figure 13. Multidimensional scaling map of Vancouver and Detroit foodscapes by census tracts.

correlation matrix (Table 10 below) between the axis values and food source prevalence. The pattern that emerged shows that one dimension (the x axis here) mostly captures variation in the number of both alternative (urban agriculture, food co-ops) and adaptation (emergency food provision, corner grocery stores) food sources. The second dimension (the y axis here) captures variation in the industrial food system, correlating strongly with supermarkets, restaurants including fast food chains, and to a lesser degree with corner grocery stores.

The configuration of tracts on this plot can illustrate some of the macro-level differences in the foodscapes of Vancouver and Detroit. Notably, Vancouver seems to have tracts that fall outside the range of variation within Detroit. About twenty tracts – mostly in the

Table 10. Correlation matrix between MDS dimensions and food source prevalence variables used to interpret dimensions. Values for the 'Alternative' dimension in each city were reversed (multiplied by -1) so that increasing values of both dimensions reflected increasing numbers of sources.

	Detroit		Vancouver		Both	
	<i>Adaptation</i>	<i>Alternative</i>	<i>Industrial</i>	<i>Alternative</i>	<i>Adaptation/alternative</i>	<i>Industrial</i>
Service	0.32*	0.22	0.75*	0.08	0.50*	0.65*
Specialty	0.21	0.19	0.53*	0.44*	0.45*	0.68*
Alternative	0.15	0.44*	0.66*	0.54*	0.49*	0.02
Convenience	0.18	0.12	0.63*	-0.50*	0.23	0.22
UA	0.28	0.32*	0.35*	0.28	0.41*	-0.08
Fast food	0.06	0.16	0.79*	-0.01	0.30*	0.68*
Emergency	0.48*	0.81*	0.45*	0.50*	0.86*	-0.45*
Grocery	0.94*	-0.34*	0.57*	0.54*	0.59*	0.30*
Supermarket	0.05	0.21	0.60*	-0.52*	0.21	0.56*

* These correlations are above 0.3 or below -0.3 and were strong enough to influence the interpretation.

residential west side and southeast neighborhoods – have very low levels of both industrial and alternative/adaptation sources. Again, it is curious that the city with much less publicized issues with food access would actually have tracts that have overall lower levels of food source availability in some tracts. Both cities display a roughly similar overall distribution of tracts: the majority fall around an average foodscape that has more industrial food system sources, with the densest concentration of tracts among those with very low levels of access, a pattern observable in both cities along the left side of the graph. Notable outliers exist in both cities and the location of these tracts will be explored in more detail below. Perhaps more than Vancouver, Detroit displays a relatively clear upward trend in the distribution of its outliers, showing that as tracts become greater outliers in terms of industrial food presence, they also have high levels of alternative/adaptation sources. This pattern is broken by one outlier from Vancouver and three from Detroit that stand out due to their high levels of alternative sources and low levels of industrial ones.

To explore these outliers more thoroughly, MDS was also performed on the cities individually. Those results are displayed below (Figure 14 and Figure 15), with tracts labeled by their general neighborhood.³⁰ Because the dimensions generated are based solely on the subset of the data analyzed, the interpretation of the axes had to change slightly based again on correlations between MDS dimension variables and food source presence levels (Table 10). While the y axis still generally represents the level of alternative sources present in the tract for both cities, the x axis for Detroit more clearly shows the influence of adaptation sources than alternative. That is to say, Detroit tracts are distinguished by the presence of sources filling localized needs for cheap, quickly available food from convenience and party stores and emergency providers like food pantries. Vancouver, on the other hand, has an x axis that measures more mainstream industrial food system sources like supermarkets, convenience stores, and fast food restaurants.

These MDS results provide another perspective from which to understand the social ecology of foodscapes in each city. In Detroit, the majority of tracts fall in the area with low overall presence to the left of the chart and then follow one of three patterns. First, about one third of tracts follow a roughly linear progression of increasing alternative and adaptation sources. Many of these tracts fall in the ‘adaptation’ or ‘food desert’ clusters from Figure 9. Another third of the tracts follow another linear pattern with decreasing alternative sources and increasing adaptation. These tracts have higher membership in the ‘food desert’ cluster, especially towards the lower left side of the chart where overall presence is below average. The

³⁰ These neighborhood labels come from the City of Detroit’s (2006) proposed master plan neighborhood areas and the City of Vancouver’s (n.d.) local planning areas. For this reason, some of the names differ slightly from common parlance.

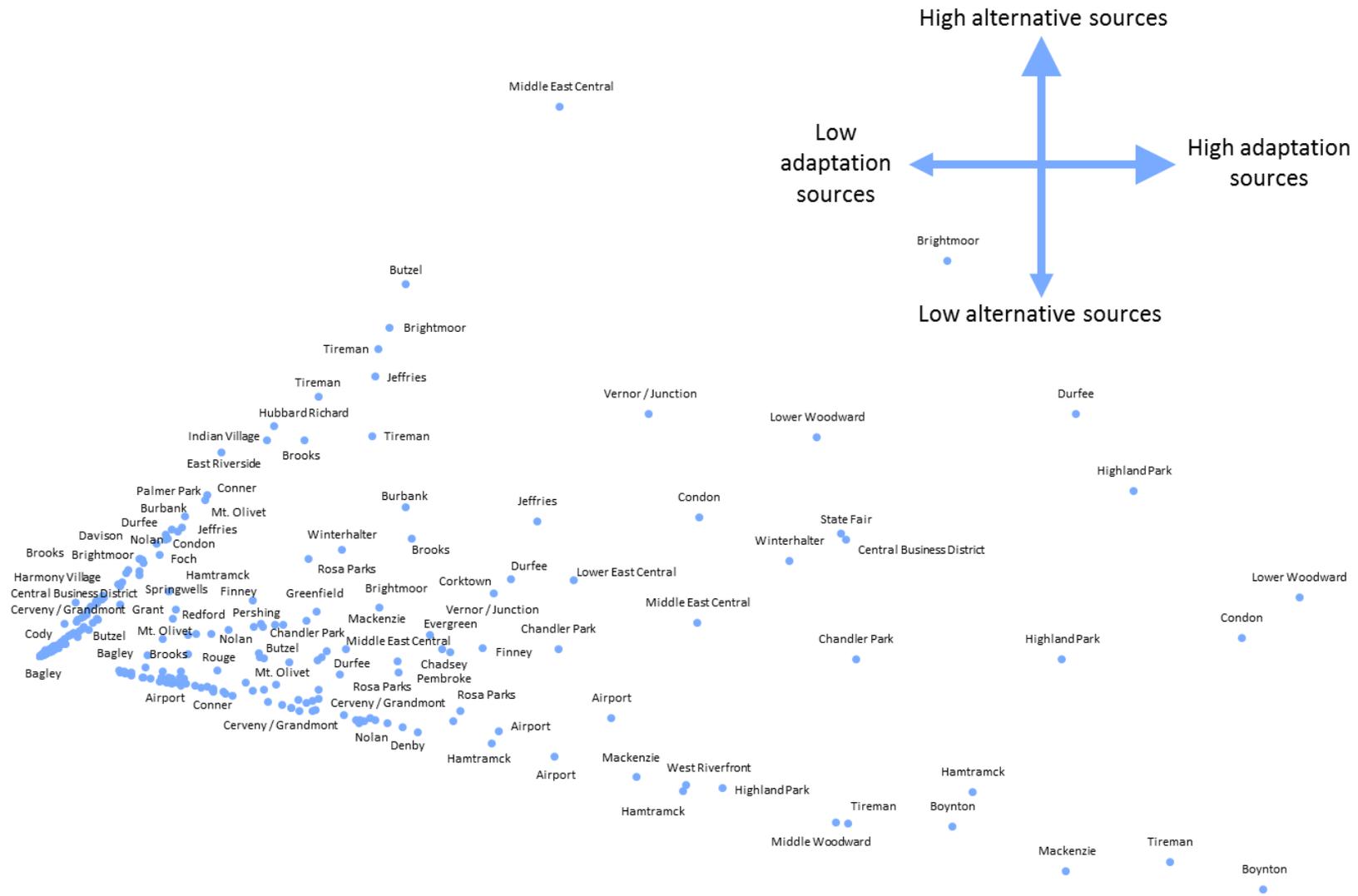


Figure 14. Multidimensional scaling map of Detroit foodscape by census tracts.

final third of the tracts are dispersed somewhere between these two bounding lines. Many of the neighborhoods in the middle of the chart are in the ‘food oasis’ cluster, especially several of the more affluent residential and entertainment areas of the city along Woodward and Cass Avenues and around downtown.

In contrast, outlier tracts to the right of the chart represent some of the severely disinvested neighborhoods that have managed to develop a foodscape that seeks to combat hunger through emergency food services or community food security initiatives.

Neighborhoods like Brightmoor (known colloquially as ‘Blightmoor’) and the city of Highland Park have some of the highest levels of housing vacancy and poverty in the entire United States. While the statistics often used to represent Detroit are staggering (see page 1), as Mark Binelli points out in his recent book *Detroit City is the Place to Be*,³¹ Highland Park is “the Detroit of Detroit” (2012: 183). This small city surrounded by Detroit has lost four-fifths of its population since 1950, has entirely decommissioned public street lighting, and in 2001 fired its entire police department, which is now outsourced to the Wayne County Sheriff’s Department. In many ways, these tracts illustrate the long-term effects of austerity on inner city foodscapes. As illustrated by Janet Poppendieck (1999), the emergency food system established during the Great Depression has shifted from a focus on temporary provisioning to being an integral structural support for the urban poor most affected by the welfare state cutbacks of roll-back neoliberalism since the 1980s. These outliers attest to the importance of adaptation in the Detroit food system, although in Chapters 4 and 5 I will address more directly the different forms that this resistance takes.

³¹ In a compelling chapter fittingly titled ‘Austerity 101’.

The MDS results from Vancouver (Figure 15 below) in some ways show a similar pattern to Detroit, with many residential tracts with low presence grouping to the left of the chart. Most of these tracts fall into the 'residential desert' cluster from the Vancouver cluster analysis (Figure 6 above). There is also a similar pattern of two bounding lines of tracts extending up and down at forty five degree angles from this low presence group, although as a whole the tracts in Vancouver are much more widely distributed. Like Detroit, denser tracts located downtown tend to be outliers, but this pattern is exaggerated due to the concentration of food retail along the main arterial roads and on the downtown peninsula. The University of British Columbia (UBC) also stands out due to its relatively high proportion of food sources to population. The tracts located in Kitsilano and Strathcona display interesting placement, with both neighborhoods having tracts with very low proportions of food sources and tracts with high proportions. This likely reflects the fact that certain areas of these neighborhoods (along West Fourth Avenue in Kitsilano and along Hastings Street in Strathcona) are major streets with high concentrations of food retail, while other tracts in the neighborhood are primarily residential.

Local indicators of spatial association using foodscape data

As a final exploration of the foodscape data in this chapter, a new method of applying local indicators of spatial association (LISA) to MDS data can help unpack the relationship between demographics and foodscape composition. Luc Anselin's pioneering work in spatial statistics has produced a technique known as LISA (1995). LISA is built on an existing measure known as Moran's I , which was developed by Patrick Moran (1950) as a way to determine global spatial autocorrelation. Moran's I delivers a single value ranging from negative one to positive one that indicates how clustered or dispersed feature values are in a two dimensional

coordinate plane. For example, one could calculate Moran's *I* for census tracts with disease rates to determine if – *overall* – high rates tend to be close to high rates and low rates tend to be close to low rates. Anselin took this global measure and developed a Local Moran's *I*, which delivers a value for *each feature* indicating one of five outcomes: an insignificant cluster, a high value surrounded by high values, a low value surrounded by low values, a low value surrounded by high values, or a high value surrounded by low values. With the same data from the previous example, LISA could indicate – *for each tract* – what kind of disease cluster it was a part of, if any.

While LISA is usually applied to data existing on a spatial coordinate plane, such as those using longitude and latitude to represent a real world location, this need not always be the case. In this section, the coordinate data generated by the MDS analyses above will be run through LISA to assess if tracts' clustering in conceptual foodscape space is related to several demographic measures. This technique will allow further specificity to emerge regarding what kinds of neighborhoods have what kinds of food sources.

Vancouver

As displayed in the charts in Appendix B: Local Indicators of Spatial Association Using Foodscape Data – Vancouver, the locations of Vancouver tracts in conceptual foodscape space have significant connections to several demographic variables. Figure B1 shows the results of a LISA on percent owner-occupied housing. While a large amount of tracts fall in the high-high cluster, there is a distinct pattern to their placement in foodscape space. Many of the highly residential tracts with overall low presence are located in the high-high cluster towards the left of the chart, in addition to tracts with more expensive rents (see Figure B2). This pattern

changes in tracts that have more alternative food options, with many low-high neighborhoods interspersed with high-high tracts. There is also an overall pattern of tracts with higher alternative food access having a lower percentage of owner-occupied housing, reflecting especially the presence of emergency food sources in lower-income renter neighborhoods like Strathcona.

This pattern of residential inequality is more strongly reflected in Figures B2 and B3, which show the results of a LISA on median rent and median home value, respectively. Although the majority of the tracts were not in significant clusters, a distinct pattern of high-high home values and rents formed among many of the wealthy west side tracts located towards the left of the chart. Areas like Shaughnessy and West Point Grey, which have median home values well over a million dollars, form this cluster of low presence tracts. This finding points to two important conclusions. First, it is an obvious illustration of the weakness of (or exception to) the traditional food desert assumption of access being equivalent to proximity: although these upper class neighborhoods have a low amount of industrial and alternative food sources, this does not appear to have an adverse effect on their food access or health (see Black et al., 2011). Highlighting the importance of economic factors, the suburban and economically advantaged nature of this urban neighborhood (Ley, 1993) means that many of these households access food by automobile and – despite being located far from most food sources – are not a traditional food desert (see Black et al., 2011).

This relationship between income and food source presence and access in Vancouver therefore appears ambiguous at the neighborhood level, a fact that is clearly reflected in Figures B4 and B5, which shows that high-high income clusters exist all along the x axis of

industrialized food source presence, and even to some degree along the y axis of alternative food source presence. However, it is crucial to remember here that these are generalized relationships being examined and this generalization necessarily obscures some of the individual level patterns that are important to food access. For example, a notable exception to this pattern that does not appear in this chart is the problems that elderly fixed-income residents face when accessing food in these generally high income, low density west side neighborhoods (see Fodor 2012, 42).

The racial disparities inherent in Vancouver's foodscape are also illustrated by these results. Figure B6 shows the LISA on percent of the population identifying as non-white and indicates a clear pattern whereby tracts with a high proportion of visible minorities are located on the left (low presence) side of the chart. The series of outliers to the right of the chart all register as low-low tracts, including both tracts with very low alternative access like the West End and Kitsilano and those with high alternative access like Strathcona. This low-low cluster contains tracts that are otherwise quite different demographically, but in this case are united in two ways. First, by their extreme foodscapes, which in the case of Strathcona – and to some degree Grandview-Woodland – have high levels of alternative food sources like urban agriculture and emergency food and in the case of the West End, Kitsilano, and Mount Pleasant have low levels of alternative food. Their second uniting characteristic is their relatively low levels of non-white population, a fact which can to some degree be attributed to their historical settlement patterns as residential areas close to downtown (see Davis, 1975; McDonald & Barman, 1986) and relatively less recent immigration compared to other areas of the city. This pattern is duplicated and extended in the LISA on percentage of the population foreign-born,

displayed in Figure B7. In addition to having many of the same high-high and low-low clusters, the data displayed in this chart illustrate a larger group of high-high tracts that also includes many of the tracts downtown and in South and Southeast Vancouver that have recently seen high levels of immigration.

Detroit

The spatial connections between foodscape composition and demographics are perhaps even more visible in Detroit.³² With a housing market characterized earlier as “islands of renewal in seas of decay” (Berry, 1982), Detroit has significant differences in home-ownership rates across the city. Many areas of the relatively more impoverished east side have low rates due to a history of racial segregation through redlining, especially in the area formerly known as Black Bottom and Paradise Valley on the lower east side (Sugrue, 2005; Williams, 2011). While nearly all neighborhoods in the city have been hit hard by the predatory Wall Street lenders and the financialization-fuelled crisis of 2007-2008, foreclosure has especially affected the black middle class living in west side neighborhoods – neighborhoods that are historical bastions of black home-ownership (Sugrue, 2005). However, even taking the recent crisis into account, rates of owner-occupancy still tend to be higher in the west side.

How do these patterns affect the distribution of food sources? Many of the tracts with relatively high home-ownership rates have low levels of food source presence, especially along the alternative axis (Figure C1). The opposite also holds true, with many higher access tracts being grouped into the low-low cluster, although this group contains tracts from both highly disinvested tracts in Highland Park and some more economically advantaged tracts located

³² The fact that these trends are visible at the city level implies that a future study of the entire metropolitan area could reveal even more drastic patterns of inequality.

downtown. A similar kind of pattern appears in Figure C2, which shows the LISA on median rent and illustrates that rents actually tend to be higher in low presence tracts; additionally, a large group of tracts with low median rents has higher levels of alternative and adaptation food sources. While the LISA on median home value did not return a large number of significant clusters, the importance of rents in dividing the foodscape shows that in Detroit, as in Vancouver, the housing market plays a significant role.

One of the few variables with a less explicit economic nature that proved significant in the Detroit data was percent of the population foreign-born, with the LISA results shown in Figure C3. Although the majority of tracts did not fall in a cluster, a clear distinction does play out among one group of low-low tracts with above-average alternative sources, but low adaptation along the left side of the chart, and another small group of three high-high tracts from Hamtramck and West Riverfront, an area along the Detroit River that is part of the racially and ethnically diverse Southwest Detroit. This small cluster has low alternative presence, but well above average levels of adaptation sources.

Other economic demographic variables also have a significant effect on clustering tracts in foodscape space. The percent of the population receiving SNAP benefits, as shown in Figure C4, shows a striking pattern in LISA results. The majority of low-low tracts fall towards the left side of the chart, with nearly as many high-low tracts also present, suggesting that the level of SNAP recipients varies in tracts with low levels of food source presence. The most obvious pattern comes from the high-high clusters, which all are found in tracts with high overall food source presence, especially those in the 'ethnic enclaves' cluster with high levels of adaptation but low levels of alternative access.

The final two variables, unemployment rate (Figure C5) and median household income (Figure C6), both reveal a similar pattern of spatial inequality. Like Vancouver, Detroit shows that tracts with overall low presence can be either high or low income or have high or low unemployment rates; however, unlike Vancouver, the outliers in this case show a much clearer pattern. In another surprising result, the majority of tracts with higher levels of presence – especially adaptation – have lower incomes and higher unemployment rates. However, this result is more easily understood in context of the adaptation axis: the kinds of food sources that this dimension measures are those most often found in neighborhoods dealing with the long term effects of poverty. For this reason, tracts with a higher position along this axis are not necessarily better off in terms of food access, but in fact are more likely to have foodscapes in which the procurement of healthy food is difficult.

Discussion and conclusion

These LISA analyses both confirm and complicate the results of traditional food desert studies in Vancouver (Barbolet et al., 2005; Black et al., 2011; see also Fodor, 2012; Shore, 2011) and Detroit (Gallagher, 2007) that have all identified food deserts and explored the relationship between income and food access. However, this study helps point to several important measures of urban inequality that are important in not only determining the *level* of food presence in a neighborhood, but also the *kind* and *mix* of food sources that are available. By introducing new methods for measuring food access, this study has taken a less epidemiological approach to understanding food access and has instead used an ecological approach that is less concerned with statistically determining health outcomes. This explicit focus on inter-neighborhood inequality has highlighted three major dynamics in both cities that

have significant effects on foodscape distribution at the city level: the housing and land market, income inequality, and racial segregation.

Perhaps the most obvious distinction between Vancouver and Detroit comes from their different land area (44.39 and 142.87 square miles, respectively) and population (approximately 600,000 and 700,000 in 2011, respectively). The fact that Detroit is a shrinking city and Vancouver is a quickly-growing and globalizing metropolis significantly affects their housing and land markets, and thereby their foodscapes. Firstly, the dense residential development of Vancouver, coupled with a British colonial high street planning legacy and current Smart Growth development, means that food sources tend to be located in clusters along main streets. Additionally, it means that even in the downtown core there is enough dense buying power to support full-service grocery stores. Detroit is often pointed to as an example of the opposite urban food market: one in which residents are so spread out and economically disadvantaged that they cannot support grocery stores. While the evidence presented in this chapter and elsewhere (Griffioen, 2011) illustrates that this is not exactly true, and that in fact many independent grocers serve Detroit's densest neighborhoods, the overwhelming picture that emerges still supports the idea of Detroit as a food desert.

The data presented on owner-occupancy rates highlights one of the key similarities between Detroit and Vancouver: tracts with high home-ownership rates and high rents had relatively low levels of food source presence in both cities. This pattern highlights the continued importance of inner city neighborhoods that display suburban characteristics like large lot sizes and automobile-centric design. While neighborhoods on the west side of Vancouver that have these features tend to be wealthy and have fewer problems with food security, such tracts in

Detroit may still retain some of their value as strong neighborhoods, but after decades of economic hardship face diminished food access options. Most Detroiters cannot afford a family car and must rely on an outdated transit system. Neighborhoods with high home-ownership rates in both cities have low levels of overall food presence, but those in Detroit are likely to face greater hardship accessing healthy food.

Neighborhood-level variations in income levels also play a part in determining the foodscapes in Vancouver and Detroit, although this relationship is not simple. The data in this study demonstrate that both high- and low-income neighborhoods in both cities can have low food presence. In Vancouver, a smaller group of low-income and high unemployment tracts located in neighborhoods like Strathcona and the Downtown Eastside are outliers due to their relatively low overall levels of industrial (e.g. supermarkets and convenience stores) food source presence but high levels of alternative sources (e.g. emergency and alternative food system sources). Detroit shows a more clear clustering of low-income and high unemployment tracts in two regions of conceptual foodscape space: first, the most disinvested tracts that have both low levels of alternative (e.g. urban agriculture and food co-ops) and adaptation (e.g. emergency food sources and corner stores) sources, and second, those with low levels of alternative access but a highly adapted food retail environment composed mostly of corner stores and charitable food organizations. Despite having differences in their foodscape composition, the results of this chapter indicate that both cities have food systems segregated across class lines.

The final major socio-demographic rift present in the foodscapes of Vancouver and Detroit is racial. In Vancouver, the use of percent non-white as the racial variable masks the

complexity and range of racial and ethnic identifications present in the city, yet despite this generalization, race plays a clear role in foodscape composition. In both percent non-white and percent foreign-born, high-high clusters exist in many of the tracts with low overall presence, while low-low clusters are found in tracts with high presence, particularly of industrial food sources. In Detroit, the most significant racial segregation of food access is observable at a scale larger than this study, with the key distinction being between the majority African American city and the majority white suburbs (see Gallagher, 2007). Therefore, the variable measuring the percent of the population identifying as non-white did not capture much significant variation in foodscape composition. However, percent foreign-born did highlight a large cluster of low-low tracts with low food source presence and several tracts within the ethnically diverse city of Hamtramck with moderate food source presence.

The analysis of Vancouver and Detroit's foodscapes undertaken in this chapter sheds some light on the socio-demographic factors affecting what kind and how many food sources are present in different neighborhoods. By making strategic generalizations, it presents a different way of undertaking food desert analysis and serves to establish important context for the remainder of this thesis. To further develop the ideas brought up by the first half of the thesis, the next chapter will assess exactly what can be gleaned from this strategic positivist approach and what is missing from the analysis. To fill in these gaps, I will present qualitative research that serves to investigate how the injustices created by the land and housing market, income inequality, and racial segregation are inscribed in and through the local urban agriculture movement in both cities.

Chapter 3: Interlude

In addition to the assumption that proximity equals access, another key failing of food desert research concerns the theory of change inherent in its assumptions. As discussed by Julie Guthman (2011) and Jerry Shannon (2013), by identifying gaps in access within the (industrialized) food system and assuming that filling those gaps with a source of food (usually a full-service grocery store) will prevent diet-related disease, the food desert method supports supply-side interventions as the solution to inequalities in food access. However, as these authors illustrate, this solution is highly convenient in an atmosphere of neoliberalization: if government intervention is required, it would at most consist of tax breaks for corporations encouraging the creation of inner city supermarkets (see, for example, Cardwell, 2009), and at least would simply support business decisions – such as providing low-quality meat and produce at high prices – that allow supermarkets to turn a profit in the poorest neighborhoods.

Such a response to food deserts is supported by the United States federal government, which is providing \$400 million in financial and technical assistance as part of the Healthy Food Financing Initiative (HFFI) to eliminate food deserts through supply-side intervention. The key point here is that the USDA definition of a food desert is a low-income area lacking access to a supermarket. A supermarket is defined as a retailer with annual sales of at least two million dollars, and it must contain all the traditional major food departments, including fresh meat and produce, dairy products, dry and packaged goods, and frozen foods. This means that only large chain supermarkets will receive economic incentives, despite their supply chains being a key part of the industrialized food system that had a hand in creating such unequal foodscapes. The HFFI has been highly influential in the creation of ‘urban format’ big box stores by food

industry giants like Walmart, which in 2011 announced that it would be opening 300 stores in USDA-identified food deserts (Walmart, 2011).

In fact, the publishers of one of the first widely-publicized food desert studies in the United States (Gallagher, 2006), the Mari Gallagher Research and Consulting Group, has since been hired by Walmart to conduct an ‘apolitical’ assessment of the effects on local businesses after one of their stores opened in the West Side of Chicago, resulting in three separate reports (see Gallagher, n.d.). Unsurprisingly, they challenged the findings of researchers from the Center for Urban Research and Learning at Loyola University Chicago, whose study (Merriman et al., 2012) finds that the opening of the Walmart had a statistically significant relationship on local small businesses closing. In all of the documents pertaining to this report, Gallagher and company are sure to state the following: “We emphasize that we are neither ‘pro’ nor ‘anti’ Wal-Mart but, rather, a neutral third-party research firm. We do not conduct advocacy or any type of political work” (Gallagher, n.d.). This claim begs the obvious question: is a neutral stance possible when your research is funded by Walmart? Additionally, what does it mean if food desert research can be co-opted so easily by actors from the industrialized food system?

As Shannon and Guthman have claimed, it suggests that the transformative political power of the method is limited: “Therein lies the problem [with food desert research]: an approach that appeals to all parts of the political spectrum cannot challenge the political-economic forces that are producing cheap, toxic, and junky food – and making some people dependent on it” (Guthman, 2011: 186). They advocate alternative quantitative and qualitative methods that seek to avoid the problematic assumptions of food desert research and instead take an approach that focuses on structural inequality. In the first two chapters of this thesis, I

sought to follow Shannon's recommendations for alternative quantitative methods of assessing foodscapes. As summarized in the conclusion to Chapter 2, the method used highlighted several socio-economic dimensions that affect the composition of the foodscape in Vancouver and Detroit, namely the housing and land market, income inequality, and racial segregation. These insights serve as a helpful starting point for discussing food justice in each city and point out the structural economic and socio-demographic factors that work against a fair and equal food system.

However, they do not provide much understanding of the political process through which these inequalities are created, or provide much guidance for how food justice activists should proceed. In this sense, even this alternative – and I would hope more critical – approach to quantitative foodscape analysis does not provide a theory of change helpful to furthering the goals of the food justice movement. What is needed is a combination of quantitative and qualitative approaches to first describe the foodscapes of each city and the inequalities they co-produce and then explore in thicker detail the political struggles over food that occur in these urban environments. Therefore, the second half of this thesis – Chapters 4 and 5 – will focus on the urban agriculture movements of each city to assess their relationship with foodscape inequalities and the structural conditions that create them. Through the use of historical analysis and present-day case studies, the complex relationship between the urban agriculture movements and the urban political economy of two very different cities will be unpacked.

Recent academic (e.g. McClintock, 2013) and activist (e.g. Crouch, 2012) writing on urban agriculture has begun to question its role in both reproducing and countering inequality in cities of the Global North. Specifically, such work has tried to untangle the complicated

relationship between farming the city and the free market reforms carried out through the process of neoliberalization since the 1970s. I aim to contribute to this recent work by investigating in greater detail three major dynamics affecting the distribution of urban agriculture in the foodscapes of Vancouver and Detroit: the housing and land market, income inequality, and racial segregation. Drawing on the insights of critical urban political ecology, I will bring both quantitative and qualitative data to bear to flesh out the political-economic context and the theories of change that act as both supports and barriers for the project of growing food in the city.

Chapter 4 will look at ways in which political economic context and urban governance are connected to the development and support of urban agriculture by public and private actors. The research question for this chapter is inspired by the work of Nathan McClintock, who in his 2011 dissertation asked, “Why has urban agriculture gained such purchase in Oakland at this particular moment in history, or more specifically, what have been the historical and contemporary conditions, both necessary and contingent, that have given rise to urban agriculture here and now?” (11). In this chapter, I will trace the evolution of the local and urban agricultural systems in Vancouver and Detroit by asking a series of questions: how is urban agriculture seen as a sustainable solution to the very different problems faced by these two cities? What does this tell us about how individual actors and municipal governments view the idea of sustainability? What is the relationship between different regimes of actually-existing-neoliberal urban governance and urban agriculture? By tracing the history of the local and urban agricultural systems in each city, I will argue that urban agriculture has emerged largely as a Polanyian counter-movement to the social inequalities propagated by neoliberal urbanism,

but has more recently been enrolled as a device by the local state through which sustainability planning is seen to enhance economic competitiveness.

Chapter 5 continues to refine the level of analysis by moving from the examination of the entire foodscape (as in Chapter 2) and of the city-level political economic context (Chapter 4) to the activities of individual farms. How do different theories of change interact with urban agriculture as a political-economic project? How does the balance of focus on the three metabolic rifts targeted by urban agriculture (individual, social, ecological) relate to political objectives? Data gathered from interviews with urban farmers suggests two major points. First, remarkably similar notions of nature can be used to support urban agriculture for quite different political projects, pointing towards the ambivalence of urban agriculture in sustainability discourse and practice. Second, the degree to which individuals target different metabolic rifts in many ways determines the overall political orientation of their urban growing, a point that refines the relationship between urban agriculture and theories of socionatural change.

Chapter 4: Urban Agriculture and the Local Sustainability Fix

If one were to skim over recent articles on Vancouver and Detroit in the pages of a major North American newspaper like *The New York Times*, a picture of two vastly dissimilar cities would emerge. Many articles on Vancouver focus on its appeal as an international travel destination. Consider the opening sentences of Denny Lee's short travel guide for cruise passengers:

No wonder Vancouver is often heralded as one of the world's most livable cities. It is blessed with a snowcapped mountain backdrop and crystal blue harbors. It is also a gateway to the Inside Passage — the marvelous maze of glacier-carved fjords and forested islands that are a cruise lover's delight. But what really sets Vancouver apart is its urban density. With sprawl kept in check by geography, the city thinks vertically. Neighborhoods overlap, apartments rise. That seems to heighten the city's international mix. (2010: 1)

Contrast this picture of consumption-oriented ecotopia with a common portrayal of the Motor City provided by Harvard economist Edward Glaeser:

Can Detroit shrink to greatness? After decades of betting that white elephant projects, like the city's monorail, would reverse decline, Detroit's remarkable mayor, Dave Bing, a former N.B.A. All-Star and successful steel entrepreneur, has focused on right-sizing his city and its government. At the extreme, urban right-sizing could mean bulldozing large swaths of the city. [. . .] Given that Detroit was on the wrong side of history with competition, education, climate and industrial diversity, it is not surprising that the city's population fell from over 1.85 million in 1950 to 912,000 in 2008. Economic and social headwinds ensured that Detroit would shrink, but public policies did little to halt the city's decline. (2010: 1)

Little mention of natural amenities here — except as part of the explanation for why Rust Belt industrial jobs moved south to the Sun Belt. The picture presented is bleak.

On the other hand, consider some of the headlines from local papers in each city from May and June, 2013, alone: in Vancouver, a free daily reports "Rooftop beehives, front yards fertile ground for Vancouver's urban farmers" (Harbottle, 2013) and a *Vancouver Sun* editorial

claims “Urban farming promises a fertile future” (Hotte, 2013); in Detroit, *The Free Press* runs an article titled “Urban farming invigorates Detroit neighborhood” about the West side neighborhood of Brightmoor (Satyanarayana, 2013) and *Bridge Michigan* offers the retrospective headline “Dig it: Detroit’s urban farms are nothing new, but newly popular” (Gabriel, 2013). Additionally, both cities were featured as case study cities with booming urban agriculture movements in a report by the American Planning Association (Hodgson et al., 2011).

This juxtaposition begs the question, how is urban agriculture seen as a sustainable solution to the very different problems faced by these two cities? While this question encourages empirical investigation of how the urban agriculture movements emerged in each place, as an urban environmental geographer, an additional question comes to mind regarding the theoretical implications of these movements: what is the relationship between different regimes of actually-existing-neoliberal urban governance and urban agriculture? What part does the local state play in using urban agriculture in an effort to change or strengthen the narratives portrayed in the articles above, or to selectively pursue sustainability in a context of multi-scalar neoliberalization? In an effort to answer these questions, in this chapter I will first provide a history of local and urban agriculture in each city, tracing how the movements developed in cities with different climates, cultures, and economies. Then, I will address the more recent roles urban agriculture has played in local governance, with an eye towards highlighting the politically polyvalent character of farming the city. I will argue that in both cities, urban agriculture has emerged largely as a Polanyian counter-movement to the social inequalities propagated by neoliberal governance, but has more recently been enrolled as a

device by the local state through which sustainability planning is seen to enhance economic competitiveness.

Theorizing urban agriculture

Before delineating the ties between urban agricultural projects and neoliberal urban governance, an overview of existing theoretical frameworks will provide conceptual grounding. Such grounding is particularly important in the case of the comparative urbanist lens implicit throughout this thesis, due primarily to the obvious quantitative and qualitative differences between Vancouver and Detroit (see footnote 1). Without some form of abstract starting point, comparison of the two cities would be extremely difficult.³³ In this section, I will describe both the overarching theoretical lens of political ecology employed, in addition to the specific concepts of the radical/neoliberal Janus face of urban agriculture (as presented in McClintock, 2011, 2013) and the local sustainability fix (as presented in While et al., 2004, among others).

(Urban, critical) political ecology

Although it cannot truly be seen as holding a united epistemology, ontology, or methodology (see, for example, Blaikie, 1985; Blaikie & Brookfield, 1987; Watts, 2009), the approach of political ecology offers a way of investigating environmental issues such that social power relations between people are a central focus and, importantly, are placed within the complex web of relations between human and nonhuman biota and the abiotic environment. Broadly speaking, the tradition emerged in the 1970s when social scientists (predominantly

³³ The use of multi-scalar and strategic positivist analysis throughout the thesis makes it necessary to adopt a common theoretical lens through which to approach the research. In this chapter I review the theory behind my analysis, but it is important to note the dialectical nature of theory and method here. Much of my theoretical decisions were informed by the quantitative analysis of Chapters 1 and 2, which in turn analyzed variables known and assumed to be important from my theoretical position.

researching in the Global South) began to combine the approaches of political economy (generally Marxist) with the concerns of the nascent ecology movement. As described by Watts (2009), this political ecological lens entailed a focus on three elements of the nature-society relationship. First, the relationship between environmental degradation and poverty is assumed to be dialectical, with increased poverty often requiring increased degradation of social and 'natural' resources. Second, all actions and decisions of 'land managers' are understood to take place within certain spatial and scalar constraints, which were seen originally as primarily political economic, but now also include the discursive and ontological (see Swyngedouw & Heynen, 2003; Mahon & Keil, 2009; Neumann, 2009). Third, 'external structures' such as the state and international relations also play a significant role in limiting and directing the action of 'land managers.' Key to this framework is the concept of nature as socially constructed. Most political ecologists take a materialist view of the world, viewing humans as within the realm of nature. They also point out that our ideas of what counts as natural and our relationship with the biophysical environment are part of our social world: they can be capriciously affected by ideology, tradition, and intersectional inequalities, and are enrolled in unequal relationships of power. For this reason, many political ecologists use the term 'socionature' or 'socionatural' (e.g. Braun, 2002).

From these (largely Marxist and Third World) beginnings, political ecology has expanded significantly to tackle a range of human-environment or nature-society issues (for reviews charting this shift, see Keil 2003, 2005; Walker 2005, 2006, 2007; Neumann, 2009, 2010). One of the most significant developments comes from contemporary work in the sub-field of urban political ecology, which seeks to address a lack of engagement with urban studies and urban

political economy literatures (Heynen et al., 2006; Zimmer, 2010). In addition to altering the lens of political ecology from the ethnographically 'far' to the 'near' by studying urban environments in the First World, urban political ecology has also sought to integrate approaches pioneered in science and technology studies such as Bruno Latour's actor network theory (2004, 2005; see also Watts and McCarthy 1997; Demeritt 1998; Braun and Castree 1998; Whatmore, 2002; Forsyth 2003; Goldman, Nadasdy, and Turner 2011) and urban political economy's theorization of neoliberalization (Heynen et al., 2007; Castree, 2008a, 2008b, 2010a, 2010b, 2011; Bakker, 2010). Examples of study topics include the American lawn (Robbins, 2007), urban forests (Heynen et al., 2007; Heynen, 2003; Heynen, 2006), and urban water infrastructure (Giglioli & Swyngedouw, 2008; Swyngedouw, 2007).

Circulation and metabolism

In this chapter, I use urban political ecology's framework to understand the wide historical changes in the circulation of capital and the metabolism of nature that have taken place in each city to understand how and why urban agriculture arises. Central to this understanding are the biological concepts of circulation and metabolism. Recent work in urban political ecology (see generally Heynen et al., 2007) has employed these ideas together in an effort to understand the dialectic nature of the economy and the environment. From a Marxist perspective, capital is value in motion, and its circulation and fixing in place and time have serious short- and long-term effects on the built environment and everyday life in cities. Also drawing on the work of Marx, human labor is understood to be the metabolism of nature: humans exist within the natural world, of course, but are also uniquely separated from it through their ability to add value through purposeful labor (see Marx, 1867/1976: Chapter 7,

Section 1). As Neil Smith has explained, capitalism itself ‘produces’ nature through its enrollment in systems of human value, its commodification, and its exchange and modification (2008).

Nathan McClintock (2011) draws on the ideas of metabolism and circulation to explain how urban agriculture arises historically. From the point of view of circulation, the ‘demarcated devaluation’ of North American inner city land through processes of redlining, white flight, and deindustrialization creates cheap land that can be harnessed by victims of the capitalist space-economy to regain a measure of self-reliance and subsistence or political and community organization. Urban agriculture is also fundamentally a response to metabolic rifts, the gaps in ecology’s circular metabolism of inputs and outputs existing in dynamic equilibrium. McClintock (2011) identifies these rifts as ecological, social, and individual.

The ecological rift is a fundamental consequence of the industrialization of agriculture in capitalism, which requires constant rescaling of metabolic relationships. Spatially, capitalism must constantly expand and undergo processes of equalization and differentiation (see Smith, 2008), creating distance between urban centers of population and the rural areas where food is produced. Temporally, nutrients produced on a geological timescale of centuries or millennia, such as fossil fuels or the inputs in artificial fertilizers, act as “temporal subsidies” (McClintock, 2011: 23-24) in the food chain. Both of these dynamics mean that the production of food under capitalism is increasingly separated from urban life and capital-intensive, technological solutions requiring increased inputs become necessary to sustain and expand food production.

Whereas the wage relation is central to creating the capitalist division of labor that results in ecological rift, primitive accumulation through commodification of land and labor is

central in the social rift. In the Global South, primitive accumulation and accumulation by dispossession drive the commodification of formerly common land and labor; urban agriculture both subsidizes this process by providing food to poor slum dwellers and resists it through the utilization of vacant land. In the Global North, the relationship between capital and urban agriculture is more Polanyian in nature, with the 'social dislocation' that occurs when land, labor, and money are treated as commodities being resisted through socio-cultural 'protective counter-movements' (Polanyi, 1944; McClintock, 2011: 27-28). In fact, food itself could be seen as a fictitious commodity, in that its commodification ignores or pathologically alters the social relations required to ensure everyone is fed and creates externalities that are not accounted for in the free market.

The final rift identified by McClintock (2011) is the individual rift, or what Marxists call alienation. Here the alienation is double: not only are modern city dwellers separated temporally and spatially from the socionatural systems that produce their food, but in a system of wage labor they are also separated from the products of their labor through the expropriation of surplus value and the separation of "the head and the hand" (Alfred Sohn-Rethel quoted in McClintock, 2011: 32). Although it must be done in a critical and self-reflexive manner, the praxis of urban agriculture gains its radical edge through breaking down this dual alienation. Indeed, as McClintock (2011) claims, a truly radical urban agriculture needs to stress all three rifts instead of focusing overmuch on the ecological rift. Doing so will – in classic Marxist fashion – unveil (urban) agriculture to be a social relation between people instead of a fetishized relation between things (Marx, 1867/1976: Chapter 1, Section 4).

The urban sustainability fix

In this chapter, I will employ (urban, critical) political ecology to unpack the relationship between political economic context, the local state, and urban agricultural projects.

Geographers studying neoliberalization have made efforts to stress that the relationship between national-level economic reforms and local economies is complex; this is why neoliberalization must always be treated as a process, and one that has diverse effects at different scales (Jessop 2002; Brenner and Theodore 2002a; Brenner and Theodore 2002b; Peck and Tickell 2002; Hackworth 2007). This project of examining how actually-existing-neoliberalisms 'play out' on the ground is an important step to developing real alternatives, and is therefore one of my goals for this chapter. Two concepts in particular will be helpful to this investigation, both of which owe more allegiance to political ecology work focusing on neoliberalization and the environment than scholarship dealing with the production of scientific knowledge. The first was presented by While et al. (2004) in their study of Manchester and Leeds, in which they found the selective uptake of certain aspects of sustainability discourse, policy, and planning to be a key strategy for securing investment in the context of cutthroat entrepreneurial competition between (British) cities under neoliberalism (see Harvey, 1989).

The urban sustainability fix is a sub-type of David Harvey's (1982; 2001) concepts of spatial, temporal, and spatio-temporal fixes. As explained by Bob Jessop (2006; see also 2002), the concept of the spatial fix posits that capital has to geographically expand to new markets, invest in new productive power, or further commodify the extra-economic to overcome the crisis of falling profits. Harvey sees the temporal fix as a response to a different internal contradiction of capital that required the credit system to temporarily avert crisis by offsetting

the costs required to keep value in motion (as in Harvey, 2001: 327). The third fix is spatio-temporal, in which overaccumulation was avoided through “temporal deferment and geographical expansion” simultaneously (Harvey quoted in Jessop, 2006: 152), such as by dispersing surplus through investment in the built environment in the process of uneven development (see also Smith, 2008). Jessop (2006: 153-155) also notes that in some of Harvey’s work (i.e. 2001, 2003) he conceives of an (admittedly implicit) different kind of spatio-temporal fix that is more than the sum of its parts. In this formulation, fixes for overaccumulation can be seen as resolving, “partially and provisionally at best, the contradictions and dilemmas inherent in capitalism by establishing spatial and temporal boundaries within which a relatively durable pattern of ‘structured coherence’ can be secured and by shifting certain costs of securing this coherence beyond these spatial and temporal boundaries” (Jessop, 2006: 162). This project (drawing on Philippe Ayalot’s (1976) idea of ‘structured coherence’) stresses that spatio-temporal fixes are in fact a *secondary* response – often engineered by the state – to what is first and foremost *political* contestation over the crises and contradictions of capitalism.³⁴

While et al. (2004) position their historically contingent notion of the sustainability fix within Harvey’s framework to highlight the strategies employed by the local state in dealing with the devolution of economic and ecological management under neoliberal ecological modernization. The crucial point is that in addition to being forced to create environmental policy by this devolution (often with meager resources due to austerity measures), cities also use their sustainability programs as yet another indicator in the league tables that characterize

³⁴ This focus nicely maintains Marx’s original stress on the importance of class struggle in determining the general course of history, and in particular, the formation and contingent preservation of the capitalist mode of production (see Marx, 1867/1976: Chapter 10, Section 1; Eagleton, 2011: 31).

inter-urban competition. Although the original formulation of the sustainability fix is rooted in the specific United Kingdom context in which While et al. (2004) were writing, the concept has since seen application in a range of contexts, including Vancouver (Kear, 2007; Quastel, 2009; Quastel et al., 2012; Rostol, 2013); despite differences in the specific contours of the competitive inter-urban environment and the relationship between national and sub-national governance, the overall cohesion of the sustainability fix as a useful concept remains.

The original article claimed, “Whether this is a selective ‘rollout’ neoliberalism in action, or gathering momentum for some kind of alternative mode of social regulation remains to be seen” (While et al, 2004: 566); more recent work (e.g. Krueger & Gibbs, 2009) has provided evidence of both outcomes, sometimes even both simultaneously. Although not always pointed to by critics of neoliberalism, several studies (e.g. Bakker, 2007; Gibbs & Krueger, 2009; see also Castree, 2011: 43) have illustrated that neoliberal (re-)regulation can lead to improved environmental or social justice outcomes – at least according to market environmentalist metrics. This seeming contradiction (the ‘sustainable development paradox’ identified by Krueger & Gibbs, 2009) will be key in establishing the political economic context within which urban agriculture movements have entered public view in Vancouver and Detroit. In different ways in each city, urban agriculture development and policy is employed both as a tool of the entrepreneurial city and as a grassroots response to urban environmental injustice and inequality.

The radical/neoliberal Janus face

The paradoxical nature of urban sustainability is especially apparent in analysis of the factors leading to the emergence of urban agriculture in the built environment. To this effect, Nathan McClintock's work theorizing urban agriculture is worth quoting at length:

I contend that it's not one or the other, radical or neoliberal, but, rather, a Janus face, simultaneously a radical counter-movement and an actually-existing form of roll-out neoliberalization existing in dialectical tension. Indeed, contradictory processes of capital both create opportunities for urban agriculture (on land left vacant either via the retreat of capital or via speculation/monopoly rent) and impose obstacles to its expansion (such as increased competition for funding, environmental contamination externalized from production, and rising land values once sites are improved and gentrifiers move in). To debate whether urban agriculture is good or bad, neoliberal or radical, bourgeois and gentrifying or grassroots and radical, is not particularly constructive. Indeed, this approach forces us to answer a question that is too simple; not only is urban agriculture both radical and neoliberal, gentrifying and unifying, it has to be both. Indeed [. . .] it wouldn't arise as a viable social movement without elements of both. (2011: 6; see also McClintock, 2013)

This conception is valuable for a number of reasons. First, it can be used to explain the emergence of urban agriculture in very different cities of the Global North, a utility that will be demonstrated later in this chapter. Second, it touches on a number of aspects of urban agricultural movements that have close connections to the three dynamics presented in Chapter 2. These include the centrality of the rent gap and deindustrialization in the uneven development of urban built environments – especially housing markets (see Smith, 1987); racial disparities in housing, income, and environmental health; and what is often called the 'nonprofit industrial complex', wherein the normalization of emergency food (and to some degree the CFS paradigm, see Morales, 2011), coupled with the roll-back of the welfare state's social safety net, has generated a permanent crisis within nonprofits reliant on a precarious

stream of philanthropic grant money (see generally Brenner & Theodore, 2002a; Peck & Tickell, 2002; and within the food system Allen & Guthman, 2006; Cadji, 2011).

As a central goal of this thesis is to be sensitive to context while seeking greater insight to the macro-level political economic dynamics surrounding urban agriculture in Vancouver and Detroit, McClintock's formulation avoids unhelpful generalizations – an issue especially prominent in critical social science analyses using neoliberalization as a framework (2011: 8; see also Barnett, 2005, 2008; Sanders, 2011; Hilgers, 2013). Instead, by tracing the mechanisms by which the urban agriculture movement has been part of local state policy and viewing its development as dialectical, I hope to follow McClintock in revealing urban agriculture as part of the Polanyian double movement (1944) to pursue social protectionism in the face of the inherent spatialized inequalities of capitalism and one of its most recent forms, neoliberalism.

Vancouver: harvesting ecotopia

Before diving into a discussion of sustainability fixes and neoliberalization, the historical context of the urban agriculture movement and its relation to the local state in both cities needs to be established. As a process – and a politically contested one at that – neoliberalization did not come from nowhere (despite its proponents naturalizing claims that 'there is no alternative'); therefore, its emergence in relationship to urban agriculture must be investigated. Additionally, critics (e.g. Lawson, 2005; Moore, 2006) have pointed out that much of the recent media coverage of urban agriculture has been quite short-sighted in its treatment of the movement, often ignoring that recent developments are part of a long history of producing food in the city (see Jacobs, 1969). In an effort to avoid such forgetful crisis narratives (see Berlant, 2011), in this section I will present histories of the urban agriculture

movements in each city. In doing so, I will trace how urban agriculture has functioned within socionatural metabolic relations and, crucially, how it has served as a protective counter-movement to the social dislocation of market society.

A brief history of agriculture in the Lower Mainland

Any historical account of agriculture in British Columbia must begin by acknowledging the fact that the land currently inhabited and farmed in the Pacific Northwest is the historical and current home of a diverse array of indigenous peoples. Cole Harris, a historical geographer, estimates that the pre-contact population of British Columbia was probably well over 200,000, with around 50,000 living around the Lower Mainland (1996: 30). This large population was supported primarily by the natural (and human-engineered) bounty of the Pacific Ocean and its temperate rainforests, with the lower Fraser River having perhaps the highest non-agricultural food production of anywhere in North America – or even the Western Hemisphere (Harris, 1996: xii, 20). Although the Coast Salish people living in this area did practice what Harris (1996: 219) calls ‘proto-agricultural’ cultivation of wild plants such as camas bulbs (*Camassia quamash*) and Indian potato (*Sagittaria latifolia*) and undertook ecological modification of the landscape (e.g. the cultivation of clam gardens, see Groesbeck, 2013), it is vital to recognize that in British Columbia – like most of North America – European-style agriculture and its attendant ideology of property rights were “social and economic introduction[s] with complex ecological and cultural subtexts tied to colonialism and to the creation of an immigrant society” (Harris, 1996: 220); indeed, they were “a strategy of successful colonialism” (Harris, 1996: 249). Early efforts at the forceful ‘civilization’ of indigenous people by European settlers revolved around introducing agriculture as a way of life, thereby severely damaging indigenous

foodways³⁵ that had existed for around 10,000 years (Davis, 1975; see also Anderson, 2007: Chapter 3). At the risk of romanticization, it is important to recognize the way in which indigenous food production and consumption in British Columbia existed within socionatural metabolic relationships that did not rely upon wage labor and alienation.

By the turn of the 20th century, significant settler agricultural production existed in the Lower Mainland. Primarily serving the rapidly growing city of Vancouver, around 3,000 acres of Chinese market gardens provided most of the city's fruit and vegetable consumption in 1913 and continued to do so throughout the early 1900s (Harris, 1996: 243; see also Anderson, 1991; Chinese Canadian Stories, 2012). Indeed, the majority of local demand for fruit and vegetables was provided by the highly productive and diversely cropped farmland of the Lower Mainland until around 1943. Harris illustrates that by then much of the five percent of British Columbian land that is arable was being farmed, and a combination of a rapidly growing population and an economic imperative to abandon diverse family farming and pursue specialized commercial crop production led to the fall of local agriculture (1996: 245). The provincial government shifted its strategy from agrarian development to focus on building its natural resource industry – commercial forestry in particular. As transportation technology like railroads and communication technology like the telegraph accelerated the death of space by time, the exchange value of commodified agricultural and forestry goods influenced the direction of British Columbia's economy. It also had a significant effect on the metabolic relationships of on the Province as a whole, and more specifically on Vancouver, as temporal subsidies in the

³⁵ A foodway is defined as the cultural and social norms that govern the production, consumption, and discourse of food in a given historical period among a certain social group (see Harris et al., 2005: viii-ix).

growth of timber provided raw material for construction and export and the industrialization of agriculture led to increased inputs, monocropping, and export-driven specialization.

Today, British Columbia continues to have a relatively small but productive agricultural sector (Barbolet et al., 2005; Serecon Management Consulting & Zbeetnoff Agro-Environmental Consulting [SMC & ZAEC], 2009; Gibb, 2011). Due in part to a national supply management quota system, British Columbia is nearly self-reliant in its production of milk, eggs, and poultry (SMC & ZAEC, 2009). Additionally, the province produces nearly enough fish and vegetables to meet its own consumption needs. However, due to production being seasonal and highly specialized, a large percent (23% provincially in 2009, see Gibb, 2011: 18) of these commodities are exported (SMC & ZAEC, 2009). Therefore, the Lower Mainland's food supply is characterized by "short seasonal abundance, significant off-season imported product flows, and exports in periods of seasonal excess" (SMC & ZAEC, 2009: viii). The resulting 'food gap' between local supply and demand is illustrated in Figure 16 below.

Although the establishment of the Agricultural Land Reserve (ALR) in 1973 has helped preserve the province's scarce arable land (Garrish, 2002), Vancouver faces significant challenges in developing local agriculture due primarily to its expanding population, limited growing season (despite being the longest in Canada, see Whiting & Lai, 2008), and urbanization-led pressures on farmland. While many of the local truck farms and market gardens pioneered by Chinese-Canadians continue to produce food within the ALR, over time the majority of agricultural activity in the Lower Mainland has become increasingly 'conventional', employing migrant labor, synthetic inputs, and specialized commodity crop production (Otero & Preibisch, 2010; Gibb, 2011). As shown in Figure 17 below, the amount

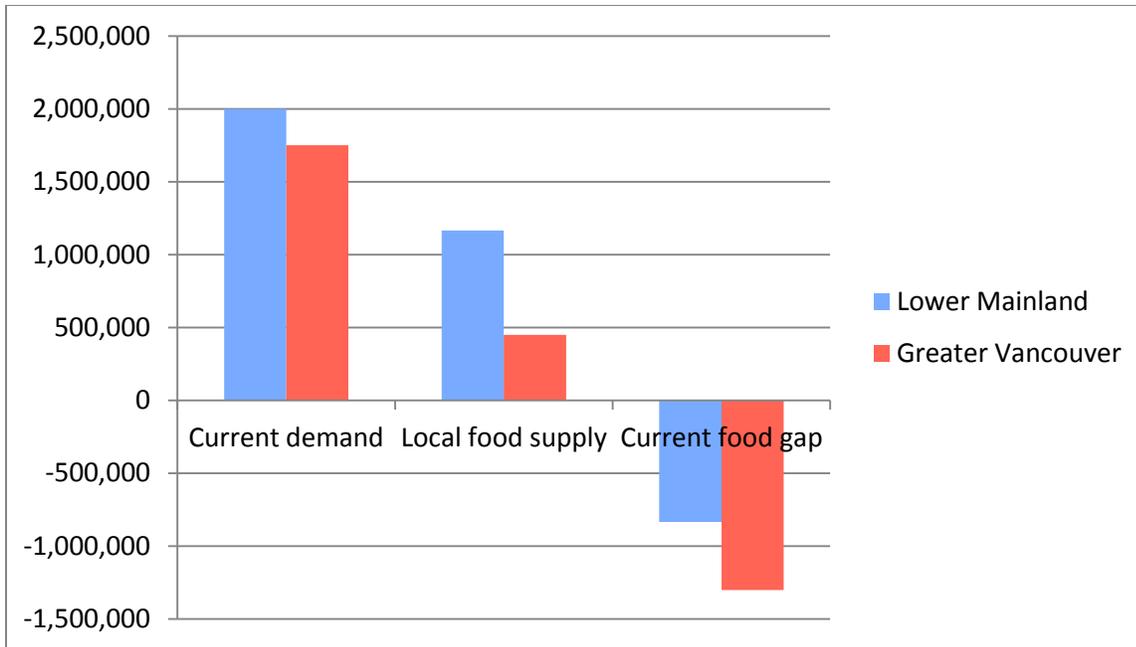


Figure 16. Food demand, local supply and gap, Lower Mainland and Metro Vancouver alone, 2006 (metric tons). Adapted from SMC & ZAEC (2009).

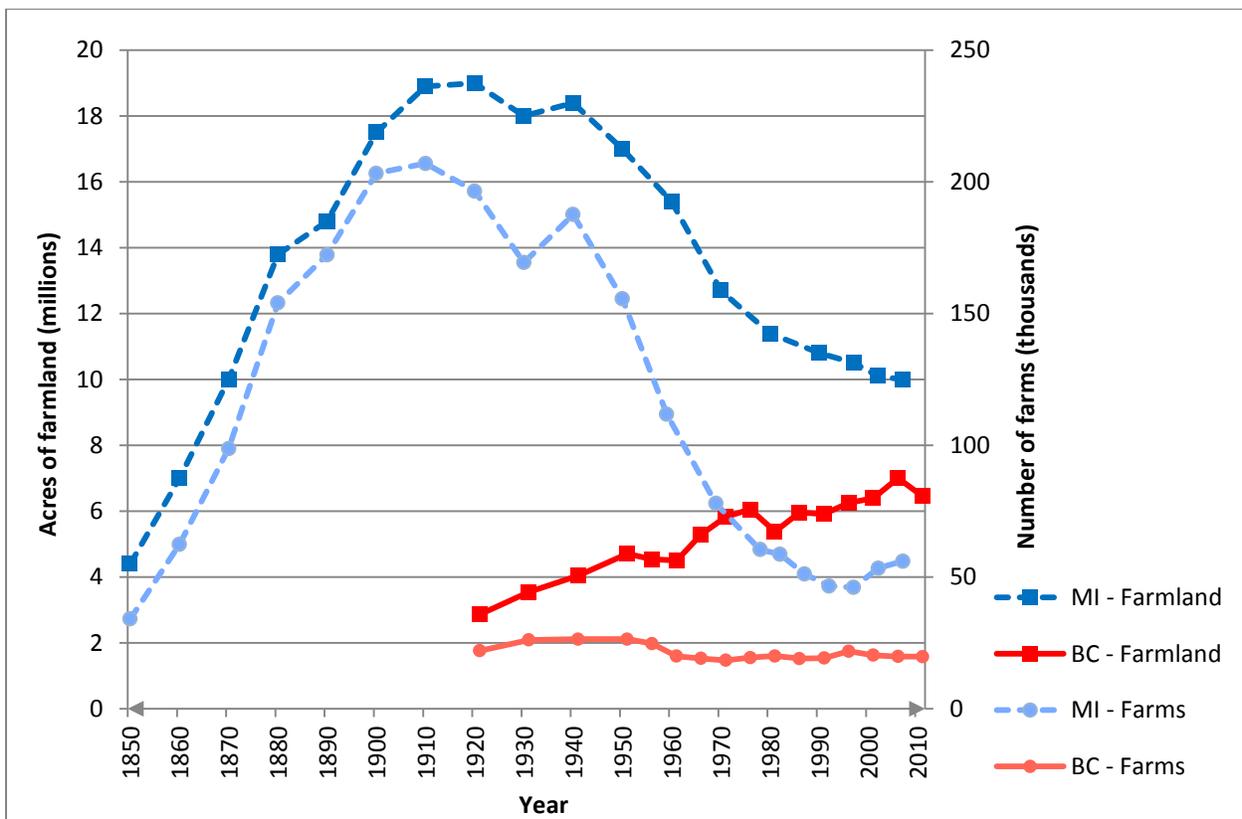


Figure 17. Acres of farmland (improved or unimproved) and number of farms in British Columbia, Canada, and Michigan, United States. Note that while differences in the classification of farm operations change over census years, the overall trend remains valid. Sources: Canadian and American Censuses of Agriculture.

of farmland has expanded only gradually over time until a drop in 2010, being outpaced by the rapidly growing population (see Figure 1 above). The changes in urban metabolism brought about by the industrialization of Lower Mainland farming have been influential in the recent resurgence of urban agriculture in Vancouver, as will be discussed in the next section.

Growing food in the City of Glass³⁶

In addition to this history of local agriculture, the Vancouver area has also been home to a significant grassroots, smaller-scale urban agriculture movement. There are numerous threads that make up this movement, but in many ways the urban agricultural legacy of Vancouver as a whole highlights the use of growing food in the city as a response to various metabolic failures of the industrialized agricultural system to feed the population or protect the environment (see McClintock, 2011). Firstly, it should be recognized that the history of local agriculture as sketched above cannot be fully separated from a history of urban agriculture, for many of the gardens and farms that fueled Vancouver's population throughout the 19th and 20th century were established in urban or peri-urban areas. Vancouver itself was home to numerous commercial farms well into the 20th century (Davis, 1975). In fact, Natalie Gibb (2011) argues that much of the recent excitement around the (mostly white) alternative food movement ignores the historical and contemporary significance of the 'parallel network' of Chinese-Canadian local – and often urban – agriculture.

A second thread can be found in Vancouver's tradition of home gardening, which continues to this day – a fact the city shares with many North American cities (see Lawson, 2005). A 2002 survey estimated that 44% of Greater Vancouverites grow some of their own

³⁶ *The City of Glass* is a book about Vancouver by author Douglas Coupland (2000); the nickname was inspired by the glass and steel facades of the condominiums that dominate the Vancouver skyline.

food (City Farmer).³⁷ It was also home to many ‘liberty’ and ‘victory’ gardens during the First and Second World Wars; the Federal Agriculture Supplies Board estimated that by 1943 Greater Vancouver had approximately 52,000 victory gardens, with approximately 1,425 in the City itself (Buswell, 1980/2003a). In fact, much of the recent coverage of urban agriculture in Vancouver misses this important history. Gardens such as these are estimated to have supplied roughly 40% of the produce consumed in the United States during the Second World War during a time when industrial capacity was focused on manufacturing weapons, not food (Bentley, 1998: 114).

Many articles (e.g. Kalinina, 2012) focus on the difficult situation most urban farmers face due to the lack of a municipal by-law or zoning regulation allowing urban agriculture, yet they ignore the fact that historically, these kinds of laws did exist in Vancouver. For example, in 1918 the province of British Columbia passed The Greater Food Production Act, which allowed local government to take over vacant land for the purpose of growing food (Buswell, 1980/2003b). Additionally, the recent passing of a by-law allowing Vancouverites to keep backyard chickens (see City of Vancouver, 2013a) has a precedent in a 1943 decision to allow residents to have up to twelve hens without applying for a permit (Buswell, 1980/2003a). This wartime legacy lives on at a site of former victory gardens along the Canadian Pacific Railway tracks in Kerrisdale that are still gardened today as part of community gardens and the educational organization The World in a Garden (Shore, 2010).

A third major historical urban agriculture trend in Vancouver is its connection with the environmentalist movement. As compellingly told by Frank Zelko (2004), during the 1960s and

³⁷ Note that, like the rest of this thesis, this chapter focuses primarily on collective or for-profit farms or urban agriculture and does not deal directly with private backyard growing.

1970s British Columbia – and Vancouver in particular – was the site of a collision between a legacy of natural resource extraction industries like forestry and mining and a growing oppositional subculture. This subculture was inspired by the burgeoning environmentalist movement (or the ecology movement as it was then known), pacifist opposition to the Vietnam War, nuclear proliferation, the hippie counterculture, and Canadian anti-American sentiment. Vancouver underwent some significant demographic shifts during this time, with neighborhoods like Kitsilano and Gastown becoming home to a large number of mostly white, middle class, educated American draft dodgers and itinerant young people migrating from rural British Columbia. The development of this politically active group of environmentalists in Vancouver mirrors the larger trend of Pacific Northwest environmentalism as illustrated by the influential novel *Ecotopia* (Callenbach, 1975), which describes the formation of a separatist eco-activist nation in the current day states of northern California, Oregon and Washington (see also Foster, 1993).

Within a social milieu that saw the opening of the first Canadian branch of the Sierra Club in 1969 and the founding of Greenpeace around 1970 (Zelko, 2004), one of the oldest and longest continually operating urban agriculture support organizations in North America got its start: City Farmer. In February, 1978, Bob Woodsworth and its current director, Michael Levenston, founded City Farmer to support urban agriculture in Vancouver through education and demonstration (City Farmer, 1999a). Since then, the organization has become one of the foremost providers of urban agriculture news, education, and demonstration in North America, originally through a published newsletter and now on the web.³⁸ The founders' goals sprung

³⁸ <http://www.cityfarmer.info> and <http://www.cityfarmer.org>

most directly from personal and government-led efforts to promote energy conservation, but their backgrounds in the urban counterculture community of Vancouver are significant. The City Farmer office was – and still is – located in Gastown, and their original demonstration garden has been growing in Kitsilano since 1981 (City Farmer, 1999b). Moreover, Bob Woodsworth is one of the co-owners of the long-running Naam Restaurant, a vegetarian natural food restaurant that harkens back to Kitsilano’s hippie past (Whittaker, 2008). Indeed, the organization paid credence to its urban counterculture roots in a 1979 speech at the University of British Columbia: “We at City Farmer believe in going ‘back to the land’ but we believe you can go back, right here in the city, where the majority of Canadians live” (City Farmer, 2008). Here one can see how these early urban agriculturalists directly targeted the ecological metabolic rift.

The support of City Farmer and interest from the public has also supported a relatively large community garden system in the city. Unlike Detroit, Vancouver’s gardens are overseen by the City, with the majority located on institutional land (40), followed by City-owned (24) and City park (sixteen) land (City of Vancouver, 2012a). Although the city facilitates the community garden system through leasing land and directing planning and zoning, no gardens are actually run or overseen by City staff, but are instead managed by community- or institution-run nonprofit societies in charge of each garden. However, the community garden system in place now has existed in tension with the priorities of the City government since its inception.

City Farmer directors were influential in starting the first – and now longest-running – Vancouver community garden in the neighborhood of Strathcona (City Farmer, 2007).

Strathcona Community Gardens was established in 1985 after a long process in which many different community groups vied for control of a vacant plot of land, which is located in a tidal flats area and was seasonally inundated until the False Creek Flats were drained to make way for the Canadian Pacific Railway in the early 20th century (Strathcona Community Gardens, n.d.). The area currently inhabited by the garden is still City-owned and at various points in history served as garbage dump, 'hobo jungle' shantytown, military training ground, and a city works yard (Environmental Youth Alliance [EYA], 1996).

The City of Vancouver did grant the garden the land over other community groups vying for access, but it is important to recognize that tension between gardeners and the city government has been an issue for decades. In the remainder of this section I will explore the creation of the Cottonwood Community Garden as a way of illustrating that when it comes to urban agriculture, the relationship between the local state and citizens is not strictly about the use versus exchange value of public space, but also about the configuration of socio-natural metabolic relationships. In 1988, gardeners in the northwest quarter of the four acre lot were evicted by City Council decree to allow for the building of senior nonmarket housing for the Chinese Freemasons (EYA, 1996). In addition to moving plots and rebuilding parts of the garden in response to the loss of land, the Strathcona gardeners also chose to expand to meet the high demand of the community for growing space. Under the direction of land artist Oliver Kellhammer, a group of guerilla gardeners began to claim plots in a three acre vacant right-of-way at the southern edge of Strathcona Park along Malkin Avenue, just southeast of the Community Gardens. This land was jointly managed by the Parks Board and Engineering Department and had been used as an informal dumping ground before it was reclaimed as the

Cottonwood Community Garden (Kellhammer, n.d.). After some debate over the costs of setting a precedent for occupation of City land versus the benefits of a new community space in the under-served East End, City Council granted a lease to the gardeners in 1991 (EYA, 1996). This garden continues to exist to this day and showcases an award-winning combination of individual plots and communal areas including orchards and gardens using permaculture and silviculture design (Kellhammer, 2012).

While this act of guerilla gardening was by itself a significant political act claiming vacant land for food production, perhaps even more importantly, Kellhammer positions the actions of the gardeners as strategically opposing the proposed Grandview Cut highway, which would have required a widening of Malkin Avenue. By occupying land in the path of the project, Kellhammer and his associates took a grassroots approach to make their social and environmental goals for the city known. In Vancouver, such a maneuver fit well with the local history of organized opposition to urban highways. A militant community outcry was responsible for ending the auto-centric urban renewal plans of 1970, in which the center-right Non-Partisan Association planned to build a highway system through Chinatown and Gastown. Despite their success at stopping the highway, community members could not prevent the construction of the Georgia Viaduct, which destroyed Hogan's Alley, the first – and so far only – major black neighborhood in Vancouver (Gutstein, 1983; Bourne & Ley, 1993: 294; Atkin, 1994: 78-79).

Today, Kellhammer's goal of resisting highway construction continues through community organizing around the Cottonwood Garden. Plans to widen Malkin and destroy part of the garden have come to the forefront of debate in City Council yet again as part of the City's

Eastern Core Strategy to redevelop North East False Creek (see Kellhammer, 2012; City of Vancouver, 2011a, 2013b). Commentators on the proposal (e.g. Driftmier, 2012; Kellhammer, 2012) have pointed out several ways in which the Eastern Core Strategy illustrates the contradictory nature of the City's sustainability planning. Although the removal of the Georgia Viaducts is intended to reduce traffic flow around downtown, the City still faces pressure from the Province under the Pacific Gateway program to increase commercial traffic in and out of Vancouver's ports (Kellhammer, 2012). The construction of a 'Malkin Connector' truck route would solve this requirement, but would also destroy part of the Cottonwood Gardens in the process, going against the City's stated goals of increasing urban agriculture (see next section). Peter Driftmier³⁹ (2012) also points out that the Eastern Core redevelopment stands to greatly benefit real estate developers like Concord Pacific, whose large land holdings in North East False Creek would greatly benefit from the increased park space made possible by rerouting traffic along Malkin. These show that Vancouver's sustainability planning illustrates Krueger & Gibbs (2009) sustainable development paradox, whereby efforts to green local state policy are selectively incorporated into economic plans to enhance inter-urban competitiveness. To explore this tension further, in the next section I will provide a look into the role of the City of Vancouver in supporting urban agriculture.

The Vancouver City government and urban agriculture

As indicated by the history outlined above, in its earlier years the urban agriculture movement was met with a tepid response from the City of Vancouver government. This is due in large part to changes in the political orientation and planning style of the City, which over the

³⁹ Driftmier and other authors working for *The Mainlander* provide fascinating accounts of Vancouver municipal politics and their articles are cited widely through several sections of this thesis. I appreciate their contributions.

decades has made a shift from the center-right managerial governance style of the Non-Partisan Association (NPA) to a more interventionist and entrepreneurial regime under the left Social Democrat Coalition of Progressive Electors (COPE) from 2002 – 2005 and the COPE break-away center-left green liberal Vision Vancouver from 2008 – present (an exception of sorts to the center-left managerialism and center-right entrepreneurialism discussed in Harvey, 1989). Vision Vancouver certainly retains some of the managerial and social democratic heritage of COPE, as displayed in its support for a wide range of social programs and projects like expanding public transit and installing bike lanes downtown; however, much of the economic development pursued under Vision has taken an entrepreneurial bent through a feel-good triple bottom line sustainability lens, influenced by a more competitive climate for federal and provincial funding and a national discourse of economic austerity (Stoymenoff, 2011).

From a long-term standpoint, this change was additionally facilitated by the creation of the Vancouver Charter, which incorporated the city in 1953 and granted special privileges to the municipality in its relationship with the Province. Under the Charter, Vancouver City Council is granted a relatively high degree of autonomy to pass bylaws, purchase and lease property, and levy taxes (Vancouver Charter, 2013), although scholars still identify the role of the local state in Canada as “the mushy middle” somewhere between total autonomy and subservience to the province (Smith & Stewart, 1998; see also Mendes, 2006: 16). The political shift that took place in Vancouver through the 2000s had a significant effect on the City’s pursuit of environmental reforms, but as I will discuss in the rest of the section, this change did not represent simple support of the existing urban agriculture movement, but rather a selective uptake of certain features of it.

With an electoral victory over the NPA in 2002, COPE pursued several projects, including the creation of InSite, the only legal supervised injection site in North America, and the development of a City-mandated food policy framework. This framework began in 2003, with a City Council vote to commit to a 'just and sustainable' food system in Vancouver, a commitment which eventually became policy through the creation of an Action Plan by the end of the year. Although this work built on community organizing that had the goal of lobbying the city to create food policy that had been going on since 1990, this moment represents the important point of cross-over from public will to action by the local state (Mendes, 2006: 106-149). In 2004, the Vancouver Food Policy Council was created: an officially sanctioned volunteer organization with elected members through which individuals from many different sectors of the food system – public and private – could work together to advocate for food policy creation. The Council has been extremely important in continuing the food policy agenda in Vancouver and contributed to the creation of several important elements of a growing food policy initiative as outlined below (Table 11).

Perhaps most influential to the food policy efforts of the local state is the City of Vancouver's sustainability plan under Vision Vancouver and Mayor Gregor Robertson, which is called Greenest City 2020. This program is built off the actions of Mayor Robertson and his Greenest City Action Team, which was established shortly after he took office to develop a comprehensive sustainability plan to fulfill his green campaign goals in the run up to Vancouver's hosting of the 2010 Winter Olympics. The focus of the program is to make Vancouver 'the greenest city in the world by 2020,' a rather ambiguous goal made real through

Table 11. Vancouver food policy chronology. Adapted from City of Vancouver (2013c).

City Council motion in support of a ‘just and sustainable food system’	2003
Vancouver Food Policy Council	2004
Guidelines for urban beekeeping	2005
Vancouver Food Charter	2007
2010 Garden Plots by 2010 Initiative (part of Greenest City)	2007 – 2010
Urban agriculture design guidelines for the private realm	2009
Greenest City Grants in support of urban agriculture	2009 – 2011
Guidelines for keeping backyard hens	2010
Food scraps collection program	2010
Interim Farmers Market policy	2010
Street food program expansion	2010 – 2012
Grants to support neighborhood food networks	2009 – 2012
Greenest City Action Plan Local Food Area	2011
Grant to support Urban Farming Forum	2011
Vancouver Food Strategy	2013

inter-urban league tables such as Siemens’ Green City Index.⁴⁰ Since then, a Greenest City 2020 Action Plan has been created for the program and contains ten smaller plans, each with long-term, quantitative targets that the City aims to reach by 2020. The goals range in focus from creating green jobs, to reducing greenhouse gas emissions, to improving access to nature, clean water, and clean air (City of Vancouver, 2011b). It also includes local food targets: goal ten of the Plan reads, “increase city-wide and neighborhood food assets by a minimum of 50% over 2010 levels” (City of Vancouver, 2011b: 65), with a ‘food asset’ being defined quite broadly as “resources, facilities, services or spaces that strengthen the city’s food system” (City of Vancouver, 2011b: 69).⁴¹ One of the three short-term priority actions established under this

⁴⁰ <http://www.siemens.com/entry/cc/en/greencityindex.htm>

⁴¹ Interestingly, in the early version of the Action Plan (called Vancouver 2020: A Bright Green Future; City of Vancouver, 2009), the local food target was not based on food assets, but rather on the reduction of the city’s carbon footprint, seeking to “[r]educe the carbon footprint of our food by 33% per capita” (City of Vancouver, 2009: 60). This initial focus meshes with the ‘bright green’ (see Steffen, 2009; Steffen et al., 2011) approach taken by Robertson’s Greenest City Action team, which places technological and social innovation at the center of ecological modernization. However, public input and consultation with the Food Policy Council and associated organizations during the outreach phase of the plan likely influenced this change.

rubric was the creation of a municipal food strategy, accomplished in January, 2013 with the publishing of *What Feeds Us: Vancouver Food Strategy* (City of Vancouver, 2013c). This document seeks to align existing alternative food movement capacity with government programs, and specifically seeks to use a food systems planning approach to coordinate food planning efforts among City departments in the name of sustainability.

Another short-term goal is to “[s]upport urban agriculture by creating 5-6 new community gardens, enabling three new urban farms, encouraging new farmers markets, adding public fruit trees, and supporting the development of a Vancouver food hub” (City of Vancouver, 2012b). As of the summer of 2013, this goal has almost been met. In addition to the progress made under these priority goals, the Greenest City 2020 Action Plan builds on a number of urban agriculture initiatives that have already been accomplished under the Greenest City rubric, including an initiative to create 2010 new community garden plots by 2010, Greenest City Grants in support of urban agriculture, and the Greenest City Action Plan Local Food Area (see Table 11 above). Along similar lines as Detroit, Vancouver’s urban agriculture movement finds its origins in citizen activism, but more recently has been actively supported and managed by the City. I will argue in the next section that this shift is largely due to the urban and regional adoption of sustainability initiatives as part of a strategy designed to improve economic competitiveness.

The Greenest City? Vancouverism’s sustainability fix

Numerous authors addressing academic (Kear, 2007; Quastel, 2009; Quastel et al., 2012; Rostol, 2013) and popular (e.g. Longhurst, 2012) audiences have identified Vancouver’s sustainability policy as a fix designed to preserve economic growth while selectively pursuing

environmental and social sustainability. In this section, I will provide context for Vancouver's sustainability fix before illustrating the pertinence of urban agriculture to this discussion. The key point made by these authors is that the branding of Vancouver as a sustainable and livable city – and the preservation of the particular kind of growth machine oriented around upper-middle class urban consumption and 'luxury' real estate that it requires – has become central to its economic competitiveness. As Elliot Siemiatycki (2013) points out, the style of planning now known as Vancouverism has positioned the city as an "exceptional" case among postindustrial and global cities (Tom Hutton quoted in Bula, 2011). Vancouverism is exemplified by dense mixed-use residential development in the CBD coupled with design features playing up the mountain and ocean views and incorporating recreational features in public space. As David Ley has shown, Vancouverism has been catering to an upwardly mobile, young, and middle class population interested in active downtown living for decades (1980, 1987, 1996).

Siemiatycki (2013: 88-95) also effectively points to three reasons that urban planning and policy are so important to this particular regime of the global consumption-oriented city. The first factor is the importance of real estate to the local economy. Vancouver is exceptional among most cities because recent years have seen a decoupling of the housing and local labor markets (see Moos & Skaburskis, 2010), driven in large part by the globalization of Vancouver's property market. Although the actual economic effects of foreign investment and immigration are hard to quantify (Yan, 2009, 2013b; Yu and Donville, 2011; Mitham, 2012) – and are often enrolled in racist explanations for housing unaffordability (Goldberg, 2002; Yan, 2013c, 2013d)

– there does exist ample evidence that in Lotusland,⁴² the exchange value of property has greatly risen in an interactive process as the city has become a desirable, cosmopolitan place to live (Olds, 1996; Ley & Tutchener, 2001; Mitchell, 2004; Ley, 2010; Moos and Skaburskis, 2010). As will be investigated later in the chapter, the dynamics of Vancouver’s real estate sector are central to constraining how urban agriculture manifests itself in this context.

The second factor identified by Siemiatycki (2013) is the branding of Vancouver as a ‘livable city.’ The concept of ‘livability’ was a uniting focus of the amenity-driven redevelopment of the CBD and in the marketing of Vancouver as a wise real estate investment since the 1980s. The City (and many of its residents) prides itself on its ranking on the league tables of ‘most livable’ cities, such as those published by *The Economist*, which ranked Vancouver number one from 2007-2011 (City of Vancouver, 2013d). Recent years have seen a transition occurring in the livability discourse, however, as the City and the regional authority of Metro Vancouver have employed the language of triple-bottom-line sustainability in much of their planning (Davidson, 2010; Quastel et al., 2012). In this formulation, livability simply becomes the balance between ecological sustainability, most often interpreted through a bourgeois ideology of nature as clean air, water, and access to nature/green space; economic sustainability understood as affordability and fiscal responsibility; and social sustainability understood as liberal multiculturalism and the provision of a social safety net. As I will address in Chapter 5, this triple-bottom-line thinking makes urban agriculture a perfect match for sustainability planning in Vancouver, but not necessarily for promoting food justice.

⁴² Another of Vancouver’s nicknames credited to Allan Fotheringham. It refers to the Land of the Lotus-Eaters in Homer’s *The Odyssey* and was chosen to reflect the relaxed attitude in the city, especially towards marijuana.

The final trend identified by Siemiatycki (2013) focuses on the importance of tourism to Vancouver's economy. In British Columbia, tourism accounted for four percent of gross domestic product (GDP) in 2011, making it one of the largest industries in the province (Wilson, 2012). A large part of the City's economic strategy revolves around the attraction of tourists and international investment capital, and this emphasis is an integral part of Vancouver's development as a consumption-oriented city. It has also been integrated with the City's sustainability policy, albeit sometimes awkwardly. On the more logical side, the numerous outdoor recreation and eco-tourism opportunities offered in and around Vancouver have been an important part of the City's brand as a sustainable consumption city (see, for example, Tourism Vancouver, 2013), but on the less obvious side come situations such as an incident in December 2012, when an image of extremely energy-inefficient and consumption-oriented cruise ships was captioned as an example of local sustainable development on the City of Vancouver website. Although this image was removed at the request of Mayor Gregor Robertson (C. Smith, personal communication, August 15, 2013), the situation – intentionally or not – highlighted some of the fundamental contradictions of sustainable consumption in the city (see Longhurst, 2012b).

In this context of consumption-oriented development, how does the City's support of urban agriculture through the Greenest City 2020 program contribute to a sustainability fix? Several aspects of government involvement are pertinent to this discussion. An initial obvious example connects the discourses of livability and sustainable tourism outlined above to the sort of lifestylism and healthism common in the alternative food movement (see Guthman, 2011). Because a key part of Vancouver's marketing plan for attracting both migrants and tourists

combines 'natural amenities' such as the mountains, the ocean, and the temperate rainforest, with the cultural and entertainment amenities of a cosmopolitan consumption-oriented city, the pursuit of planning designed to increase local food production and provide recreational gardening opportunities is a perfect fit. The language used to support making Vancouver's food system 'just and sustainable' fits comfortably alongside messages advertising a green urban lifestyle. In a recent article advertising summer events in the city, for example, the heading asks, "A small farm with your condo?" (Bula, 2013b). Indeed, much of the success of the urban agriculture movement in Vancouver stems from the strong support it receives from foodies (and their civil society representatives) who value local, fresh, organic produce (see Fodor, 2012: 23; Mendes, 2006).

The second major factor pointing to urban agriculture as a sustainability fix in Vancouver is the connection between local food production and the green economy. Although presumably presented in no particular order, the goals of the Greenest City Action Plan (City of Vancouver, 2011b) do seem to prioritize the economic. The first goal is to "[s]ecure Vancouver's international reputation as a mecca of green enterprise" (10). This goal sums up Vision Vancouver's 'bright green' (see page 110) approach to environmentalism quite succinctly, making the "strong business case for going green" (11). Their mission is supported by organizations like the Vancouver Economic Development Commission (see Vancouver Economic Development Commission, 2010).⁴³ This section of the plan is central to Vision Vancouver's political and economic goals for the city. Mayor Robertson himself is a former 'environmental

⁴³ However, this approach to economic development has come under fire from some of city's 'common sense' conservatives, such as when 2011 mayoral candidate Susan Anton's campaign ran the following radio attack advertisement: "Vancouverites know there's something missing at City Hall. It's called common sense, and it's costing you money. Backyard chickens, front yard wheat fields [. . .] In November, vote NPA... Because it's time to stop playing chicken with Vancouver's future" (Non-Partisan Association, 2011).

entrepreneur', having started the Happy Planet juice company, and the success of the party is due in large part to its ability to garner young voters interested in the environment, while at the same time continuing an aggressive real estate developer-supported economic development plan that has resulted in giving Vancouver one of the lowest business tax rates in the world (Crompton, 2011). Vancouver has proven especially adept at playing the inter-urban league tables, with consistently high rankings in international livability and sustainability competitions (see Melanson, 2012; The Canadian Press, 2012). This trend continues even in the urban agriculture movement; the webpage providing information about the City's community garden program displays a small graph (Figure 18) stoking the fire of the Cascadian sustainability

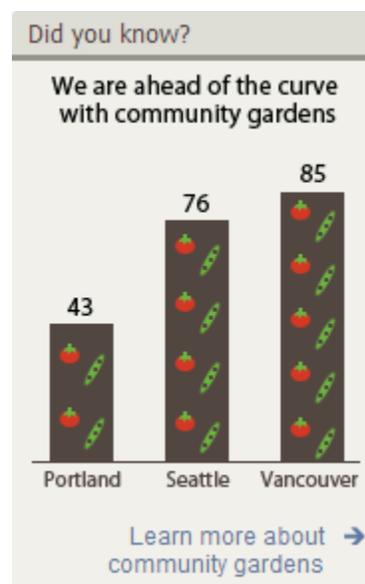


Figure 18. Chart from the City of Vancouver website showing the number of community gardens in Portland, Seattle, and Vancouver. Reprinted with permission from the City of Vancouver (City of Vancouver, 2013e).

competition.

Of course, viewing the City of Vancouver's involvement with urban agriculture as a simple sustainability fix is not entirely accurate. As McClintock (2011; 2013) has shown, urban food production is neither simply neoliberal nor activist, but rather emerges from a dialectic

tension between the forces of state retrenchment, economic hardship, and radical solutions to hunger and community development. Indeed, many food policy actors working at the City of Vancouver feel this tension in their work (Mendes, 2006) and struggle to find ways to make positive changes in the local food system within the constraints of neoliberalizing municipal, provincial, and federal governments. However, it is vitally important that policy makers, scholars, and citizens who support food justice organizing be aware of the degree to which the discourse of the green economy can quickly allow radical urban agriculture projects to be co-opted by hegemonic economic forces. Further discussion of the ways that this tension is manifest in specific urban agriculture projects in Vancouver will be undertaken in Chapter 5: Metabolic Rifts, Theories of Change, and Urban Agriculture.

Detroit: from (urban) prairie to 'Innovation Productive'

Having detailed the recent use of urban agriculture as part of a local sustainably fix in Vancouver, in this part of the chapter I will make a similar argument regarding the movement in Detroit. Again, the first step will be an outline of the history of local farming in the Detroit region, followed by a description of the recent boom of urban gardening. In the final section I will place municipal involvement with urban agriculture in the context of Detroit's neoliberalization.

A brief history of agriculture in southeast Michigan

The region surrounding Detroit – like much of northeastern North America – has a dual agricultural history composed of indigenous traditions that developed in two independent centers of agricultural origin (see Smith et al., 2009). The first practice originated in the area now occupied by the eastern United States and is characterized by the harvesting of wild seeds

and the generation of cultigens from wild squash, grasses, and nuts in the period from 3000 – 1000 BCE, referred to by archaeologists as the Late Archaic period (Cleland, 1992: 17). The second agricultural tradition comes from the importation of what is referred to as the Mesoamerican trinity of subtropical crops: maize (corn), beans, and squash (see Landon, 2008). These crops arrived in southeast Michigan around 500 CE with the arrival of Mississippian cultures into the area (Cleland, 1992: 25-25). During this Late Woodland period, several distinct regional cultures developed throughout Michigan, primarily speaking Anishinaabe languages of the Algonquin language family and having an agricultural system that was a hybrid between these two traditions. Therefore, before contact with European settlers, diverse groups of Native Americans living in the area now known as Detroit lived off a food supply derived from both agricultural activity around semi-permanent winter and summer settlements and the more traditional food sources available through hunting and gathering.

The main (loose) political grouping in the area was the Council of Three Fires, an alliance between the Ojibwe (or Chippewa), Ottawa (or Odawa), and Potawatomi tribes, a confederacy that existed from sometime around 796 CE until the gradual dissolution of the alliance over time with the Northwest Indian War of 1785-1795 and the forced relocation of Potawatomi, Sauk, and Meskwaki (Fox) bands following the ethnic cleansing of the Indian Removal Act of 1830 (Cleland, 1992; Loew, 2001). While several indigenous bands (such as the Huron-Wendat) inhabited the area that eventually became Detroit, the acculturation, Indian removal, treaty, and federal recognition processes put in place by white settlers eventually displaced the majority of what was at one time a population of around 30,000 people (Cleland, 1992). While today there are over 55,000 people who self-identify as Native American living in Michigan

(Cleland, 1992: 287), the establishment of formal and visible native communities with powers of self-determination is still a fraught process, especially in more heavily urbanized southern Michigan (Cleland, 1992).

As in British Columbia, the introduction of European agriculture was a key feature of the colonization of southeastern Michigan. When French and Dutch settlers first ventured into the area in the 1600s, they planted orchards to stake a claim to the land (Detroit Food Policy Council [DFPC], 2013). In a letter from 1735, a French missionary reports, “This stretch of country is the finest in Canada; there is scarcely any winter, and all kinds of fruit grow there as well as they do in France” (Nau). To this day several large pear trees grow in Detroit and across the river in Windsor, Ontario, most of which have ancestors in the traditional ‘Jesuit pear’ groves of twelve trees, each representing one of the twelve apostles (Bénéteau, 2007). When Fort Ponchartrain du Détroit was founded by the French officer Antoine de La Mothe Cadillac in 1701, France offered free land along the Detroit River to attract settlement to the area (Conot, 1974). While the fur trade was the major economic activity at the time, the construction of the Fort and surrounding settlement led to the establishment of permanent agriculture. ‘Ribbon farms’ followed the French seigneurial land tenure system, with long, narrow plots stretched out from the river, which allowed a large number of farmers to access the water for transportation and irrigation (Conot, 1974). Although Detroit’s early agricultural history has been largely erased by the modernist planning and industrialization undertaken in the 19th and 20th century, the influence of these early ribbon farms is still evident in the city, with many streets such as Chene, Dequindre, and Beaubien running parallel to the farm boundaries and inheriting the names of their historical French landowners (DFPC, 2013).

During the period from the late 1800s to the 1960s, Detroit's rapid urbanization and industrialization followed – some (e.g. Glaeser & Kahn, 2003) would claim epitomized – the common mode of auto-centric, sprawling American urban and suburban development in the 20th century. By definition, the rapid horizontal expansion of urban areas in southeast Michigan required the conversion of farmland to residential and industrial land uses. This loss of farmland was part of a process of specialization, commercialization, and – to a slightly lesser degree – agglomeration that took place in Michigan's agricultural sector as Detroit became one of America's major cities (Schaetzl, n.d.). Although the total acreage of agricultural land in the state has decreased significantly from mid-century (see Figure 17 above), large parts of Michigan remain rural and agricultural; in fact, the state was approximately 88% rural and federal land in 2007 (U.S. Department of Agriculture, 2009). This slow conversion of land use is contrasted by a much greater shift in population: in 1860, 85% of the population depended upon agriculture for its livelihood (Schaetzl, n.d.); in 2011, the state population was 28% rural and only 0.36% of the employed population worked primarily as farmers (American Community Survey).

Despite these changes, the agriculture and food industry remain an important part of Michigan's economy, contributing \$73.1 billion, or about four percent of state GDP, in 2011; about 2.3% of that value came from exported products, with Canada, Mexico, and Japan being the main destinations (United States Department of Agriculture National Agricultural Statistics Service [USDA NASS], 2012). While few people are employed directly as farmers, over one million residents are employed in the food sector (USDA NASS, 2012). Focus on high-value crops

and an active farmland preservation movement have been an important part of maintaining the agricultural industry. Additionally, Michigan mirrors a promising national trend whereby small

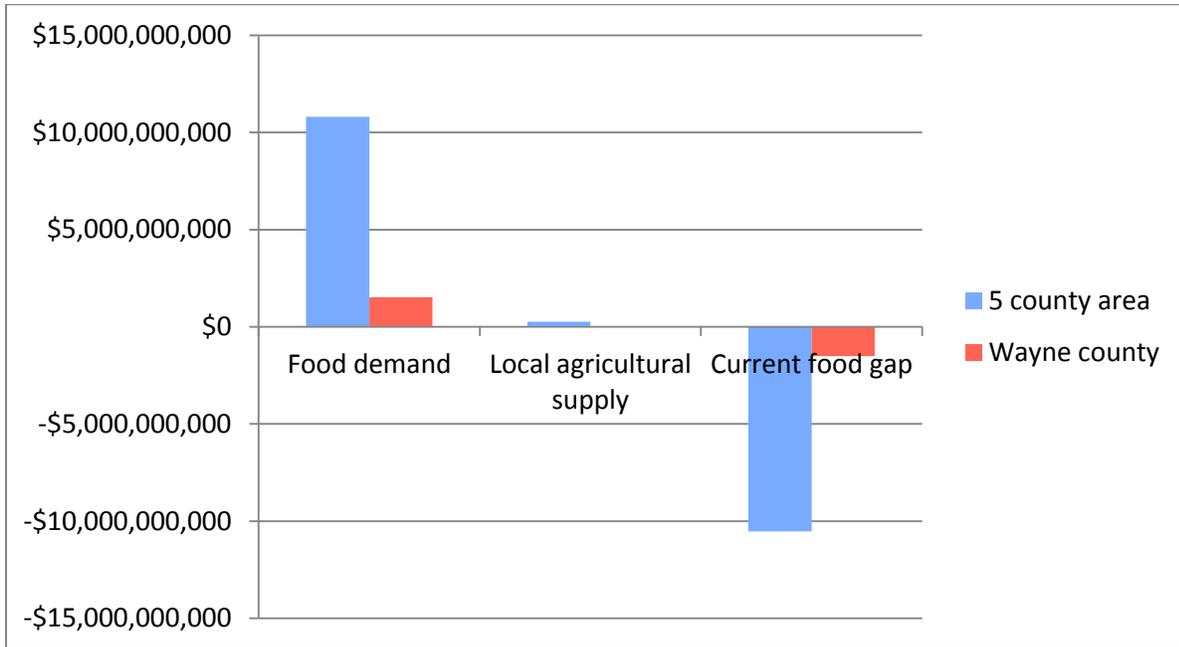


Figure 19. Food demand, local agricultural supply and gap, Oakland, Macomb, Monroe, Washtenaw, and Wayne counties and Wayne county alone, 2007 (USD). Sources: US Census of Agriculture, US Consumer Expenditure Survey, United States American Community Survey one year estimate.

farms are becoming more economically viable, due in large part to (primarily urban) alternative food networks creating a market for local and specialty crops (but see Guthman, 2004). This is reflected in a strong increase in farm-gate sales in Michigan of 27% from 2010 to 2011 (USDA NASS, 2012). Despite these promising increases, as Figure 19 above indicates, the local food gap in Detroit and the surrounding counties is even larger than in Vancouver. In the next section I will show that many of the urban farms and gardens in Detroit were founded due to a lack of availability of fresh produce, especially of the local and organic variety.

The Motor City’s agricultural production line

As a city with a history of relatively less dense residential development, a temperate climate, and a significant boom-bust economy centered on automobile manufacturing, Detroit

has characteristics that make it amenable to urban agriculture. Home gardening has been a relative constant in Detroit and has historically been a common practice among new immigrants, from German and Italian immigrants during the industrial boom period in the early 1900s, to migrants from the rural South during the Great Migration, to families of East Indian and Middle Eastern descent in Hamtramck today (DFPC, 2013). In contradistinction to Vancouver, Detroit also has a significant history of government-led civic agriculture (Lyson, 2004). Perhaps the best-known example occurred during the depression of 1893, when Progressive Republican mayor Hazen S. Pingree started his 'Potato Patch Program', which allowed the unemployed to grow food on vacant land (Binelli, 2012; DFPC, 2013). Pingree has become somewhat of a folk hero among a certain group of Detroiters in recent years: graffiti recently appeared downtown showing his black and white portrait and proclaiming 'Re-elect Pingree' (Bragg, 2009) and his statue in Campus Martius Park became a rallying point for Occupy Detroit in the fall of 2011 (Occupy Detroit, 2013). A similar program arose during the Great Depression as well, when Pingree's daughter Hazel Pingree Depew started Thrift Gardens in 1931 (DFPC, 2013). Like Vancouver, Detroit also had significant victory gardens during both World Wars, with approximately 1,000 plots contributing to the effort by the end of 1942 (Shattuck, 2003).

Laura Lawson's conjecture (2005) that urban gardening in the United States grows in popularity during times of economic hardship appears to hold true for Detroit. Following Pingree's potato patches and his daughter's 'Thrift Gardens', the depression of the 1970s brought about another program designed to both feed people and provide employment or activity through public works. The Farm-A-Lot initiative was started by Mayor Coleman Young,

Detroit's first black mayor, and allowed residents to grow food on vacant lots for free ("Farm-A-Lot Program", 1981). In 1975, approximately 3,000 people worked on 525 lots and produced food that aided subsistence and was donated to local community organizations (Bearre, 1976). Young was able to establish his program in large part due to the availability of federal funding under the Urban Garden Program, which distributed \$1.5 million to Detroit and five other cities in 1976 to encourage urban agriculture as community economic development (Lawson, 2005). In 1973, Michigan State University Extension Service opened the only urban 4-H Center in the United States on the east side of Detroit (DFPC, 2013).

When the federal Urban Garden Program – and subsequently Farm-A-Lot – was discontinued in the 1990s, the impetus for food security fell back on community members and activist organizations. By this point, Detroit had been facing economic hardship for decades and had some of the highest poverty and crime rates in the nation. Under conditions of major cutbacks in federal assistance to cities and an increasingly austere neoliberal regime of urban governance, the city government did not prioritize social programs like urban agriculture or food security, and instead focused on cutting government services and attracting investment. Under these conditions of austerity urbanism (Peck, 2012), urban agriculture emerged as a common strategy employed by community groups to encourage neighborhood social interaction, reclaim and beautify vacant urban space, and foster livelihood or subsistence for the unemployed. Numerous groups played a role in the formation of this movement, but a chronology of the major players is helpful in establishing the conditions under which urban agriculture (again) emerged as a solution to Detroit's problems.

Out of the Farm-A-Lot program came a group of Southern-born African-American elders who loosely organized as a group called the Gardening Angels. These gardeners drew on significant experience with agriculture and gardening that most had gained while growing up in the rural South to inspire over 150 community gardens that existed in the city at that time. Through their focus on passing down knowledge about growing food and encouraging intergenerational learning and interaction, these Gardening Angels attracted significant interest both within and outside the city (Stone, 1995). Their expertise was utilized mainly in an informal manner until 1992 with the creation of Detroit Summer, a “multicultural, intergenerational youth movement and program to rebuild, redefine and respirit Detroit” (Boggs, 2009). Detroit Summer was started by the James and Grace Lee Boggs Center to Nurture Community Leadership (Boggs Center), a community organization started by a husband and wife activist duo: James Boggs (1919-1993) was a prominent black labor and civil rights activist who was involved in revolutionary organizing as a worker in Detroit’s automobile factories; Grace Lee Boggs (1915 to present) is a Chinese-American social activist who continues to organize and write as the central figure of the Boggs Center.

Their work has been central in the most recent urban agriculture boom in Detroit; as pointed out by Gopakumar et al. (2005), the Boggs Center’s organizing through Detroit Summer represents an important shift in the focus of community gardening in Detroit, whereby providing sustenance in times of economic hardship is no longer the primary goal. Instead, the Boggs Center promotes ‘visionary organizing’ through which numerous goals for the transformation of the city are pursued at once: community economic development and self-determination based on reciprocity and cooperation, ecological sustainability, environmental

and food justice, intergenerational sharing and learning, reclaiming of public space through art, and multi-scalar organizing and international solidarity (Boggs, 2009). In this sense, the Boggs Center involvement in gardening is quite explicitly political and social justice-oriented, drawing inspiration from both Martin Luther King, Jr.'s 'beloved community' and Malcolm X's black nationalism (see Boggs, 1998). Grace Lee Boggs has expressed her outlook as a six-decade Detroit resident:

[W]e're [Detroit] creating a whole new society which is postindustrial. And that turning point, the evolution of humanity, is a great privilege. [. . . W]e were once the symbol, nationally and internationally, of the miracles of production and we thought that producing more, faster, even at the expense of the human beings on the line, was progress [. . . T]hose dreams of the 20th century are dead and we are shaking the world with a new dream. (Smiley & Boggs, 2013)

A parallel but differently-focused stream of organizing in the Detroit urban agriculture movement since the 1990s comes from anti-hunger and beautification projects. Detroit Agriculture Network (DAN) was started in 2003 by David Hacker, who at that time was director of the Hunger Action Coalition. Another important anti-hunger organization in the city is the Capuchin Soup Kitchen, which is run by the friars of the Capuchin Province of St Joseph of the Saint Bonaventure Monastery located in Detroit's east side neighborhood of Mount Elliott. The soup kitchen was started in 1929 and has more recently expanded its programming to more explicitly tackle food injustice and the root causes of poverty instead of being strictly anti-hunger. Their Earthworks Urban Farm is one of the most successful in Detroit and is the only operation in the city to be USDA-certified organic. Beautification organizations have also played an important role in the movement. The major example is the Greening of Detroit, which began in 1989 as an urban reforestation nonprofit and since that time has become heavily involved in

the urban agriculture movement through offering internships and starting three model market gardens.

These organizations were instrumental in fostering collaboration between diverse and previously independent urban agricultural activities. Through a USDA Community Food Security grant in 2003, the Capuchin Soup Kitchen received \$150,000 over two years, which it used primarily to establish the Garden Resource Program (GRP). Partnering initially with fourteen other organizations,⁴⁴ the Capuchins set up a collaborative body with the main goal of fostering and supporting gardeners that now boasts membership comprising hundreds of community groups. In its first year (2004), the GRP provided seeds, compost, soil, equipment, and expertise to 33 community gardens and 47 family gardens (Ver Ploeg et al., 2009: 149). Since that time, the GRP has seen a huge expansion of collaboration and has helped grow the movement immensely: as of 2012, it provided support to many of DAN's 1,416 registered gardens (DFPC, 2013: 23). This grant also served as the foundation for the continuing existence of DAN as a nonprofit. Starting in 2013, DAN, GRP, and the local food marketing and distribution program Grown in Detroit have united under a new moniker: Keep Growing Detroit.

A final thread in the Detroit urban agriculture movement is environmental and food justice organizing. While the Boggs Center is active in supporting and collaborating with these groups, there are also significant organizations that exist independently and approach urban growing from a position informed by anti-oppression and anti-racist theory and community self-determination action. Many of these groups take inspiration from black nationalism and in

⁴⁴ The Greening of Detroit, Detroit Agriculture Network, Michigan State University Extension, O.W. Holmes Elementary School, American Indian Health and Family Services, City of Detroit Recreation Department, Michigan Association of Community Gardeners, Michigan Department of Agriculture, Gleaners Food Bank, Michigan Department of Community Health, Catherine Ferguson Academy, Detroit 4H Center, Foundation for Agriculture Resources in Michigan, and Michigan State University.

particular, the Black Panther Party's Free Breakfast for School Children Program (a common inspiration for black-led food security movements, see Heynen, 2009; McClintock, 2011; McCutcheon, 2012;; Patel, 2012). In fact, Wayne Curtis, one of the founders of Freedom Growers on Detroit's East side, was involved in the Detroit branch of the program during the 1960s (Tippett, 2012). One of the central groups in this struggle is the Detroit Black Community Food Security Network (DBCFSN), which since 2006 has simultaneously been growing food and developing public policy to support a just and sustainable food system in Detroit. Their main project is D-Town Farms, located on seven acres of City land in the Meyers' Tree Nursery in Rouge Park. Several other organizations and farms are also involved with the DBCFSN, and the environmental and food justice organization East Michigan Environmental Action Council (EMEAC) is a key collaborator with the Network and the Boggs Center. These groups and several others have been able to continue their work in part due to the Child Health Incubator Research Project, a program established through a \$4.5 million grant from the USDA National Institute of Food and Agriculture Childhood Obesity Prevention Program awarded in 2011.

The founder and Executive Director of the DBCFSN is Malik Yakini, who is quickly becoming a national figure due to his numerous media appearances and awards, including a prestigious James Beard Leadership Award in 2012. Yakini was also one of the major catalysts – along with other committed Detroit farmers, most notably from Earthworks – in starting monthly meetings and anti-racism training through a program called Undoing Racism in the

Detroit Food System.⁴⁵ These farmers identified racism and racial inequality as the major barrier to furthering the goals of the urban agriculture movement in Detroit, recognizing that there were essentially two segregated food movements in Detroit. The larger movement reflected the common makeup of alternative food movements in general, with organization leadership being predominantly white and (to some degree) economically privileged (see Slocum, 2007, 2011; Guthman, 2008a, 2008b, 2011, 2012), and the smaller movement – represented by organizations like the DBFSC, D-Town, Freedom Freedom, etc. – having black leadership.

These many organizations are a testament to the strength, size, and diversity of Detroit's alternative food and urban agriculture movements. The evolution traced in this section shows that the city has extremely active and developed organizations, especially in comparison to Vancouver's more nascent movement. Also notable is the role urban agriculture has played as an anti-poverty measure supported by the municipal (and federal) government during times of crisis, a pattern that fits with the history of urban gardening in the United States in general (Lawson, 2005). As I will discuss in the next section, the absence of municipal involvement from the 1980s until quite recently is also a key driver of both the direction the movement has taken and the future of its development.

The Detroit City government and urban agriculture

After discontinuing the Farm-A-Lot program in the 1990s, the Detroit City government had little formal connection to the growing urban agriculture movement; in fact, as the

⁴⁵ Interestingly, Yakini was inspired to conduct anti-racist training after participating in dRworks 'Dismantling Racism' training at the 2006 Bridging Borders Toward Food Security conference in Vancouver (see Yakini, 2011). The meeting was jointly held by Food Secure Canada and the Community Food Security Coalition (US).

chronology above indicates, much of the movement emerged from grassroots organizing that was in many ways a counter-movement seeking to address the poverty and inequality endemic to the city. During this time period, economic development under Mayors Coleman Young (1974 to 1993, the city’s first black mayor), Dennis Archer (1994 to 2001), Kwame Kilpatrick (2002 to 2008), and Dave Bing (2009 to present) took a relatively orthodox neoliberal Rust Belt approach, focusing on major downtown construction projects – like General Motors’ modernist Renaissance Center headquarters, numerous arenas and casinos, the use of tax breaks and incentives to attract corporations to the vacant skyscrapers of the CBD, and the reduction or privatization of public services (Clement, 2013). Under this regime of economic development, the state had very little involvement with the urban agricultural movement.

The relationship between the city government and the alternative food movement shifted in the mid-2000s, when in Detroit – as in Vancouver – the excitement around food and sustainability in planning and policy circles (see Pothukuchi & Kaufman, 1999; 2000; Davidson, 2010; Neuman, 2005) provoked the involvement of municipal governments in sustainable food systems planning. Table 12 shows the timeline of events that will be described in this section.

In this respect, Vancouver and Detroit share a common genesis to their food policy

Table 12. Detroit food policy chronology.

Detroit Black Community Food Security Network presents policy to Council	June 2006
Food security policy adopted by City Council	March 2008
Detroit Food Policy Council supported by City Council	October 2008
Detroit Food Justice Task Force established	2009
City Planning Commission founds Urban Agriculture Workgroup	August 2009
First meeting of Detroit Food Policy Council	November 2009
Urban Agriculture Workgroup expands after hiatus	October 2011
Michigan Department of Agriculture and Rural Development rewrites Right to Farm Act	December 2011
Public outreach on urban agriculture ordinance	September 2012
Land sale to Hantz Woodlands approved by City Council	December 2012
Detroit Future City plan	January 2013
Urban agriculture ordinance	April 2013

development, which was spurred by community groups, concerned citizens, and activists approaching their respective City Councils and supporting the municipal food policy.⁴⁶ In Detroit, the group primarily responsible for this was the DBCFSN, who in June 2006 presented at the Neighborhood and Community Service Standing Committee of the Detroit City Council and were then appointed by Council to head a task force with the goal of developing a municipal food security policy (DBCFSN, n.d.). After multiple drafts and a public consultation, the Detroit Food Security Policy was adopted by Council on March 25, 2008 (DBCFSN, 2008).

The DBCFSN continued to be involved as numerous other organizations worked together to accomplish one of the goals of the Food Security Policy: the establishment of a Detroit Food Policy Council (DFPC). This common step in the development of food systems planning (see Schiff, 2007, 2008; Harper et al., 2009) began in 2008 with a Council resolution and had its first meeting in 2009. Two of the seven founding goals of the organization dealt directly with urban agriculture, illustrating the importance of urban food production in spurring the development of policy (DFPC, 2013). In 2009, the City's involvement with urban agriculture deepened with the striking of the Detroit Food Justice Task Force in cooperation with the Detroit City Planning Commission (DCPC). The Task Force was established with partners from the community and the City to focus specifically on supporting urban agriculture and expanding the visibility of food and environmental justice organizing through outreach and media.

The DCPC was also involved in creating an Urban Agriculture Working Group in August 2009 after researching best practices for North American municipal support for urban

⁴⁶ As Wendy Mendes (2006) thoroughly illustrates, these moments were vital to making food policy a public issue, but were only one step in a much longer process of community organizing, as I have tried to illustrate in this chapter.

agriculture (DCPC, 2013). The Workgroup was originally composed of members from the DBCFSN, the Greening of Detroit, Earthworks, Michigan State University, Wayne State University, and several City departments, including Planning and Development, Recreation, Health and Wellness Promotion, and Buildings, Safety Engineering, and Environmental (DCPC, 2013).

They were tasked by City Council with creating a zoning ordinance which would allow the promotion and regulation of urban agriculture within the city, an important goal due to the fact that in Detroit – like many cities – urban agriculture is technically an illegal land use because it is not accounted for in zoning code. However, the Urban Agriculture Working Group’s progress was stalled in early 2010 when it came to light that the state’s Right to Farm Act (RTFA, 2011) prevents municipalities from creating their own agricultural zoning regulations. Although the legal issues inherent in this conflict are complex, put simply the problem revolves around the fact that the RTFA was created with rural agricultural land uses in mind. It establishes a set of ‘Generally Accepted Agricultural and Management Practices’ (GAAMPs) that, if followed by farmers, render them immune to public or private nuisance litigation. The original intent of the Act was to protect Michigan’s dwindling agricultural sector by codifying the common law defense of ‘coming to the nuisance’, whereby suburban property developers would remove agricultural land uses at the fringe of growth by claiming it as a nuisance to recently established homes (Norris et al., 2011). Because the GAAMPs are obviously designed with rural farming in mind, the protection granted to rural farmers by the RTFA cannot be bestowed upon urban farmers. Additionally, in order to enforce the protection granted by GAAMPs, the state prohibits cities from creating their own agricultural zoning

regulations. With this conflict in place, the City of Detroit had no legal recourse to regulate urban agricultural land uses within its zoning code.

The roadblock posed by the RTFA was actively researched by members of the Working Group, resulting in two separate attempts by members of the State Congress to pass legislation amending the act in some way to allow for urban agriculture (see Zhang, 2010; Sustainable Farm Policy, 2013a). However, the first was relegated to committee and the second was not introduced before legislative break because officials at the Michigan Department of Agriculture and Rural Development (MDARD), who are responsible for developing the GAAMPs, claimed they were close to arriving at an administrative solution to the issue (Sustainable Farm Policy, 2013a). On December 14, 2011, MDARD presented the RTFA with an amended Preamble that exempts all Michigan citizens residing in a city with a population over 100,000 from the protections offered by the RTFA, beginning in 2012 (Sustainable Farm Policy, 2013a). This highly unusual amendment was accepted immediately and with little discussion. Such a legislative move is highly unusual given that modification of the GAAMPs is usually a year-long process that has built-in public engagement periods.

Commentators such as the Ann Arbor-based Sustainable Farm Policy (2013a) have claimed that this 'quick fix' was designed to prevent the RTFA from coming under further legislative scrutiny. Since its inception, the Act has undergone multiple amendments and revisions due to its perceived unclear language. Specifically, it has also been claimed that the Act uses the populist trope of farm preservation as a guise for allowing further industrialization of Michigan's farm system. By protecting farms from nuisances and controlling the definition of the GAAMPs, critics (e.g. Sustainable Farm Policy, 2013b) claim that the MDARD has used the

RTFA to expand concentrated animal feeding operations (CAFOs) in the state, a claim that is backed by a history of court support for industrial farming operations under the RTFA (see Norris & Taylor, 2007).⁴⁷

Additionally, Sustainable Farm Policy (2013c) and The Center for Media and Democracy's Sourcewatch (2013) have demonstrated that the 2000 amendment to the RTFA contains verbatim language from the neoliberal American Legislative Exchange Council (ALEC) model Right to Farm model bill. ALEC has strong ties to the industrial agriculture lobby, including large corporations like Archer Daniels Midland, Cargill, and DuPont, and the Republican Governor of Michigan at the time of the amendment was John Engler, who was personally involved in the founding of ALEC in the 1970s (ALEC, 2013).⁴⁸ With the successful suspending of the RTFA for Michigan's urban areas in late 2011, cities like Detroit could finally create zoning code to make urban agriculture legal and regulated. However, by removing RTFA protection instead of modifying the GAAMPs or comprehensive zoning law (see Norris et al., 2011: 399-403), both citizens and farms in urban areas are now susceptible. The quick maneuvering of the MDARD also had the effect of prolonging the use of the RTFA as a form of protection for CAFOs and the continuing industrialization of Michigan's agricultural sector in the name of economic competitiveness.

⁴⁷ The critics are not limited to those concerned about CAFOs, however. Russ Harding (2010) of the neoliberal Mackinac Center for Public Policy contributed to the confusion around the RTFA by framing its urban area exception as "the latest assault on private property rights to come out of Lansing" and claimed it would unequivocally take away Detroiters' right to grow food on their own property, a gross misconstruance of the complex situation (1).

⁴⁸ As will be discussed later in the chapter, the effect of neoliberal organizations like ALEC and the Mackinac Center for Public Policy is profound in Michigan (see also Akers, 2012, 2013). The RTFA is not even the most drastic of recent interventions (see page 134).

After MDARD suspended the RTFA for Detroit, the Urban Agricultural Working Group continued its work with an expanded list of partners (now fifteen in addition to five City departments). In the process of developing an ordinance, public concern about regulating pesticide use, genetically modified crops, and soil tests was taken into consideration, but ultimately the City determined it could not be held responsible for enforcing such risks. Instead, state and federal regulation was deferred to and soil test results were a component of a required site plan submission for all agriculture land uses under the new ordinance. The Working Group also decided that zoning for animals and honeybees would be accomplished at a later date and that existing farms need only apply for site approval if their scale or type changes. Additionally, they stated that “[t]he proposed ordinance provides a balance between appropriate regulation and enforceability” by fulfilling two goals of zoning: protecting of health and welfare and solving the issue that the City cannot sell its land to operations that cannot be zoned (8). This second point is especially important, as several of the large existing and planned urban agriculture projects in the city had been looking to purchase city-owned land – which accounts for at least 35% of the vacant land in Detroit (see Colasanti & Hamm, 2010) – for their farms.

By the end of 2012, the ordinance had been presented at three public meetings and amended following consultation with the DCPC and was therefore nearly in its final form. While most urban agriculture activists spurred on this development in support of their movement, many simultaneously fought the City on another front: the sale of public land to Hantz Woodlands. In fact, the events leading up to the sale illustrate the use of urban agriculture as part of a municipal sustainability fix in Detroit. John Hantz is a Detroit resident and businessman

who after a successful career at American Express started his own financial firm, the Hantz Group, which is now worth over a billion dollars (Whitford, 2009). As journalist David Whitford tells it, in mid-2008 “Hantz had a revelation. ‘We need scarcity,’ he thought to himself as he drove past block after unoccupied block. ‘We can't create opportunities, but we can create scarcity.’ And that, he says one afternoon in his living room between puffs on an expensive cigar, ‘is how I got onto this idea of the farm’” (John Hantz quoted in Whitford, 2009).

With this idea he started Hantz Farms and began negotiating with the City to buy a large portion of the East side for a commercial-scale farm; with his pledged commitment of \$30 million, he could buy up thousands of acres. Eventually, after a decision-making process that was not entirely transparent to the public, Hantz Farms President Mike Score announced that the project had changed to Hantz Woodlands and instead of crops, the land would be used to grow trees for beautification and commercial (i.e. Christmas tree) purposes. Such a shift of purpose appears to have two reasons: first, citizens at public hearings for the project expressed concern about pests and waste from the large scale project, and second, without the urban agriculture ordinance, the Hantz project would be unable to grow food. The planting of trees and maintenance of green space, however, could be zoned as a blight removal project creating park space. Score expressed interest in possibly growing food when an urban agriculture ordinance passes Council successfully, but since its approval in April 2013, no such announcement has been made.⁴⁹

After extended meetings (both public and private) with the City, City Council approved the sale of about 1,500 noncontiguous lots (or 140 acres) in the East side to Hantz Woodlands

⁴⁹ The passed ordinance allows for a wide variety of urban agriculture land uses with a by-right designation in most zoning districts.

for \$520,000 (\$300 per lot) on December 11, 2012. This sale adds to about 300 parcels already privately purchased by Hantz.⁵⁰ The development agreement requires that Hantz clear the lots of garbage, demolish abandoned structures, and mow the grass, a requirement that will cost an estimated \$3.2 million over several years. It also contains language allowing Hantz to purchase neighboring property if the company meets the city requirements for maintenance for four years. The cost of \$300 per lot is about \$200 less than the price offered through the Wayne County Foreclosure Auction, although some argue that even this is an inflated price as much of the land is worthless due to abandoned structures, industrial contamination, or clouded title (see Akers, 2012).

The lots are contained within an area where several thousand residents currently live; according to Hantz and Score, the majority of residents support the sale on the grounds that it will remove blight, clean up the aesthetics of the neighborhood, and increase their property values (Gallagher et al., 2012). However, other residents – especially those involved in urban agriculture in the city – have been critical of the sale from the start. The DBCFSN has joined with several other organizations and individual farmers, including Earthworks and the Boggs Center, to publicly oppose the sale, which they contest on several grounds. First, they see the kind of urban agriculture championed by Hantz as counter to small-scale, grassroots efforts. Although most advocates support scaling up production in the city, many are fundamentally against the profit motive that has driven Hantz to buy the land: as Yakini says, “they [Hantz Woodlands] don’t have any sense of using urban agriculture to empower communities. They

⁵⁰ Though note that the sale cannot be finalized until Emergency Financial Manager Kevyn Orr approves it; after his state appointment in 2013 he has been granted veto power to any decision made by City Council if he feels they are fiscally irresponsible (see page 134).

are driven by the profit motive. The current urban ag[riculture] movement is clearly steeped within the social justice movement and clearly is trying to empower people, communities, and community organizations. And none of that is on the radar of the Hantz project. So that is very troubling” (Wallace, 2012).

The location of the land Hantz has proposed to buy is also vital to this critique, with many activists decrying the sale as a land grab. Because the land is located close to downtown and the waterfront – areas that in recent years have seen significant in-migration and rising property values – critics contend that Hantz simply plans to speculate on the land until it becomes valuable again. Indeed, what better way to speculate than plant trees that take decades to mature? This point also draws on a political strategy common among food justice activists (see McClintock, 2011) by connecting issues across space: some have compared this land grab in the Global North to similar purchases of farmland occurring in the Global South (see Holt-Giménez, 2012).

Related to this first point, critics of the plan like Yakini are concerned that Hantz has not specifically committed to practicing organic agriculture, but instead talks extensively about using innovative technology such as aqua-, aero-, and hydro-ponic growing techniques (see Smith, 2010). The use of pesticides and artificial fertilizer instead of pest management and organic composting represents a significant difference between most conventional (i.e. rural) and urban agriculture; indeed, many Detroit growers began to produce their own food due to the lack of availability of organic produce within the city limits (see Wallace, 2012). Concerns over the negative health effects of conventional techniques possibly being used by Hantz are amplified by another critique made by the DBCFSN: Hantz and Score, the leaders of the Hantz

project, are both white men, and they will be setting up their operation in a neighborhood that is mostly black. From an environmental justice perspective, black and Latino citizens of Detroit are wary of the environmental effects of white-owned businesses: throughout the automobile industry's boom years, African Americans worked the most dangerous jobs in the factories (Georgakas & Surkin, 1998; Sugrue, 2005); although all residents of this contaminated postindustrial city have cancer rates and lead and air pollution exposure levels much higher than the national average, racial minorities generally bear the greatest risk (Sierra Club of Detroit, 2013). In 2010, environmental racism made national news when Marathon Oil expanded its oil refinery in Southwest Detroit to process waste from the Alberta tar sands. This expansion resulted in Marathon buying thirteen homes in Michigan's most polluted zip code, 48217, when it was discovered that deadly gases and byproducts like ethyl benzene had leaked from their plant. The waste product generated from this process, petcoke, has also been stored in a three-story-high pile on land owned by the wealthy David and Charles Koch brothers on the banks of the Detroit River (Ayres-Deets, 2013). These related racial environmental injustices loom heavy on the mind of urban farmers opposed to the Hantz land sale.

The final major point of contention concerns what activists deem the special treatment Hantz received in his pursuit of land. This critique reveals quite sharply the degree to which the City of Detroit is using an environmental agenda including urban agriculture as part of efforts to attract capital to the city. Urban agriculture participants in the city claim that the below-market price offered to Hantz – and the attention paid by City Council to his operation – would not be possible for smaller-scale farms that actually grow food and have been started by the community (see, for example, Yakini, 2012). At a community rally against the land purchase,

local farmer Myrtle Thompson claimed that her efforts to expand her garden through purchasing adjacent lots had been stymied by red tape and difficulties communicating with the City, while Hantz's significant financial means enabled him to deal directly with City Council (see Banovic, 2012).

This sentiment has led activists to link the Hantz land sale to past events in Detroit in which powerful actors have used their means to appropriate land in poorer neighborhoods. Two events in particular have been utilized as cautionary tales. First is the 1981 Poletown land sale, during which time the City used eminent domain in the name of economic development to relocate 4,200 people living in the neighborhood bordering Hamtramck to build the General Motors Detroit/Hamtramck Assembly Plant (see Wylie, 1990). The second is the construction of the Chrysler Freeway (Interstate 75) and the Mies van der Rohe-designed model neighborhood of Lafayette Park in the 1960s. This urban renewal project destroyed the neighborhoods of Paradise Valley and Black Bottom, which were two of the most vibrant African American communities in the United States and contributed significantly to the national popularity of blues, jazz, and big band music in the early 20th century (see Williams, 2011).

Detroit Green City: austerity's sustainability fix

The combination of these numerous issues means that a significant percentage of Detroit urban agriculture activists are resisting the Hantz project. However, as I will argue in this section, their concerns were largely ignored by City Council because the Hantz sale plays a role in Detroit's efforts to attract investment to the city in a time of extreme financial crisis. As discussed elsewhere (Gallagher, 2010; Conlin, 2011; Akers, 2012, 2013; Clement, 2013), Detroit is currently in a state of transition. Existing grassroots movements such as the Boggs Center and

its allies are gaining power and support among long-time residents; recent migrants to the city, often white, are trying to establish positive communities among the(ir beloved) ruins (see Millington, 2010), with varying degrees of acceptance from native Detroiters (see the recent online commentary on the 'White Entrepreneurial Detroit Guy' meme in Foley, 2013; Woods, 2013); elite economic interests – often with support from the Republican state congress – are also busy undertaking their own makeover of the city, one that includes noteworthy speculative investment in land (MacDonald, 2013; MacDonald et al., 2013). In this time of change, the City is busy planning for the future as well, and as this section will show, the Hantz project is an important part of Detroit's makeover as the sustainable austerity city.

First, some background on the City's financial status is in order. In March of 2013, Republican Governor Rick Snyder appointed Kevyn Orr as Emergency Financial Manager (EFM) of the City of Detroit. EFMs were originally introduced in Michigan with Public Act 101 of 1988, which granted the state the power to appoint such Managers to municipalities that had accrued significant deficits or seemingly insurmountable financial commitments. This Act was eventually amended into Public Act 72 of 1990. In 2011, Public Act 4 was passed, which changed EFMs to Emergency Managers with expanded powers, including the ability to break collective bargaining agreements. This Act was suspended after a public referendum in 2012, but Governor Snyder quickly passed a new Public Act 436, which is a near copy of the Act rejected by voters. As an additional measure of security, Act 436 also contains an appropriation making it immune to referendum. Act 436 returns the managerial nomenclature to EFM and also keeps many of the expanded powers granted by Act 4. Snyder justified his decision most directly with the now oft-

repeated figures of the City's \$327 million deficit and long term obligations of \$14 billion (see Howell, 2013a).

As local professor and activist Shea Howell (2013a) points out, the use of EFMs is a powerfully anti-democratic measure designed by the Republican leadership as part of their austerity-driven economic plan for the state. In fact, many of these right-wing legislative actions have been supported by the powerful Mackinac Center for Public Policy and ALEC, the same organizations that have supported the RTFA in its current incarnation as a protection for CAFO operations in the state (see page 133). Their other initiatives have included instating a flat corporate tax scheme that significantly benefits large corporations (2011), a package of education legislation following ALEC recommendations for privatizing the public education system through charter schools (2011 and 2012), and passing a Right-to-Work bill that contains verbatim language from an ALEC model bill (2012).

As EFM, Kevyn Orr is required to undertake an inventory of the City's assets and financial obligations and from this report suggest actions to remedy the deficit. In doing so, he is granted veto power on any decision made by the City Council or the Mayor, effectively removing democratic accountability from city governance in the name of economic crisis. Not only does this power silence elected officials, but it also quite obviously is designed as a tool of class oppression. Act 436 was in many ways designed to allow state control of the City of Detroit, which as Joshua Akers (2011, 2012) has pointed out is a significant target for investment by Michigan elites due to its significant resources (infrastructure, labor, land, etc.) and its strategic location on the Detroit River, over which the privately-owned Ambassador Bridge generates the most trade volume between the United States and Canada of any border

crossing (Detroit Free Press Staff, 2012). The use of an EFM in Detroit is also important nationally, as other large cities – most notably Chicago – have public pension liabilities even more staggering than Detroit. Chicago’s pensions are underfunded by approximately \$18 billion (see Dobbs, 2013), coming out to approximately \$6,600 per person, while Detroit’s \$3.5 billion underfunding amounts to about \$5,000 per person. Additionally, the appearance of EFMs in Michigan – which now rule over 49% of the state’s African American population (Abbey-Lambertz, 2013) – is closely tied to the decrease of state and federal revenue sharing, an obvious connection between neoliberal state retrenchment and elite anti-democratic maneuvering (see Goodman & Binelli, 2013). Detroit itself is owed \$220 million in revenue sharing and between \$433 and \$508 million in lost income taxes after a 1998 agreement with the state (Ashenfelter, 2013), but as of yet the state refuses to pay due to budgetary concerns.

The connection between the Hantz land sale – and City support for urban agriculture in general – and neoliberal austerity measures emerged on the national scale with the release of the *Detroit Future City (DFC)* planning framework in December 2012. This book-length document is the first major deliverable of Mayor Bing’s troubled Detroit Works planning project. Other authors (e.g. Akers, 2013; Clement, 2013; Howell, 2013b, 2013c) have documented, explored, and critiqued the Detroit Works planning process, so in this section I will specifically address the urban agriculture component of the plan. The emergence of the Detroit Works planning process is rooted in the political-economic situation faced by Detroit during the 2000s. With a vulnerable economy that had been in bad shape for decades, the city was hit particularly hard by the foreclosure crisis and subsequent national recession of the late 2000s. Detroit’s former status as one of the major cities of the black middle class also made it a

significant target for subprime lending during the years of reverse redlining (see Squires et al., 2009). Additionally, the 2008 resignation of Mayor Kwame Kilpatrick following a corruption scandal left the city in a vulnerable and open position.

During this time, the venture philanthropic organizations like the W.K. Kellogg, Kresge, and Skillman Foundations that have fueled the nonprofit industrial complex in the city for decades⁵¹ became even more influential and began to play a greater role in Detroit's governance (Gallagher, 2010; Clement, 2013). In 2008, ten of these philanthropic organizations came together to start the New Economy Initiative with \$100 million to work towards regional economic development. A central goal of this project is 'place-based philanthropy', which targets investment into specific areas of the city attractive to capital, a classic spatial fix employed by entrepreneurial cities (Clement, 2013: 59). The New Economy Initiative has also made an effort to tie this philanthro-capitalist approach to policies designed to attract the creative class, as discussed in Peck (2011).⁵² The Kresge Foundation played a central role in this

⁵¹ Total foundation grant spending in Detroit totaled \$136.3 million from 1989-1992 and \$312.7 from 1996-1999 (Detroit Report Task Force of City Connect Detroit, 2001).

⁵² The creative city policies pursued by Detroit in recent years could make for very interesting future research along the lines of work done in the recent volume *Creative Economies in Post-Industrial Cities: Manufacturing a (Different) Scene* (Breitbart, 2013). As other commentators such as Jamie Peck (2011) have pointed out, Richard Florida's transition from seeing Detroit as the primary example of how *not* to attract the creative class to seeing the city as a new haven for the knowledge economy is telling of how powerful creativity discourse has become in urban policy-making circles. Continuing with Michigan's recent history of transitioning its economy to knowledge industries, many organizations and events designed for creative professionals have been sponsored by the major corporations who have relocated to downtown Detroit in the last decade. The framework presented in *DFC* also shows heavy support for creativity, which when mixed with public austerity is bound to have troubling ramifications. The relationship between this new class of transient knowledge workers and native Detroiters is strained and requires investigation: as one local activist claims, "I see two Detroit's [*sic*]: one with resources and one without. [. . .] If you're a developer, capitalist, or a person with higher income, gentrification is a good thing for cheap land, access; you get to be fast-tracked, considered an amenity, worthwhile, and encouraged and supported in a place. *You get to place-make. If you're poor, you don't get to place-make*" (emphasis added; Williams, 2013: 41). Especially interesting for future study are technology-based initiatives run by non-native Detroiters that seek to address social issues, such as Data Driven Detroit, Loveland Technologies, or the 'think-then-do tank' Dandelion Detroit.

targeting of funds by commissioning the Detroit Residential Parcel Survey, which sought to assess which areas of the city had the greatest residential vacancy.

When Mayor Bing was elected in 2009, he began working closely with the Kresge Foundation to funnel capital into the areas of the city deemed viable, first starting with federal block grant money and then proceeding to the larger framework of *DFC*. The Detroit Works Project's governance structure displays many attributes of neoliberal networked and public-private-partnership governance, with a mix of nonprofit, corporate, and governmental actors forming the Steering Committee of the project (see Clement, 2013: 55-56). The funding for the planning process was provided by the Ford, Kresge, and W. K. Kellogg Foundations, with Kresge providing a \$150 million contribution upon the public release of the *DFC* report. In the early stages of the Detroit Works planning project, Mayor Bing and associates were frank about their 'planned shrinkage': on February 24, 2010, Mayor Bing said, "There are areas in our city where we are going to have to make hard decisions to get people to move, and move into those communities that I think we can support. Relocation? Absolutely. That's the reality that we are in" (quoted in Clement, 2013: 59). Unsurprisingly, this nonchalant attitude towards residential relocation and the absence of public participation in the project provoked a strong backlash from the public, eventually leading to a reconfiguration of the process in late 2011.

Despite increased public outreach after this rethinking, the framework released in *DFC* resembles quite closely the initial plans for planned shrinkage, only with the opaque language of relocation hidden behind a veneer of incentives and strategic targeting of investment and services. While it paints an optimistic picture for the city with its fifty year forecast – and contains a considerable amount of 'cutting edge' planning techniques like blue and green

infrastructure – the plan as a whole rests on a simple, troubling, premise: “unlocking the vast potential of the city’s land assets through preferential zoning, targeted infrastructure investments, attraction of new capital into the city, and innovative approaches to address the under-utilization of land” (Detroit Works Project, 2012: 49). The plan identifies seven ‘employment districts’ for targeted investment where job and population growth is already occurring and builds the entire framework around the idea of creating a network of transit and neighborhoods with these districts as the nodes. The vision of the city that emerges is a 21st century planner’s ultimate fantasy: areas of high density, mixed-use development connected by rapid transit placed atop giant green spaces. However, the process by which such an urban utopia is to be created is less benign. The city will only be able to target investment in these districts by retreating from everywhere else: city services like lighting, trash collection, policing, and firefighting will be withdrawn and tax or ‘home swap’ incentives will attempt to convince homeowners to relocate. In fact, this process is already occurring, with the creation of a quasi-governmental Public Lighting Authority in 2012 that is using taxpayer money to selectively target investment for Detroit’s failing public lighting system.

Urban agriculture plays a relatively minor role in the *DFC* document, but the framework itself is in fact quite reliant on the growth of the urban agriculture movement. One of the key implementation strategies presented by the plan is to “Support a network of new and existing neighborhood types” (Detroit Works Project, 2012: 104). This strategy classifies neighborhoods by market value analysis, essentially seeking to ascertain which areas would be most attractive to capital, and then from this typology creates a series of neighborhood types (see Akers, 2013). Areas with the highest vacancy rates and lowest incomes become part of the ‘Landscape land

use typologies' to be converted to green space with various functions (see 50 year land use map, Figure 20 below). These areas make up 29% of the total land use in the 50 year plan and form a rough belt of neighborhoods stretching east-west through the center of the city. The Landscape typologies are further broken down into three categories: Large Parks, Innovation Productive, and Innovation Ecological. The Innovation Productive land use typology is strictly designated for local food production and along with Innovation Ecological will require the gradual decommissioning of city services to encourage current residents to migrate or seek employment in agriculture. Creation of these open spaces is required for the targeted investment and densification of the seven employment districts that is central to the framework.

The goals of establishing an Innovation Productive zone are laudable: environmental benefits of clean air, water, soil; economic benefits of creating jobs and fresh local produce; and social benefits of providing recreation and increasing property values (see Detroit Works Project, 2012: 127). However, local urban agriculture activists are right to question the process and aim of the Detroit Works Project as a fundamentally unjust sustainability fix engineered by elite interests. Similar to the mid-century plans for slum clearance and urban renewal (or 'Negro removal' as it was cynically referred to in Detroit, see Williams, 2011: 70), the *DFC* planned shrinkage framework appropriates land from disadvantaged citizens in the name of economic development. As Daniel Clement (2013: 76) has proven, the districts targeted for inclusion in 'Innovation' land use types under the plan have rates of poverty, female-headed households, less than high school education, and African American population higher than the city average.

PROPOSED: 50-YEAR LAND USE SCENARIO

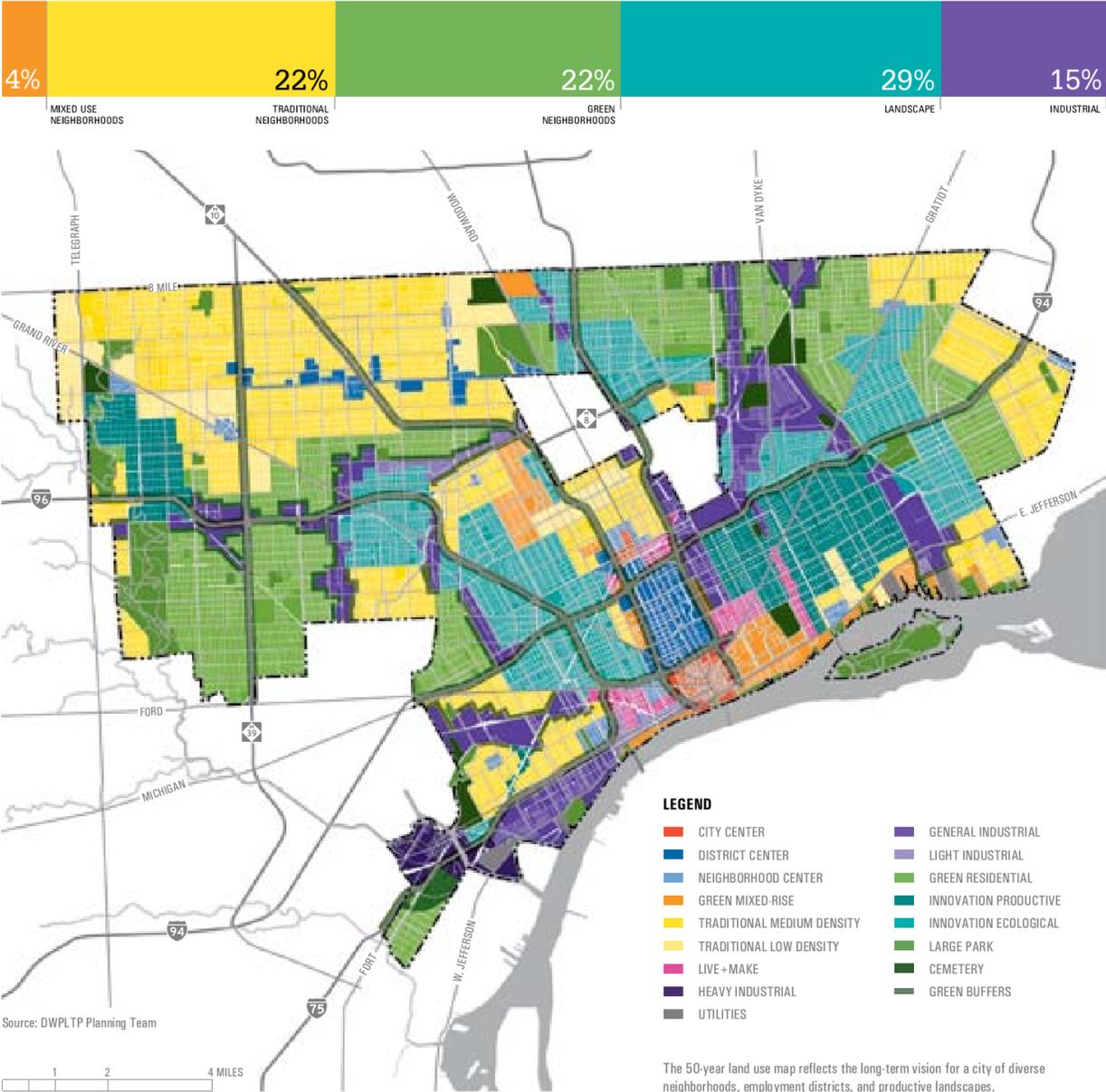


Figure 20. 50 year land use scenario map. Provided courtesy of the Detroit Works Project. (Detroit Works Project, 2012: 26).

The *DFC* framework also hints at the specific kind of agricultural production intended to occur in the Innovation Productive zones by including Hantz Woodlands in the map of Detroit’s food network and productive landscapes (Detroit Works Project, 2012: 132). In fact, the largest area of Innovation Productive tracts is grouped on the east side around the areas already

identified by Hantz as his potential farm. With his plans to purchase up to 2,000 acres if possible, it seems that the Detroit Works Planning Commission may support Hantz's endeavor as part of the large-scale green space necessary for their vision of Detroit. On the day of the land sale, Mayor Dave Bing gave the following statement:

Today's City Council approval of the sale of city-owned land to Hantz Woodlands is in line with my vision of transforming portions of Detroit by taking vacant, underutilized land and putting it back into productive use. The sale will result in the elimination of blight — debris, illegal dumping, and vacant structures — on a large parcel of east side property. I appreciate the passion and input of all who have been involved in the dialogue and culmination of this deal, particularly our community and City Council. (Sands, 2012)

Hantz's project differs from grassroots urban agricultural activities in Detroit in that it is capital intensive, profit-driven, will have a questionable ecological impact without providing food, and is run by a wealthy white business man. The fact that this kind of urban agriculture project is the one supported by Detroit Works has troubling implications for the future of food justice in Detroit.

Discussion and conclusion

In this chapter, I have outlined the history of urban agriculture in Vancouver and Detroit to accomplish several goals. First, to add support to Nathan McClintock's (2011) theory of the threefold metabolic rift created by capitalist industrialization that has influenced the rise of modern urban agriculture. Second, to draw on Laura Lawson's (2005) work to argue that urban agriculture arose primarily as a grassroots strategy of resistance, but has also been supported by government and civil society in times of economic crisis. In this way, food production in cities can be seen as a Polanyian double movement whereby citizens seek to create a metabolic social safety net in the face of the injustices and social dislocations of market society. By placing

the recent developments of the urban agriculture movements in each city within the context of neoliberalization, I have sought to show how two very different municipal governments have responded to multi-scalar economic demands to selectively incorporate urban agriculture as a sustainability fix. This evidence helps illustrate McClintock's (2011) radical/neoliberal Janus face of urban agriculture.

Comparing the dense and rapidly growing city of Vancouver to the shrinking city of Detroit yields several insights into the ways in which environmental projects such as urban agriculture become enrolled in economic development. A key similarity is the discursive and material use of urban agriculture as an indicator of inter-urban competition. Vancouver seeks to solidify its international reputation as a cosmopolitan green city by encouraging urban food production, while simultaneously developing its tourism and investment-oriented real estate industries by marketing itself as an environmentally-friendly, consumption-oriented destination. The measures by which livability and sustainability rankings are determined no doubt greatly reflect positive goals for cities: who would not want to live in a place dense with social activity, employment and education opportunities, and clean and safe environments in which to enjoy recreation and leisure? However, through the lens of food justice, measures of urban success must start from a position of distributional justice and be designed with the most disadvantaged urban residents in mind, not the class of cosmopolitan creatives that usually serve as the target for such entrepreneurial activity.

The City of Detroit's strategy for incorporating urban agriculture into its economic development as represented by the *DFC* planning framework also highlights the importance of questioning the context and rationale behind municipal involvement with urban agriculture. As

Shea Howell (2013) points out, the *DFC* framework is progressive in some ways, especially in its acknowledgement of planning for population loss or stabilization and its embrace of sustainability. However, while sustainability and shrinking city planning may currently be in vogue (see Davidson, 2010), the possibility of truly radical planning that abandons the idea of *economic* growth does not (and in many ways, structurally cannot) appear in the framework. As Howell (2013) asks, “for whom will the city be transformed? Whose interests will be given priority in the inevitable conflicts inherent in this or any plan for redevelopment?” The work of the DBCFSN, Earthworks, and other grassroots urban farming organizations in Detroit as outlined above shows that the groundwork for a just food movement is already occurring in the city. However, under the regime of neoliberal austerity enforced through the EFM and other tools of class oppression utilized by the state government and the nonprofit industrial complex perpetrated by powerful philanthro-capitalist organizations (see Sparke, 2013), the articulation of this movement with the municipal government displays profound tension. Displaying the radical/neoliberal Janus face of urban agriculture, the conditions by which food justice movements arise can also dialectically prevent their successful scaling up and create the possibility for their co-option as sustainability fixes. Through the evidence presented in this chapter, I have tried to elucidate how this tension plays out in these two localized spaces. The next chapter will continue this direction as I more closely interrogate individual urban agriculture projects as moments in the radical/neoliberal dialectic.

Chapter 5: Metabolic Rifts, Theories of Change, and Urban Agriculture

“[A]long with growing food, we're growing culture, we're growing community because we're growing structure, we're growing ideology, we're growing a lot of things to make sure that our existence is no longer threatened because of us being marginalized in a system that's killing us.”

-Wayne Curtis of Freedom Freedom Growers, Detroit (quoted in Tippet, 2012)

A common point made by boosters of urban agriculture is that its benefits are multiple and varied. The simple act of planting a seed can allow gardeners to reconnect to nature, support themselves or their community economically, reduce their reliance on fossil fuel-dependent food supply chains, increase their physical activity, eat healthier, and form personal connections with their neighbors (see, for example, Hodgson et al., 2011). As discussed in Chapter 4 (pages 89-92), Nathan McClintock (2011) has interpreted these advantages as addressing the socionatural metabolic rifts that are foundational to capitalist agriculture and mode of production more broadly. The rifts are threefold: the ecological rift whereby the city is spatially separated from the country and nature is therefore discursively and ideologically separated from society; the social rift whereby labor and land are commodified, resulting in urban agriculture occurring both as a Polanyian (1944) counter-movement to the social dislocations of market society and as a support for inequality under capitalism by providing the subsistence required for social reproduction; and the individual rift whereby the laborer is dually alienated from the products of her labor and from nature.

As McClintock (2011: 21) claims, his conceptualization is useful as a pedagogical tool and as a framework for linking environmental degradation and sociological exploitation. Furthermore, he does point out that urban agriculture projects that focus too much on the ecological rift can be ignorant of the social implications of their practice (see also Crouch, 2012). However, the connection between the two aspects of McClintock's theory of urban agriculture used in this thesis (metabolic rifts and the radical/neoliberal Janus face, see pages 89-92 and 95-96) requires further refinement. If it is the case that a balanced focus on the three rifts is required for successful food justice praxis, how do urban agriculture practitioners negotiate the difficult balance between these foci in a context of neoliberal urbanism? To explore this question, in this chapter I will present several vignettes of urban agriculture operations in Vancouver and Detroit, paying attention to their relationship with the threefold metabolic rift and their selective enrollment in municipal sustainability fixes.⁵³ A summary of the results is displayed in Table 13 below. By drawing out the connections between the socionatural and political projects of urban agriculture, I hope to stress the importance of food justice as part of a broader movement for social justice.

Although the sample of organizations used in this chapter is small, it demonstrates several important points. First, that there exists a diversity of political and economic projects

⁵³ The qualitative data in this chapter was gathered through multiple sources. The primary source is formal semi-structured interviews with seven farmers, gardeners, and urban agriculture organization members in Vancouver and six in Detroit. Interviewees were chosen purposely to get perspectives from a wide range of participants – those who work in the field and those who do not – and to minimize the re-interviewing of more well-known practitioners who have been interviewed elsewhere. Additional information – including operation details, chronologies, and further interviews – was gathered through periodicals and the internet. Note that in transcribed interviews, brackets [] are used to indicate an edit I made. Therefore, a bracketed ellipsis [. . .] denotes text I have omitted for clarity and brevity while trying not to alter overall meaning, while an unbracketed ellipsis ... denotes a pause in the interviewee's speech.

Table 13. Urban agriculture vignettes in Vancouver and Detroit. Features at the top of cell resist metabolic rift, features at the bottom of cell contribute to rift.

UA Project	Connection to sustainability fix	Ecological rift	Social rift	Individual rift
<i>Vancouver</i>				
Sole Food Street Farms	Market for local, organic, 'just' greens and vegetables; City government support; land market that encourages speculation and temporary use	Local produce; nature in the city; organic growing	Benefits of employment to those with barriers; community cohesion; donation; nonprofit social enterprise; Community Food Security (CFS) model Supports commodification of labor?	Healing process for gardeners; wage plus products of labor (food) 'Vote with your fork' market solution for buyers
Shifting Growth	City government support; land market that encourages speculation and temporary use; creates more community gardens (food assets)	Local produce; nature in the city; guidelines for organic growing	Community cohesion; reclaiming of underutilized space; nonprofit Would like to resist commodification of land?	Allows local residents to connect to nature and products of their labor; convenient solution for getting a plot
Alterrus Systems, Inc.'s My Local Garden	Market for local, organic, 'just' greens and vegetables; City government support; existing support networks of (green) entrepreneurship and creativity	Main focus; reduction of CO ₂ from California greens; no pesticides, herbicides, or Genetically Engineered Organisms Reduction of inputs through technology; absence of soil	Benefits of employment to those with barriers; reclaiming of underutilized space; B Corp certification Would like to resist commodification of land? Supports commodification of labor. For-profit	'Vote with your fork' market solution for buyers
The Purple Thistle Centre Youth Urban Agriculture	Un/underused industrial land; some support from City	Local produce; nature in the city; bioremediation; native species; wetland conversion; organic permaculture growing; bioremediation	Marginalized youth; site for community activism; communal labor; reclaiming of underutilized space; nonprofit; anti-capitalist	Connection to the earth; healing process for gardeners; products of communal labor
<i>Detroit</i>				
Midtown Detroit, Inc. and the North Cass Community Garden	More connected to traditional economic development, but some articulation with sustainability	Local produce; nature in the city; guidelines for organic growing	Nonprofit Would like to support community cohesion	Allows local residents to connect to nature and products of their labor
Hantz Farms/Woodlands	Land deal supported by City government; appears to be key part of DFC framework	As of yet, little beyond recovering abandoned land for productive use No statement on growing techniques	Reclaiming of underutilized space; Creation of scarcity?; for-profit; supports commodification of labor	Some employment for locals Unclear connection to double alienation from land and labor
Lafayette Greens	Result partly of tax breaks to attract businesses back to downtown; indirectly part of City outreach; unofficial ambassador to suburbs and tourists	Local produce; nature in the city; productive use for abandoned land; organic growing	Community cohesion; donations; nonprofit	Allows local residents to connect to nature and products of their labor
D-Town Farm	Land leased from City for \$1; cooperation between DBCFSN and City Council	Local produce; nature in the city; organic growing; composting; native plants	Supports food system entrepreneurialism and CFS model; economic self-determination; food co-op; anti-capitalist	Connection to the earth; healing process for gardeners; products of communal labor

wrapped up in the environmental project of urban agriculture; second, that the selective focus on different metabolic rifts influences organizations' political goals, with the organizations seeking to address all three cultivating the most radical political aims and most heterodox economic relationships; and third – and most importantly – that while neoliberal urban governance both constrains and makes possible urban agriculture projects, this does not mean that all projects equally resist the injustices of the neoliberal capitalist economic system. By focusing on all three metabolic rifts, radical urban agriculture projects can unveil the paradoxical and troubling nature of neoliberal sustainability fixes.

Vancouver vignettes

Sole Food Street Farms

One of Vancouver's most visually prominent urban farms is Sole Food Street Farms' Northeast False Creek site, which stands out with its central location among the condominiums and sports stadiums just east of downtown. The site is also exceptional due to its size, which at two acres nearly doubled the total acreage of urban farms in the city when it was created in 2011 (Kimmitt, 2012; Schutzbank, 2012). Rows upon rows of transportable raised beds sit on a large asphalt parking lot with the skyline of the city in the background, forming an image often latched on to by photographers looking for a visual representation of the city's burgeoning urban agriculture movement. Yet behind this pleasant picture is an organization representing Vancouver's fraught relationship with the potential of urban agriculture.

Sole Food Street Farms was established in 2009 by Michael Ableman, an organic farmer with decades of experience in California and British Columbia, and Seann J. Dory, who before founding Sole Food worked at United We Can, a social enterprise in the Downtown Eastside

(DTES) that seeks to create green economy employment and entrepreneurship opportunities for disadvantaged residents of the neighborhood. Drawing on their combined experience, they decided to start Sole Food to provide jobs for residents of the DTES with barriers to employment. After starting their first farm at Hastings Street and Hawks Avenue, they have since expanded to three other locations, including the aforementioned False Creek site and a City-owned site near Pacific Central train station in the summer of 2013, now home to North America's largest urban orchard (McKnight, 2013).

Sole Food – like most urban agriculture projects – certainly targets all three metabolic rifts. In most situations, focus on the three rifts exists in dynamic relation, making it difficult (especially with a social constructionist view of nature) to separate them. However, there is a definite priority to Sole Food's mission:

Sole Food transforms vacant urban land into street farms that grow artisan quality fruits and vegetables, available at farmer's markets, local restaurants and retail outlets. Sole Food's mission is to empower individuals with limited resources by providing jobs, agricultural training and inclusion in a supportive community of farmers and food lovers. Individuals are given basic agriculture training and are employed at the farm based on their capability. (Sole Food Farms, n.d.)

Their primary target is the social rift, although not the commodification of land and labor per se, as workers are still paid minimum wage or higher, according to representatives, (T. McLoughlin, personal communication, June 10, 2013), although some claim that wages are lower for interns (Wallstam & Crompton, 2013). As Ableman says, "It was clear that the primary goal was to provide meaningful employment to people from the Downtown Eastside" (Sole Food Farms, 2013).

Second in relative importance is the ecological rift. The acronym SOLE originally was developed by United We Can to stand for 'Save Our Living Environment', and recently has

emerged as an acronym in the alternative food movement (AFM) to stand for ‘Sustainable Organic Local Ethical’. This influence also comes from Ableman’s background as a pioneering organic farmer:

[W]e see a farm not as a factory but as a living organism, and we work with it that way. We see our fields and orchards not as battlegrounds where farmers are pitted against a host of alien forces, but as part of a system that can be symbiotic and cooperative. If we can meld into the diverse natural life and traffic of the farm, we can satisfy the needs of the land as well as those of the marketplace. (Cooper, 2003)

Here Sole Food’s founder distinguishes his style of agriculture from the cooperative models that target the social rift’s commodification, instead portraying his fellow alternative food movement farmers as “artisans” (Cooper, 2003), skilled craftspeople producing food for distinguishing customers. Dory places emphasis upon the ecological in a similar manner with his green economy social enterprise model, which has resulted in Sole Food targeting the demand for local, organic produce among Vancouverites who can afford to pay premium prices at farmers’ markets, restaurants, and upscale retail, the primary destinations of Sole Food’s harvest.⁵⁴ Here, the focus on the ecological could be seen as pragmatic: concerns over global climate change, health, and generating local employment combined with a determination to work within the existing socio-economic system require using marginal or precarious labor (however needed or charitable) to sell high-value local produce.

Such an approach has been characterized as belonging to a community food security (CFS, see Morales, 2011) paradigm by Dory, who expresses discontent with the charity-based food system so prevalent in the DTES:

⁵⁴ They also donate about ten percent of their produce and are working towards expanding the amount of their production that goes to DTES residents (Kimmitt, 2012).

I think the food bank and churches and those people are doing a wonderful job feeding hundreds of thousands of people in the Downtown Eastside. I have a... little bit of an issue if that's the only solution. [. . .] I think in the long term, we need to provide people the means to feed themselves or have access in some sort of more meaningful way than just standing in line and waiting for a handout. And I think this can be part of that solution. Our belief here is that if you create an employment opportunity, you create access. We're not trying to feed the neighborhood, but through what we're doing we're trying to educate and employ the neighborhood. So if you put the means of production in the neighborhood that is considered, you know, by definition poor, then you've empowered at least some of the people that are in it to have access to that healthy food and to employment opportunities. (Fire and Light Media, 2013)

While Dory is right to question the long term impacts of the charitable food system, it is also worth questioning if this social enterprise model fits within the framework of CFS.

Sole Food is heavily imbricated in a web of for-profit and nonprofit actors with interests in the DTES. As a young business, it has received grants from various organizations, though its ultimate goal is self-sufficiency. Between 2009 and 2012, Sole Food raised \$700,000 in grant money from City Council, City of Vancouver Greenest Neighbourhood Grants, Vancity Credit Union, Nature's Path Organic Foods, and the Radcliffe Foundation,⁵⁵ among others. As one of the 'poster child' urban farms in the city, Sole Food has been a central part of municipal efforts to promote urban agriculture. Ableman says of their organization:

This project is world-class not only in scale, but also in its innovative production methods married to its social goals [. . .] This is a significant step towards making Vancouver a showpiece for this movement [. . .] We hope to demonstrate that it is possible to generate production quantities of fresh food in the city and for the city,

⁵⁵ The Radcliffe Foundation is one of the major philanthropic organizations in the Lower Mainland. It was established in 1997 by Frank Giustra, a billionaire who made his fortune in the international mining industry. The Radcliffe Foundation is widely acknowledged to be a shell corporation used by Giustra in his mining deals (see Allan, 2012) due to its tax-exempt status as a charity. Numerous journalists (e.g. Hoffman, 2008; Becker & Van Natta, 2008) have also accused Giustra of unethical business dealings with former President William J. Clinton through their cooperative philanthropic activities, where Giustra's charitable donations are traded for Clinton's powerful contacts in developing countries that can help Giustra start mining operations. Giustra's funding of Sole Food is part of his recent switch in investing from mining to sustainable agriculture. As a businessman known for his timely shifts in focus, his recent founding of *Modern Farmer* magazine, an olive oil company, and an organic chocolate producer represent an interesting new direction (Gierasimczuk, 2013).

while growing jobs and providing an economic model that others can follow. (Vancity, 2012)

Their social enterprise model fits well with Vision Vancouver's goals for growing the local green economy, and they are part of a larger network of social enterprises established in the DTES. United We Can's original project, the Recycling Center, employs local residents to collect returnable containers for recycling and has been an important part of the DTES economy since 1995. Other more recent social enterprises are often organized around food, and in many cases have been critiqued as being gentrification with a socially just face. Entrepreneur Mark Brand has been a major target of this criticism. He owns multiple restaurants in the DTES, from upscale Boneta to the reimagined neighborhood institution of Save On Meats, through which Brand conducts his community outreach by employing local residents and providing subsidized breakfast sandwiches. His program to allow customers to purchase tokens for a free breakfast sandwich – intended to be given to panhandlers in lieu of cash – has received heavy criticism as a paternalistic program designed more to drum up business and public relations exposure for Save On Meats than a genuine solution to food insecurity (Driftmier, 2012b). Brand has also served as an ally to other Vancouver food businesses, offering refrigerator space to Sole Food and office space to other urban farmers (Kimmitt, 2012).

Here the tensions between the social enterprise and CFS models for urban agriculture become palpable. Social enterprise businesses still rely on making a profit to survive: United We Can's slogan is in fact 'A Street Charity That Means Business.' In a neoliberal economic climate, the organizations seeking to heal the Polanyian social dislocation of market society are required to justify their existence economically. Like nonprofits, social enterprises rely heavily on grant money to get started, but they see making a profit as the key to long term, independent

success. Although they usually seek to address the social metabolic rift by allowing those with barriers to employment to earn a living, the fundamental commodification of land and labor that generates this rift is not addressed. As was pointed out earlier, precarious employment that ultimately serves wealthy consumers is required to allow such businesses to survive. On the other hand, having social enterprise elements of otherwise traditional businesses – i.e. the role Save On Meats plays within Brand’s larger restaurant business – can serve as a way of masking the socially unjust process of gentrification affecting the DTES (see Driftmier, 2012b). Such a focus on individual enterprise also distracts attention from the more fundamental social issues that perpetrate poverty in the neighborhood (see Pederson & Swanson, 2010): the lack of well-maintained social housing, a welfare allowance that makes it difficult to subsist healthily, and on-going racism and colonialism – especially in the police force (see Pratt, 2005). All of these difficulties are exasperated under conditions of gentrification, with rent prices facing considerable upward pressure due to new condominium and retail development in the area (Carnegie Community Action Project, 2013). By proposing that private enterprise – not government involvement, regulation, or drastic social change – can solve the problems facing the DTES, Sole Food and like-minded organizations will ultimately increase the supply of local food and provide a measure of self-sufficiency to employees, but their long term ability to promote CFS and social justice is less apparent. As a central part of governmental and nongovernmental efforts to promote urban agriculture in Vancouver and to make the city a vanguard for the movement, such shortcomings must be addressed.

Shifting Growth

Like all other urban farms in Vancouver, Sole Food's business plan requires growing on borrowed land. As detailed by Marc Schutzbank (2012), all major urban farms in Vancouver exist only because they have free or heavily subsidized access to land, whether through donation, low-cost leasing, or in some cases, guerilla gardening. Figure D1 illustrates this fact using my food source dataset, showing that most urban agriculture occurs not on marginal land as in Detroit, but rather on relatively high value land. This could be due to the fact that those who own high-value land are more likely to have the means to donate it. However, Figure D2 illustrates that most urban agriculture occurs in neighborhoods with below-average incomes. This seemingly ambiguous relationship between urban agriculture and neighborhood wealth is probably due to the multitude of ways in which farmers and gardeners gain access to their land. In this section, I will delve into one contentious way they do so.

Sole Food belongs to an interesting subgroup of Vancouver urban agriculture that receives its land by providing landowners with a reduction in property tax that they gain through the British Columbia (BC) Assessment process. Land owned by a business is classified as Class 6, while nonprofit uses are Class 8 and have a much lower tax rate. The BC Assessment process is complex, context-specific, and involves multiple actors at both provincial and municipal levels, so it is difficult to determine exactly how much landowners save through reclassification. However, due to the high value of land, the savings can be significant.

For example, the 2.4 acre Northeast False Creek plot owned by Concord Pacific and partially farmed by Sole Food has a current assessed value of \$14,588,417 (City of Vancouver, 2013f). Concord has pledged that their savings will go to a "foundation for future green projects

and initiatives,” although no details have emerged since the announcement (Vancity, 2012). The land they farm at Hastings and Hawks is owned by the Sahota family, operators of at least ten single room occupancy (SRO) hotels in the DTES, including the Astoria Hotel next door to the farm. SRO hotels are multi-tenant buildings that have individual bedrooms and shared common spaces. They are common in the DTES as the last remaining affordable housing stock in the gentrifying neighborhood, where rising rents are pushing welfare and low-income residents off of the increasingly valuable land (see Carnegie Community Action Project, 2013). The Sahota family is one of the city’s most notorious slumlords, putting the bare minimum into maintaining their buildings and even hiring people to harass tenants who complain (see Condon, 2008; Klassen, 2009). Other developers such as Onni have also benefited from the reclassification scheme, establishing a privately-owned community garden on one of their plots until the time was right to start construction on their condominium development and the garden was removed (see Quastel, 2009).

In a city with such valuable real estate, creating tax incentives to support temporary land uses like urban agriculture increases opportunities for producing food in the city. With the goal of ramping up growing opportunities as a central focus, the registered Vancouver charity Shifting Growth offers “turnkey project management” for landowners of vacant lots (Shifting Growth, 2013). They provide the materials, outreach, and day-to-day maintenance of temporary community gardens on the land, funded mostly through the change in assessment to recreational. This way the landowner saves on taxes and a portion of the savings go to establishing a garden. The garden is also designed with mobile beds that can be relocated at short notice when the owner decides to make use of the land, either through sale,

development, or remediation. A growing number of gardens in Vancouver are using raised beds to grow on brownfields, especially the sites of former gas stations. Today the city has 84 service stations, 244 fewer than in 1970, largely driven out of business due to a failure to compete with other uses as land values rose precipitously in the inner city (Godsall, 2012). With remediation costs prohibitively expensive for many owners, most lots remain empty – except for those converted to gardening. As David Godsall points out, “Paradoxically, it’s the high cost of land in downtown Vancouver that turns marginally profitable gas stations into nonprofit community gardens, at least temporarily” (2012).

Reclassification of vacant lots for urban agriculture use has been embroiled in significant debate over the past several years. Following Quastel’s (2009) academic take on the process as ecological gentrification, several periodical articles have also tackled the issue, with many articles providing information on the reclassification process and viewing it either as an inventive way to promote urban agriculture (e.g. Williams, 2010) or as “tax evasion” by developers (e.g. Vulliamy, 2012). Chris Reid, co-founder and Executive Director of Shifting Growth, disputed the latter accounts both factually and ideologically:

I know the system better than anybody else, to be honest, about reclassifying properties for community gardens [. . . T]here’s a lot of properties out there that have a reduction of property taxes because of their construction, and that’s a big list. [. . .] To pick on this specific use, and to frame it in the usually negative light [. . .] of big condo developers, tax breaks, scheming, seeking all the money, green-washing, is a big one [. . .] From my understanding, part of it is misinformation, ‘cause everything I’ve ever read isn’t really right. I read all the property tax literature, it’s quite complicated – I’ll sit her for an hour explaining the entire system to you, because it’s a provincial and municipal thing, and it is quite a bit more complex than you think maybe, to sum up in one paragraph. When you get to accusing specific organizations, specifically the corporations and the people who let this land use happen... I have clients who don’t even want these tax breaks. There’s a reason why Concord is giving away the money. It’s not about the money, it’s about... [F]ocusing on that element of why these clients are doing this is, in my opinion, short-sighted. The money makes it happen; it’s a huge cost to do these projects, at all

levels. So, there has to be money to do the projects. So, let's just be realistic here, and there's a lot of benefits to actually getting that project in place. [. . .] Again, I have landowners who say, 'We do not want the property taxes' [. . .] that's why branding it somewhat personally, like, it's not about the facts, it's about their opinion about a specific organization, that's where I have a bit of an issue.

Observers critical of Concord's motivations or the justice of giving slumlords tax incentives to continue to speculate on land are right to point out the injustices perpetrated by the reclassification process. However, urban agriculture practitioners like Shifting Growth's Reid and Sole Food's Dory are highly pragmatic when it comes to discussing land availability. They have to be in a city with such high land values, where obtaining – and keeping – a plot to grow food can be extremely difficult. Even organizations that borrow lawn space from willing homeowners to grow their crops face challenges, as in a recent case in which the organization Yummy Yards was forced into an early harvest after a neighbor complained about the height of their Jerusalem artichokes (Hager & Lee, 2013).

The situation presented here is common, in which activists and business owners have to make decisions about the short term benefits of establishing visible and productive sites of urban agriculture, however temporary, versus the long term goals of making urban spaces more amenable to the production and consumption of food in a just and sustainable manner. Beyond differences in the theories of social change in these two approaches lies the ultimately dialectical nature of urban agriculture itself. The radical/neoliberal tendencies that both give rise to and ultimately limit urban agriculture are plain to see in these Vancouver organizations. Ultimately, it is important to view the urban production of food as a complicated process and one which cannot be a panacea for food injustice. As McClintock notes:

Food justice requires increased entitlements. It requires jobs and living wages, not just a garden or grocery store in every neighbourhood. In other words, we are simply asking

too much of urban agriculture – to buffer food security, to create jobs, and to provide ecosystems services and green space. Rather than an end unto itself, we should instead view urban agriculture as simply one of many means to an end, one of many tools working in concert towards a unified vision of food justice, and of just sustainability, more broadly. Ultimately, new forms of value must be ascribed to urban agriculture at the policy level in order for it to join other urban land use priorities such as housing, commercial areas, and roads and other infrastructure. Only if the production of fresh and healthy food is viewed as a public good – and access to it a right – rather than simply a commodity made available via the logic of the market, will cities set aside spaces for agriculture in dense urban areas. In short, *use value* must be privileged over *exchange value* if urban agriculture is to scale up in any significant way. (emphasis original, McClintock, 2013: 20)

As the next two examples from Vancouver will show, selective focus on different metabolic rifts is closely related to how effective urban agriculture projects are in contesting market logic by promoting use over exchange value.

Alterrus Systems Inc.’s My Local Garden

Another Vancouver company taking a socially aware for-profit approach to urban agriculture, Alterrus Systems Inc., is notable for establishing the first rooftop vertical garden in North America (Salo, 2013). Their capital-intensive greenhouse uses patented technology to grow greens hydroponically on the roof of a downtown parking garage, which are sold under the My Local Garden brand at up-scale grocery stores and restaurants in the city. Donovan Woollard is Alterrus’ strategic adviser and Entrepreneur in Residence at Institute B, a startup business hub located in Gastown established by a group of former LuLuLemon Athletica Inc.⁵⁶ employees that focuses on social impact companies. With 20 years of experience in the nonprofit sector and more recent exposure as an environmental entrepreneur working on carbon offsetting, Woollard is responsible for managing the startup operations of the company.

⁵⁶ LuLuLemon is a successful Vancouver-based yoga and athletic wear company known for its environmental commitments and the self-help philosophy of its Ayn Rand-inspired CEO, Chip Wilson (see O’Connor, 2011).

Drawing on Woollard's background, Alterrus' primary target is the ecological rift. During a tour of the new facility by other urban agriculturalists, Woollard and company worried that their high technology approach would draw the ire of those who used different techniques like permaculture and small plot intensive (SPIN) gardening. However, he says:

[T]he key message that we make to everybody, including to, you know, the other urban farmers on that tour [. . .] was that we're not competing with them. We're competing with pack and sell in California. My primary motivation as an environmentalist for wanting to do this is that while, you know, the answer to everything is not fundamentally local, local, local, when it comes to something like salad, it's crazy, because it's highly perishable air and water. And so, you know, you can't fit much of it into a container, relative to tuna cans, you have to, like, chill that container and you have to move that container as fast as you possibly can. The carbon footprint of transportation from California alone – just from transportation – is twice our total lifecycle, you know. Plus the fact that, you know, our nutrients and [other inputs] are much, much lower [. . .] People came in with some reservations and some concerns, and left with a sense that, you know, we were complementary and a part of it, and people liking what we were doing, which is great.

The approach employed by Alterrus is very much one of ecological modernization, with detailed considerations of environmental impact and economic viability forming the basis for action. The social rift is also accounted for in Alterrus' project in a similar manner to Sole Food: they are a B Corporation, which is a certification granted to sustainable businesses by a nonprofit agency, and they make efforts to hire those with barriers to employment. The individual rift here is largely absent, relying mostly on a 'vote with your fork' market solution for buyers that does little to resist alienation.⁵⁷

⁵⁷ Though the project does bring up an interesting tension within McClintock's (2011) framework regarding the social construction of nature. Many urban agriculture practitioners report feeling closer to nature and gain some form of spiritual connection or relaxation from gardening (Hodgson et al., 2011). McClintock's understanding of nature comes primarily from a Marxist humanist point of view, whereby humans are seen as being dialectically within nature and yet outside of it due to the transformative power of labor. However, with an understanding that ideas of what counts as natural, i.e. a blooming garden but not a vacant lot, are socially constructed and often based on a particular Western ideology of nature (see Smith, 1980), how should this individual rift be properly understood? Is it possible for urban agriculture practitioners to gain spiritual or physical benefits from spending

Again, the focus on urban agriculture as part of a green economy sustainability fix by Vision Vancouver has led to Alterrus receiving generous support by the municipal government. Despite the management for the project being located in Vancouver, it was never a given that the initial installation would be located in the city. Woollard says:

Certainly the City's, you know, the leadership at the political level of the City is absolutely conducive to this. [A]s we were talking with, you know, private and public sector people in Surrey, Vancouver all these kinds of things, the reception we got from the City of Vancouver was you know, much warmer possibly than in other places. Part of that being the specific mandate of the governing party on Council, as well as just, you know, a lot of the key staff. And you know there's a strong food policy group that – but it was really the City Manager's office.

The City Manager's office is responsible for transferring Council mandates to departmental action within the city, and is responsible for leading implementation of the Greenest City 2020 Action Plan.

Woollard is quite frank about his personal relationship to Alterrus and the theory of change it relies on. After 20 years in the nonprofit sector, he felt the need to become involved in projects that could more clearly measure their success.

For me personally, I find it [entrepreneurship] much easier, maybe it's just sort of like, my emotional frailty. I like the wins of building something even if only five percent of the population gives a shit about it, just working on building that five percent, you know, good little organization building. If you're trying to get a tipping point, like, 51% to vote one way or the other, or approve some policy, lobbying for change, all of those things are just much, much, more cumbersome.

For him, the social enterprise model is not the only or best way to reduce the environmental impact of the food system. Unlike the examples from Detroit where small-scale, grassroots

time in a heavily mechanized hydroponic greenhouse? Does the idea of fingers-in-the-dirt activism as the best solution to the dual alienation of capitalism (from the products of one's labor and from the land through the nature/society dualism) rely on a romanticized, even anti-technology notion of how to best unite the head and the hand? These questions could be productive for future research.

urban agriculture is dismissed as misguided (e.g. John Hantz in Whitford, 2009; or Jesse Jackson in Oosting, 2010), Woollard sees Alterrus as one solution among many, albeit a technologically advanced one that may end up being most effective in the long run:

[I]n addition to [our project . . .] is getting more food yield from the Agricultural Land Reserve, in addition to getting, you know, community gardens, and school yards and all that kinda stuff, in addition to that we still need to kinda fundamentally change the way that we produce food. [. . . S]o I definitely would [take an] ‘and strategy’: this and that and that. [. . . W]here you [. . .] actually start, you know, your local revolution is when, you know, local is not moving from like eight to ten percent, but is actually moving to 25-30% or 50% and I think that all of these things are going to be used, in order to do that.

The case of Alterrus provides further evidence of the green economy sustainability fix pursued by the City of Vancouver through urban agriculture. By focusing primarily on the ecological metabolic rift while never fully addressing the social rifts of commodification and the individual rifts of alienation, such projects have limited transformative power as political projects.

The Purple Thistle Centre youth urban agriculture

The Purple Thistle Centre is a youth-run collective located in an industrial park on the East side of Vancouver. Formed to provide an alternative to traditional schooling, the Centre specializes in facilitating creative projects like film-making, animation, photography, etc. Since its inception in 2001, one of the many projects run out of the Centre is permaculture urban gardening. Since 2010, the collective has created “two intensively managed gardens on marginal roadside land, one baby food forest and wetland remediation project on industrial rail-side land, three beehives, and a worm bin” (Huggins, 2012).

The Purple Thistle’s permaculture approach and relationship to the land differentiates them significantly from the other projects mentioned in this section. Permaculture is a system of thought that practices ecological design to build structures and agricultural systems that

mimic natural ecosystems (see Mollison, 1988). Whereas conventional farms and even many common organic gardens cultivate a single crop (monoculture), permaculture gardens cultivate many species, often choosing native plants that naturally grow together in the process of ecological succession (polyculture). Additionally, permaculture uses pest and weed management that seeks to minimize inputs and maximize useful synergy between species; therefore, plants commonly considered 'weeds' are harvested and used as food or for composting or fertilizer, certain naturally-occurring insects are encouraged to minimize crop damage, and the recycling of system nutrients through composting is key. Such ecological design takes a very different approach to mending the ecological rift than, say, Alterrus' My Local Garden, which focuses on minimizing inputs and growing space through engineering and technology. In this way, Alterrus takes what could be characterized as a forward looking, or technological utopian approach, while permaculture practitioners like Purple Thistle are supporters of learning from ancient sustainable agricultural techniques such as those practiced by indigenous peoples and have a more cautious, 'appropriate' (see Carr, 1985) relationship to technology.

The land surrounding the Centre that is home to the permaculture projects is part of the Eastern False Creek Flats, which before being filled by Canadian National Pacific Railway in the early 20th century was a tidal marsh. The land that they are growing on is marginal, located along grassy medians and around a cul-de-sac; their repurposing of the land is inspired by guerilla gardening and they have a tenuous but relatively stable relationship with the landowners, who include local businesses, the City of Vancouver, and the Canadian National Railway. Perhaps due to their illegal/extralegal use of the land or simply its location, they have

also experienced multiple acts of theft and vandalism from their projects. With the historical and present day land use being primarily industrial, much of the land here is contaminated. Although the Centre has not had all the soil around their sites tested, their wetlands restoration project area likely contains polycyclic aromatic hydrocarbons (PAHs) in the soil due to its proximity to the train yard; railroad ties treated with creosote often leach PAHs (Brooks, 2004). Also differentiating the collective's targeting of the ecological rift from other the projects in this section is the fact that they practice bioremediation as a central part of their projects. Using native plants like white clover (*Trifolium repens*), tall fescue (*Festuca arundinacea*), and switch grass (*Panicum virgatum*), the Purple Thistle gardeners hope to break down or concentrate and dispose of contaminants without the use of conventional environmental remediation techniques (Radicbeets, 2012).

As an anarchist, collectively managed, horizontally/non-hierarchically organized, decolonizing, volunteer, and LGBTQ-friendly organization utilizing a consensus decision-making model, the Centre obviously seeks to address the social metabolic rift head-on. The Centre has been mostly reliant upon grant money to keep its space and equipment free, and addresses the obvious tension between its anarchist, anti-capitalist philosophy and government sponsorship quite directly on its website:

Yeah, we take money from shady characters. It's a bigger philosophical issue: pragmatism within the Almighty Dollar System versus lifestyle politics and ideological purity. Capitalism makes everything a personal choice about what you'd rather sacrifice in any given situation. In this case, we're more concerned with having an alternative-to-school than we are about not depending on the government for cash. (Purple Thistle Centre, n.d.)

Unlike the other projects in this section, the volunteer model and guerilla-style repurposing of formerly industrial land mean that the collective is directly targeting the commodification of

land and labor. Obviously, this means that the day-to-day operation of the gardens is difficult; however, this is a point the participants are not willing to compromise on, and in many ways reflects the radical nature of their political project. By incorporating native plants, bioremediation, and an implicit and explicit critique of accumulation by dispossession into their urban agriculture, the Purple Thistle gardeners are also making their decolonizing practice tangible. It is an important part of the project, being announced directly on their signage: “Purple Thistle Collective Food Forest: A community bioremediation, reclamation, and food sovereignty project on unceded Coast Salish Territory.” In this way, the guerilla gardeners of the Thistle seek to build radical alliances that include racialized and colonized subjectivities, which as McClintock (2011) points out is crucial to achieving lasting change.⁵⁸

However, like many nonprofits working in urban agriculture, a significant tension exists between pursuing the goals of activism and acquiring the means to do so; although the support is much smaller, the Purple Thistle guerilla gardeners have received modest grants from the City of Vancouver as part of its Generation Green and Greenest City Fund grants (City of Vancouver, 2013g). The inclusion of the Thistle complicates the picture of the sustainability fix presented so far, yet the larger picture remains the same: while the Purple Thistle fits into City plans to increase food assets and build community organization capacity, their ultimate goals of radically changing siconatural relations finds no part in the ‘bright green’ economic development strategy supported by Vision Vancouver (see page 110).

⁵⁸ The opportunity for such alliances is significant in Vancouver, as Figures D3 and D4 show most urban gardens are located in racially and ethnically diverse census tracts. Despite this fact, many alternative food groups and institutions remain predominately white spaces. However, in interviews with farmers I did encounter multiple instances of intercultural and intergenerational learning and exchange. An example cited by Marc Schutzbank (2012: 114-115) is pertinent: a white urban farmer was shown how to properly plant *gai-lan* by a Chinese elder living in the neighborhood, who eventually became a regular participant and recipient in the farmer’s work. The Vancouver Urban Farmers Network is beginning to address these issues through community dialogue.

Detroit vignettes

Midtown Detroit, Inc. and the North Cass Community Garden

After a great fire nearly destroyed the city of Detroit in 1805, Michigan Territory's first Chief Justice Augustus Woodward, along with Governor William Hull, laid out a new city plan with a 'wheel and spoke' pattern. The central north-south artery would eventually be named Woodward Avenue. Today, the street starts at the waterfront Chene Park downtown and runs all the way to the suburb of Pontiac, roughly 26 miles, passing through severely depressed neighborhoods of Detroit before making a drastic change upon entering the wealthy suburbs (Galster, 2012: 61-63). Stretching approximately a mile along Woodward and Cass Avenues north of The Fischer Freeway (Interstate 75) near downtown is the area known as Midtown. This neighborhood is known for its vibrant arts scene, including the world-class collection of the Detroit Institute of Arts and the music scene that produced the White Stripes. It also is home to other important institutions like Wayne State University, the Charles H. Wright Museum of African American History, and the Detroit Medical Center.

Although the economic initiatives championing 'place-based philanthropy' and the creative class as outlined in Chapter 4: Urban Agriculture and the Local Sustainability Fix have had little impact on the average Detroit resident, a significant shift is occurring in the local economy, with a special focus on downtown and Midtown. In addition to the establishment of new small businesses and technology startups, larger firms like Dan Gilbert's Quicken Loans and information technology firm Compuware (see Lafayette Greens section) have relocated

downtown and are fostering a rapidly growing knowledge economy.⁵⁹ Although the relative impact of this change is still low, it has had a notable effect on the demographics and cultural makeup of Detroit's downtown and Midtown neighborhoods. Due to its wealth of cultural, medical, and educational institutions, the neighborhood of Midtown is an attractive option for the wave of young professionals that have decided to make Detroit their home in recent years. In fact, a 2009 study found that new homebuyers in the area boasted average household incomes of \$113,788, well over the city-wide median of \$26,098 (Social Compact, 2010).

This influx of wealth into the Midtown area has had an appreciable effect on the streetscape, demographics, and culture of the neighborhood, leading some to identify the neighborhood change as gentrification (see Williams, 2013). "Midtown is Detroit's neighborhood with fixies and really small dogs, so it's only natural that, like Williamsburg, Silver Lake, San Francisco's Mission district, and their ilk, [that] despite Midtown's relative affluence, the poor are just a few blocks away" (Pearl, 2013). Although the pressures in rents occurring in Midtown and other Detroit neighborhoods like Corktown and Woodbridge are not quite as severe as in other gentrifying neighborhoods like those identified above – or many neighborhoods of Vancouver, for that matter – the cultural aspect of neighborhood change still suggests a gentrification process is occurring. The 2013 opening of a new Whole Foods in the area is but one sign of this change. Deborah Cowen (2006: 22) has identified a similar process in Toronto's 'hipster urbanism' or 'hipsturbanism':

⁵⁹ Not to mention a changing relationship between public and private space in the downtown core: Dan Gilbert is undertaking a project he calls 'Opportunity Detroit', through which he is seeking to redesign the downtown core to be retail, pedestrian, and business-friendly. His philanthropic mission to booster downtown goes hand-in-hand with the investments of his real estate company, Rock Ventures, which has spent \$1 billion acquiring 3 million square feet of office, retail, and residential space, much of it in formerly empty skyscrapers (see Segal, 2013).

Once the ‘storm troopers’ of gentrification, who were readily displaced the moment people with financial capital (as opposed to hipsters’ ‘symbolic’ and ‘social’ capital) bought up the cool spaces, today’s hipsters are actively working to institutionalize themselves in the city. They have recently found allies in government and business who see possibilities of accumulation by good design. [. . .] Hipsturbanism elects young white professionals to ‘reclaim’ the down-town in denial of their own [colonial] occupation. It ushers in a future where difference has firm class limits.

The institutional arm of this economic redevelopment in Midtown belongs in part to Midtown Detroit Inc. (MD), a nonprofit planning and development organization funded primarily by the corporate philanthropic organizations mentioned in Chapter 4: the Kresge, Hudson Webber, Skillman, and Ford Foundations, among others. Annmarie Borucki, their Special Projects and Community Garden Manager, says that MD’s mission is to “curate development in the neighborhood by partnering with the right kind of developers to create mixed-use developments that really service the neighborhood.” With this goal in mind, MD has created two community gardens in the neighborhood: the North Cass Community Garden and the Art Center Community Garden. In this section I will discuss the North Cass Community Garden (NCCG), which stands out among Detroit gardens due to its significant funding, its allotment structure, and its presence in a gentrifying neighborhood.

The NCCG was formed in 2009 by combining three vacant lots at the corner of Willis Street and 2nd Avenue. Two of the lots were owned by the Midtown Development Corporation, the development nonprofit that provides assistance – tax credits, renovation consulting, financing assistance, etc. – for homeowners, homebuyers, and real estate developers in Midtown. The final lot is owned by the city and has been permitted to allow gardening in cooperation with MD. Borucki is clear about MD’s motivations for their community garden projects:

For us, the property was heavily blighted, it was an area where a lot of homeless people had camped out, we had a strong resident neighborhood around there from low-income to middle- to high-income residents, and since we owned the property we were trying to figure out the best use for it [. . .] So for us, it wasn't necessarily about gardening, per se, it really was about creating an amenity, to: one, clean up the area; two, to maintain residents in the neighborhood and provide a service to have them want to live in the neighborhood, and at the same time build community. So that's kinda how we got involved in the first garden. And so for us it's really [more] about the community/social aspect really, than the gardening.

As an organization with the mission to strengthen homeownership in Midtown, MD's goals are met by a community garden that serves as a temporary land while strengthening homeowners' bonds to the neighborhood. However, what reconfiguration of metabolic socio-natural relationships is targeted in this process? Borucki says that the ecological and individual benefits that accrue to the gardeners are welcome, but are not the primary goal of the NCCG. This fits with the location of the garden; unlike most Detroit urban agriculture projects, the NCCG is located in a neighborhood with above-city-average income, home value, and employment rate (see Figures E1, E2, and E3). Additionally, the social benefits of the garden to the neighborhood are limited: due to their focus on targeting homeowners, the garden is set up with an allotment system. This means that although there is social interaction in the garden, the social rifts usually targeted through communal labor and ownership are not a focus at the NCCG:

The problem is, with our garden, it is an allotment-style garden and we do keep it locked. Because the first year we tried to keep it open, and there are a lot of gardens in the city where they just let whoever come in and pick whatever they want, whereas our residents, when we first started designing the garden, everyone knew that they wanted their own space, be able to grow whatever they wanted. So we basically rent out space to the residents of the neighborhood. [. . .] So we knew we were going to be different. And then with the money that we raised to build the garden, it was [seen] as being an elitist garden. Because at the same time – even though doing the right thing for that space, [. . .] design is also very important to us. We have to lead by example in this neighborhood, because if you don't, then you get a lot of these developers who come in and build developments that are not appropriate for an urban environment, they might be more of a suburban kind of feeling. And you try and encourage people more to

embrace the historic architecture here, good quality, you know, quality developments. [. . .] So we get a lot of crap, from a number of people.

Here the ideal of creating an urban commons as present in some community gardens is dropped in favor of creating a space where neighbors can interact while maintaining their own garden plot. Although this style of gardening was requested by the residents, it is worth questioning the role the NCCG plays in the cultural displacement (see Elliott, 2012) occurring in Midtown. One event in particular is worth touching on to explore this issue.

The East Michigan Environmental Action Council (EMEAC) is a nonprofit environmental and food justice organization that has been active in southeast Michigan for over 50 years. Currently, their activism focuses largely on providing a critical counter discourse the recent boosterism associated with Detroit by pointing out the history of environmental racism and social injustice in the city and presenting alternatives to the neoliberal redevelopment favored by the city's elites. In this way, EMEAC members – most of who identify as African American or black – have played an important part in recent organizing around grassroots urban agriculture in the city. In the summer of 2011, EMEAC felt the pressures of gentrification directly, as they were priced out of their headquarters building in the Medical Center area of Midtown (Williams, 2013: 28). They have since relocated to the Cass Corridor Commons, located in the First Unitarian-Universalist Church of Detroit. In July 2012, I attended a conference hosted by the James and Grace Lee Boggs Center to Nurture Community Leadership (Boggs Center, see page 124) called 'Reimagining Detroit 2012'. Several events were held at the Cass Corridor Commons, including a panel on gentrification in Detroit led by EMEAC's youth program, the Young Educators Alliance (YEA); the evidence in this section comes in part from that experience.

At the panel, YEA members provided an overview of the concept of gentrification, current and historical examples of the process in Detroit, its connection to urban renewal, and shared a story about their experiences at the NCCG that is of particular interest here. One day during the summer of 2012, a group of YEA participants were walking around Midtown and wanted to take a tour of the NCCG. When they approached the garden and found that the gate was locked, they were seen by a white gardener who prevented them from entering. He brought up the fact that there had recently been thefts from the garden in a way that made the YEA members feel racially discriminated against. This encounter was a meaningful part of YEA members' experiences with gentrification and they specifically identified feeling out of place in their own city – a definite example of cultural displacement.

When asked about MD's involvement in the gentrification of Midtown, Borucki responded:

I think it's just something that we try not to really address because, in our eyes, I mean, even when you are trying to develop an area, I mean, you know, it's a good thing when property values go up for people. At the same time, I mean, when you still look at the true data for the neighborhood, at who's living here, and then you accuse us of gentrification, it is still over 80% African American here, and low-income people. And that's in the most recent census data. Um, so, we're always aware of trying to have balance in what we do. And we know that there are certain parts of the neighborhood that are not ready for development whatsoever, and there's also a lot of slum lords in the neighborhood. And so what we're trying to do is to create development that really provides services to the people that live here, and at the same time support a lot of young people who want to start their own, you know, businesses, and we provide a lot of subsidies, to support existing businesses in the neighborhood, if you want to accuse us of gentrification, fine. You know, but I mean I don't see anyone else doing what we're doing to really try to keep the neighborhood clean, if that's gentrification, then I mean, come on, every person has the right to live in a clean neighborhood, a clean and safe neighborhood.

She also addressed the incident at the garden specifically, seeing it as an isolated incident caused by a mean-spirited individual:

The one that I know of, there were a bunch of young activist kids who didn't live in the neighborhood but they hung out here, had a couple of bad experiences. You know one was at our garden, where one of our gardeners didn't want to allow them to come and tour through the garden and accused them of being thieves, and it's not reflective at all of what our opinion is about allowing people to come in, except maybe that this person is not a nice person, it's just a bad experience. And um, but at the same time, I feel like it's just so easy for people to blame, blame, blame, instead of looking off towards their own actions and how they might be perceived by people.

However, the group of YEA members did not see this as an isolated experience. By connecting the NCCG to historical processes by which the black majority has been politically and economically oppressed in the city, they understand the incident at the garden as part of institutional racism. This identification has led them to broaden their definition of gentrification beyond increasing rents and the associated physical displacement:

But [what] I try to keep in front of YEA, in the context of Detroit, is gentrification being not merely a thing about demographics but also really of power and the attempt to disrupt Detroit's identity as a place of where there is a concentration of Black political and community power. (YEA supervisor quoted in Williams, 2013: 37)

In the case of the NCCG, the radical/neoliberal Janus face of urban agriculture is obviously at play: vacant land in an economically depressed city suffering from "demarcated devaluation" (see McClintock, 2011: Chapter 2), economic conditions that prevent outright development but encourage temporary land uses, nonprofits with the modest means to make urban agriculture projects happen, and urban residents ready and willing to grow some of their own food in a reconfiguration of siconatural metabolisms. However, as this chapter argues, the specific rifts targeted by the NCCG are not enough to tap into the radical potential of urban agriculture: by setting up an allotment garden that targets homeowners, including residents identified as gentrifiers by the YEA, it plays into the process of cultural displacement occurring in Midtown.

Hantz Farms/Woodlands

Although this project is discussed in Chapter 4 (pages 134-139), it is worth briefly explaining how John Hantz's project fits into the frame of analysis employed by this chapter. Chapter 4 detailed how closely Hantz's project is connected to Detroit's urban sustainability fix, with the record-breaking land deal supported by City Council and Hantz's larger plans for his tree farming being part of the *Detroit Future City* framework. What, though, are the metabolic rifts targeted by Hantz? Based on the information released by the company so far, the main goals appear to be creating scarcity in the Detroit land market so as to increase property values, providing a modicum of local employment in a 'green industry', and serving as a model for large-scale inner-city agriculture. However, due to the fact that there have been no positive statements regarding the use of organic growing methods, future plans for expansion, systems to manage neighborhood complaints, or employee compensation and training, the project does not appear to directly target the ecological, social, or individual metabolic rifts in any meaningful way.

This is especially true given the plans to grow Christmas trees instead of food; while this decision is ostensibly based on the lack of an urban agriculture ordinance (which has since passed in April, 2013), it also is questionable in two significant ways. First, Christmas trees already make up a significant portion of southeast Michigan's agricultural output (USDA NASS, 2012), as the commodity is difficult to transport and consumers appreciate being able to choose their own tree. Second, the growing of trees that take years to mature does signal a serious commitment, but also provides a clear opportunity to speculate on the land. Through its conventional for-profit business organization and limited social and environmental goals, Hantz

Farms/Woodlands further illustrates the connection between political goals and the targeting of socio-natural metabolic rifts in urban agriculture.

Lafayette Greens

Compuware Corporation is a large information technology firm that was founded in 1973 and was located in Farmington Hills, a suburb of Detroit, until in 2002 its CEO Peter Karmanos Jr. decided to locate their new \$350 million headquarters downtown (Ramsey, 2006). Compuware belongs to the group of large corporations that now act as boosters for downtown redevelopment, including Dan Gilbert's Quicken Loans, Blue Cross Blue Shield, and DTE Energy. Of course, the millions of dollars these companies are pouring into downtown organizations, startups, real estate development, and public events are not simply for show: their relocation represents a significant economic gamble, one that is designed to attract young urban (creative) professionals to a newly reimagined hip – and eminently affordable – Detroit over other cities like San Francisco or Austin (see Conlin, 2011; Clement, 2013; Segal, 2013).

One of Compuware's most significant public outreach projects is the highly visible Lafayette Greens. Located along Shelby Street between Michigan Avenue and West Lafayette Boulevard in downtown Detroit is the site of the former Lafayette Building, a 1920s landmark that was demolished in 2009. Today the plot is home to Compuware's hybrid garden-park, which provides communal raised beds and is designed to be a public green space as well. The three Compuware employees I interviewed – Gwen Meyer (Garden Manager), Megan Heeres (Art Curator, Community Art and Garden Program Manager), and Michael Gidley (summer intern) – said that by spending a significant amount of money creating the space, Compuware hoped to create a tangible representation of its commitment to the city. The garden was also

designed to address an issue raised by some employees of the company, who critiqued the self-contained nature of the Compuware headquarters. Because employees could work, eat, shop, and exercise all within the confines of the building, it fostered a very isolated social sphere and “insular working environment,” as Heeres put it.

Lafayette Greens, then, represents an effort by Compuware to be a “good corporate citizen” by reconfiguring urban metabolism. The primary target of the project is social: “the impetus definitely wasn’t sustainability. It helps, you know, and they [Compuware] are trying to figure out how to roll it into that, but it’s definitely more of a community-minded, civic-minded endeavor.” The well-designed space is capable of producing nearly 2,000 pounds of produce a year; the majority is donated to Gleaners Community Food Bank and the rest is distributed to the volunteers who help tend the plots and used in public events. Using a mix of allotment and communal beds, the garden has been very successful in bringing a diverse group of people together to get their hands dirty or just relax, as Meyer tells it:

I feel like part of my job is to just [work with] different kinds of people that are maybe uncomfortable with each other, to recognize that ok, we have one volunteer who is very loud, she’s a former alcoholic, who kind of barks at you, and I was really uncomfortable at first, but you know, creating those touching relationships [. . .] We hold stakeholder meetings [. . . and] people can give feedback.

In fact, both Heeres and Meyer expressed surprise that they found such a positive environment in a corporate-owned garden. Meyer had experience working at the nonprofit Earthworks Urban Farm (see page 125) and expressed initial doubts about working for Compuware:

After working at Earthworks, which is an amazing place, I felt though, I was really aware of the serious issue between the people who have and the people who have not. Earthworks was really trying to bridge that gap, but it was still really tangible. My idea of coming in, which was interesting because I never thought I would work for a corporation, but coming in, and working for a corporation, and finding myself in this public space that could be a really amazing, engaging spot for different – people from

different walks of life to come and meet, and work together, and I really think that we all eat food, we all have ancestors and grandparents [. . .] that grew food, that we are actually much more comfortable.

Heeres suggested that the garden was a powerful tool for breaking down preconceptions many (formerly suburban or non-native) employees of Compuware had about the city and its residents:

You know it's funny, because I had mixed feelings about working for a corporation, but I really, you know, do believe that Compuware has good intentions in terms of wanting the city to do well, and in caring about this place and sort of, 'What are some different ways that we can outreach and be good corporate citizens?' But then also, at an individual level, I think that the, from, you know, helping to enrich employees in different ways and getting them out of the building and just trying to change the perceptions that way.

So the garden was designed with several social goals: to get Compuware employees out of the office and into the community; to serve downtown residents as a relaxing green space; to create produce for donation; to educate the public about gardening and urban agriculture; and to serve as an example of the possibilities of privately-owned public urban spaces. Gidley was in fact hired in part to create a public information board that would tell the story of Detroit urban agriculture and discuss other projects in the city. With its central location downtown, Lafayette Greens is the only urban garden many suburbanites and visitors to Detroit might see, and so the Compuware employees want to use their visibility to advocate for other, less well-funded gardens.

Meyer, Heeres, and Gidley were all very aware of this privileged position occupied by Lafayette Greens. Firstly, they acknowledged that although convincing the City to permit the lot for a garden use was difficult, the heavy-hitting support provided by Compuware was integral in

getting the project started. Secondly, Heeres stressed their concerns about community involvement during the planning phase of the project:

The setup of it, I think a lot of the work trying to convince the city was also coupled with going in and around this neighborhood and sort of introducing the project and, I know like, from the get go just sort of starting with an employee survey and always engaging employees and letting them know what stage of process the garden was at and just really trying to get people on board from the get go. I mean I think I was very conscious, and I also know Gwen is very conscious as well when she came on board, in terms of just plopping something down. And being like 'Bam! This is our garden,' you know, and people would be like, 'Wait what?' And I think that, cause it, at the same time when we were sort of coming up with this Hantz issue [. . .] that whole thing was going on, and I feel fortunate knowing people at Earthworks and I know other people at [the] Greening [of Detroit] and knowing about the sensitivities of the urban agricultural community and [knowing that] we didn't want to be a Hantz project. You know and to just sorta say, 'This is what the city needs.'

The case of Lafayette Greens does well to encapsulate the Janus face of urban agriculture in Detroit. Behind its lavender-lined pathways and irrigation system hooked up to the City water supply through the bar next door, lays the greater economic context of Rust Belt neoliberal urbanism. This garden would not exist without Detroit's economic development plan designed to lure large corporations – and their employees – back downtown after decades of (relative) absence.⁶⁰ The city-suburb tension is palpable in this garden: not only was it in part designed to provide a space where Compuware employees could feel comfortable interacting with their urban neighbors, but its caretakers now function as Detroit urban agriculture spokespeople, spreading the message about other projects to suburbanites who do not venture too far from the downtown sports stadiums. Finally, despite its successes, the project unearths the ultimate utility of growing food in the city for neoliberal municipal governments and their

⁶⁰ The racial dynamic present in this absence is obvious. One can add in a single word to this sentence by former Compuware co-founder and former chairman and CEO, Peter Karmanos Jr., to illustrate this: "A couple generations of [white] people in the Detroit area were denied an urban experience [. . .] I think now they are getting to experience it again, and they are thrilled with it" (Karmanos quoted in Ramsey, 2006).

corporate allies: fostering community without making anyone too uncomfortable. However, as the next section illustrates, sometimes food justice requires difficult conversations.

D-Town Farm

Malik Yakini and several other Detroit residents founded the Detroit Black Community Food Security Network (DBCFSN) in 2006 to support CFS and counter the racial bifurcation of the Detroit alternative food system. Following the national pattern (Slocum, 2007, 2011; Guthman, 2008a, 2008b, 2011, 2012) even in majority-black Detroit, at that time all of the leadership in the city's major alternative food organizations was white. This is especially troubling given the data gathered earlier in this study, which show that alternative food movement and urban agriculture sources are – on average – located in more racially and ethnically diverse census tracts (see Figures E4 and E5). The DBCFSN was created to work towards fixing this racial and cultural mismatch of participants and leadership; Yakini says of the white leadership, “They had very good intentions, they’re not bad people, [. . .] they’re good people who are caught in a bad paradigm” (Yakini, 2011).

The reception of the DBCFSN by existing white urban agriculturalists varied, with some too ‘colorblind’ to recognize the degree to which Detroit’s alternative food spaces were (implicitly or explicitly) coded as white:

Several white people said, ‘Why do they have to call it the Detroit Black Community Food Security Network? Why can't we just all work together and have a Food Security Network?’ And so they started paying attention to us as we were speaking and as they listened they said, ‘Hmm maybe there's something to do this,’ and they started thinking more deeply themselves about race and about the work they were doing and how they could be more intentional in their work. (Yakini, 2011)

Inspired by the dRworks ‘Dismantling Racism’ training he attended at the 2006 Bridging Borders Toward Food Security conference in Vancouver (see page 128), Yakini and the DBCFSN began

working with (mostly white-led) Earthworks Urban Farm to hold Undoing Racism in the Detroit Food System meetings. These meetings occur twice a month and have separate caucuses (white, black, people of color, etc.) that read and discuss race together, in addition to holding yearly workshops and group gatherings. Out of this program, greater alliances have been formed between food organizations in the city, and as Yakini (2011) points out, white privilege is being dismantled and black consciousness is being fostered.

Although the social justice goals of the DBCFSN are broad, and include policy development and cooperative buying, perhaps the greatest day-to-day task they undertake is supporting D-Town Farm. D-Town was started in June 2008 on a two acre plot in the City of Detroit Meyer's Tree Nursery in Rouge Park on the west side of Detroit and has since expanded to four acres, making it the largest farm in the city (DBCFSN, n.d.). The land was acquired after two years of negotiations with the City, eventually resulting in a ten year lease at the rate of one dollar per year. Today, the farm has about two acres in production (including four hoopouses), cultivates mushrooms, and runs recreational programs and beekeeping and composting operations. The harvest is mostly sold to the community through farmgate and farmers' market sales and the DBCFSN has plans for creating a co-operative grocery store.

Yakini is clear about the primary goal of D-Town Farm: economic, bodily, and spiritual well-being through self-determination, a focus that clearly addresses all three metabolic rifts. The impetus for starting the farm was the lack of fresh, organic produce in the city, which Yakini links to Detroiters' failing health (high rates of heart disease, diabetes, and obesity). Instead of relying on the emergency food system to fill this need, the DBCFSN follows a CFS paradigm to

meet their own needs. However, the ideology behind this goal stands in stark contrast to the social enterprise model supported by groups like Sole Food. Yakini has written:

Let me be clear. I am anti-capitalism. It is a system that is by nature exploitive and unsustainable. The answers to many of the social problems we face lie in capitalism giving way to a more equitable system of distributing resources that upholds the dignity of all human beings and respects nature. In the meantime, we are faced with the dilemma of how to develop our communities within a system that favors the rich, is racist, sexist and destroys the earth. (Yakini 2013)

Displaying a pragmatism similar to groups like the Purple Thistle gardeners, D-Town Farms relies upon government and foundation funding (they recently received \$750,000 from the W.K. Kellogg Foundation) to support their radical goals. Despite the ideological sacrifices they make to allow their operation to exist, D-Town Farm and the DBCFSN still maintain radical goals by stressing all three metabolic rifts in their practice.

Discussion and conclusion

The diversity of urban agriculture projects and the political ideologies behind them as presented in this chapter is astounding, especially considering their often unitary portrayal in major media outlets. I have tried to illustrate that selectively focusing on different metabolic rifts alters the political focus, and often the organizational methods, of urban agriculture projects. The most radical urban growers seek to address all three metabolic rifts, especially the social, and often support heterodox economic relationships. Although a rather basic observation, this point works to connect McClintock's (2011) theories of metabolic rift and the radical/neoliberal Janus face of urban agriculture. While neoliberal urban governance in Vancouver and Detroit both constrains urban agriculture and makes it possible, the vignettes presented in this chapter illustrate that not all alternative urban food production is created equal.

Here is where it is crucial to link food justice organizing to the broader undertaking of class struggle and social justice (Naylor et al., 2013). Discussions of whether growing food in the city is 'feasible', 'realistic', 'economically viable or sustainable', 'the highest and best use', etc., are constrained by market logic: in Detroit, the logic of austerity, and in Vancouver, the logic of the real estate bubble. Projects that do meet the needs of the market are bound to be less radical and therefore ultimately less effective as Polanyian counter-movements or – more radically – as revolutionary political projects. While in some ways social enterprise or social impact organizations like Sole Food or Alterrus present tempting theories of change due to their immediate effects, it should ultimately not be a question of meeting these goals – which are often part and parcel of (spatial and temporal) sustainability fixes, but rather resisting them through showing how alternative moral economies and ways of urban living are beneficial, especially to those most negatively affected by inequality.

Conclusion

In this conclusion, I will first summarize each chapter, then address possible limitations and gaps in the study, discuss possible avenues of future research, and finally reflect on the overall direction and implications of the thesis.

Thesis synopsis

In Chapter 1, I reviewed the food desert literature with a particular focus on recent critiques of the method. Drawing heavily on the work of Julie Guthman (2011) and Jerry Shannon (2013), I questioned the political possibilities of the method. The assumptions inherent in the epidemiological approach can lead to inaccurate models of how people access food in an urban environment: assuming that proximity is a direct measure of access is one of the key failings of the food desert method. However, from a strategic positivist viewpoint, GIS still holds great analytical power in investigating the links between the foodscape and urban inequality. Therefore, I presented a modified food desert method that shifted the focus from an epidemiological approach concerned with statistically measuring health outcomes to an ecological approach stressing the importance of socio-economic inequality. Methodologically, this shift requires expanding the notion of what counts as a food source beyond full-service supermarkets. By using open source point of interest data in combination with manually gathered information, I built a food source dataset for both Vancouver and Detroit that included many different kinds of food sources, including alternative food movement sources like co-operative grocery stores and urban agriculture.

In Chapter 2 I used this new dataset to explore how the neighborhood (i.e. census tract-level) foodscape composition is related to various demographic measures, with special

attention paid to discerning which kinds of neighborhoods have above-average levels of urban agriculture. Through the use of cluster analysis, multidimensional scaling, and a method combining multidimensional scaling with local indicators of spatial association, I found that the Vancouver and Detroit foodscapes and the location of urban agriculture within them is heavily influenced by housing and land markets, income inequality, and racial segregation. Perhaps the most obvious difference between the two cities is their relationship to real estate: Vancouver is home to some of North America's most valuable land and has a relatively dense downtown core, while the Rust Belt city of Detroit is equally well known for its vast areas of vacant or abandoned property and the \$500 house. Although obviously the result of long-term economic dynamics and economies that have fared very differently under deindustrialization, the differences in population density are today largely responsible for the relative abundance of food retail in Vancouver and relative dearth in Detroit. Also important in relationship to foodscape composition is income inequality. In Vancouver, most wealthy neighborhoods with lower density single family housing have relatively fewer food sources, while denser areas vary, with dense low-income neighborhoods having more access to alternative food sources than dense high-income tracts. Detroit's income inequalities have resulted in some of the poorest tracts having very few food sources at all, while some show significant adaptation to the loss of chain grocery stores being replaced by emergency and alternative food sources. Finally, racial segregation shows a modest effect on foodscape composition in both cities, although the use of percent of the population identifying as non-white and foreign-born as the race variable did not fully capture this dynamic.

In the brief interlude of Chapter 3, I reflected on the results outlined above and presented an additional shortcoming of food desert-style research: its inability to foster political change in support of the goals of food justice. By framing the problem of food inaccess as a simple case of the spatial mismatch of populations and food sources, the method implicitly supports supply-side intervention (i.e. opening supermarkets in low-income communities) as the best way to address inequalities within the food system. However, from a food systems and food justice perspective, more transformative political change is needed to address the root causes of poverty that create inequalities in food access. Bearing this shortcoming in mind, in Chapter 3 I shifted the focus of the thesis from the strategic positivist quantitative approach used in Chapters 1 and 2 to the qualitative approach of Chapters 4 and 5. In order to fully understand the dynamic surrounding urban agriculture in Vancouver and Detroit, simply measuring and assessing the foodscape is not enough; such quantitative descriptions are helpful as trustworthy generalizations that help paint the bigger picture, but more detailed, on-the-ground research is required to tease out the important political contestations that are involved in urban agriculture movements.

The history and recent development of such contestations is the focus of Chapter 4. By tracing the development of local and urban agriculture in each city, in this chapter I argued that despite different circumstances, in both cities urban agriculture has emerged largely as a Polanyian counter-movement to the social inequalities propagated by neoliberal governance, but has more recently been enrolled as a device by the local state through which sustainability planning is seen to enhance economic competitiveness. The two very different neoliberalizations occurring in Vancouver and Detroit serve as an interesting comparative case

of While et al.'s (2001) sustainability fix. In Vancouver, the center-left municipal party of Vision Vancouver has responded to federal and provincial retreat from social and environmental protection by pursuing entrepreneurial growth based largely around Vancouver as a consumption-oriented (tourism, luxury real estate, etc.) city, all while supporting urban agriculture as part of their green economic development plan. Detroit, on the other hand, faces extreme pressure from the state government as it enters municipal bankruptcy; sustainability as presented in the *Detroit Future City* planning framework appears more like a last ditch effort to salvage the city's economy and attract outside investment into the vast areas of abandoned or vacant land than any kind of true commitment to a green postindustrial economy. Despite the often-instrumental use of urban agriculture by the municipal governments of Vancouver and Detroit, the movement itself has not been fully co-opted. In fact, even viewing the relationship between the economy and urban agriculture in such a manner is inaccurate, as Nathan McClintock (2011) has illustrated. Drawing on his theoretical framing, I view urban agriculture as having a dialectic radical/neoliberal Janus face: the economic conditions of neoliberal urbanism that have brought about its most recent boom are also those limiting it from scaling up and drastically altering the food system.

However, as I explored in Chapter 5, this ambivalence may exist for the movement as a whole, but it does not apply to individual urban agriculture operations. In fact, by examining the socionatural theories of change held by different farmers, it is possible to better specify which kinds of urban food production represent true alternatives to the industrialized food system. By actively resisting the ecological (through local production of organic crops), the social (commodification of land and labor), and the individual (dual alienation from products of labor

and the land) metabolic rifts, radical grassroots urban agriculture holds the potential to make food justice part of a broader agenda for social justice.

Limitations of the research

A central limitation to this research is its scope. With the time and length constraints of a Master's thesis, it was ambitious to undertake a comparative and multi-method study. As such, the depth of inquiry is limited in favor of providing a broad overview of the dynamics of the urban agriculture movements in both cities. As always is the case, the data and methods used in the quantitative sections of the analysis could have been more robust. However, the use of open source data in lieu of a more expensive proprietary dataset represents more than just the path of least resistance: the propagation of freely-accessible large datasets such as the one provided by SimpleGeo is an important part of the movement for intellectual freedom and the access to knowledge movement. Without taking such steps, research like this would not be possible. In terms of method, I purposefully used techniques with historical legacies in the traditions of social and human ecology (i.e. cluster analysis) instead of the (generally) more statistically rigorous approaches used by disciplines such as economics (e.g. regression). In part this was an experiment in the use of alternative methods, but it also provided – I think – a more accessible set of results.

In terms of the qualitative methods employed in the study, several issues arise. Instead of forming a sample for interviews that would more accurately represent the viewpoints of the majority of urban agriculture participants, I purposefully chose a diverse sample that would reflect a range wide of views. Additionally, by drawing on secondary interviews published elsewhere, I avoided re-interviewing some of the more prominent participants. This decision

was in part necessary due to limited funds and time to conduct interviews, but in the end did generate significant evidence for the arguments presented in Chapters 4 and 5.

Future research

In this thesis I have drawn on several recently developing academic trends within geography: the resurgence of critical quantitative methods, especially including multi-method studies in political ecology; comparative urbanism; the study of the relationship between the alternative food movement and neoliberalism; the study more broadly of the relationship between environmental projects and neoliberalism; the use of Marxist theorizing in urban political ecology; and the study of urban sustainability politics from a political economy perspective. The convergence of these many trends presents ample opportunity for further scholarly work.

One such avenue involves answering the question, “What is alternative about the alternative food movement?” Urban agriculture is a particularly helpful site through which to explore this question, as the work of J. K. Gibson-Graham on diverse economies (e.g. 2006, 2008) illustrates. Bringing feminist theorization of economies of care and nonmarket social relations into discussion with recent work on neoliberalization and the alternative food movement could be fruitful. Empirically, long-term participant observation or ethnography of the alternative economies of urban agriculture, or even community-based action research, would be most effective in drawing out the diverse economic relationships present in the movement. Such studies also hold the promise of developing a more effective scholarly praxis and strengthening the food justice movement (see Wakefield, 2007).

Critical GIS and quantitative methods can also be enrolled in such a project.

Methodologically, recent efforts to map alternative food distribution networks (Kremer and DeLiberty 2011) present a way to 'follow food', but offer results that are quantitative, visual, and broad instead of qualitative, ethnographic, and narrow. Future research could make contributions to both geography's understanding of alternative agrifood networks (AAFNs) and community groups' goals. First, it would help local organizations identify strengths and weaknesses and provide guidance towards building strong alternative networks that support food justice. Secondly, it would explore who benefits and what could be done to make AAFNs more equitable and sustainable. Finally, this research would theoretically contribute to geographers' understanding of how AAFNs form and work, especially regarding distribution.

Research emphasizing the importance of postcolonial theorizing in comparative urbanism, e.g. Jenny Robinson's (2006, 2011) work, also suggests that the recent urban political ecology work on urban agriculture in the Global North (e.g. McClintock, 2011) would benefit through comparative studies of the Global North-South. Urban political ecology has seen application in countries like South Africa (Loftus, 2012), but the significant literature on urban agriculture in development disciplines has seen little interaction with such theorizing. The theory of metabolic rift developed by McClintock (2011) also bears promise for better specifying the radical potential of environmental movements within the context of a Marxist framework. Using a social construction of nature framework to better understand urban agriculture participants' desire to use gardening or farming to 'return to nature' is required, however, for future development of the theory (see footnote 57 on page 165).

Growing ideology: reflections

The results of this thesis hopefully shed some light on the fraught politics of urban agriculture in Vancouver and Detroit. By using a multi-method research design, I have endeavored to view the object of study from multiple angles and at multiple scales. Doing so in the scope of a Master's thesis was a challenge; there are certainly aspects I may have overlooked, yet I hope the picture presented proves a few points.

Firstly, it is interesting to reflect on the comparative nature of the research. Drawing inspiration from the recent comparative (re)turn in urban studies (see McFarlane & Robinson, 2012), I hoped to treat Vancouver and Detroit as different sites in the same field of analysis and to theorize urbanization and neoliberalization as processes (see Brenner, 2011 and Larner, 2003; Peck, 2004; Castree, 2010a, and page 92 of this thesis, respectively), not static events. However, as a comparison between two places with wildly divergent space-economies, cultures, and demographics, it was a challenge to view these cities through such a theoretical lens. What did emerge were the stories of individual farms and gardens and the people who work them and the discursive and material ways urban agriculture has been enrolled in municipal politics and economic development. Although the situations in both cities are by no means exactly the same, some important similarities stand out: the emergence of urban agriculture as a counter-movement and strategy of resistance during times of particular economic hardship; the constricted field of action available to the local state in times of (real or constructed) economic crisis and retrenchment requiring selective uptake of sustainability initiatives to enhance economic competitiveness; the connection between farmers' and

gardeners' selective rearrangement of socionatural metabolisms and the political possibility of radical urban agriculture.

This final point is perhaps the most vital and still least understood. Although urban agriculture is experiencing a moment of significant visibility right now, there are no guarantees that it will scale up to change the industrialized food system in any way. This is especially true in a neoliberal political economy in which market logic reigns supreme. However, it is by posing a very visible and deliberate alternative to this particular and often unjust economic calculus that the radical potential of urban agriculture can be found. Many of the urban farmers I interviewed had a habit of sprinkling their dialogue with remarkably apt biological metaphors. Patrick Crouch, Program Manager at Earthworks Urban Farm in Detroit, was particularly eloquent when expressing his theory of political change that resists neoliberal common sense. As a major part of Earthworks' programmatic shift from its historical role as a soup kitchen to an organization working to build community food security and self-determination, Crouch compares the radical⁶¹ nature of such work to cultivating mushrooms during our interview:

There's this tendency to think that social movements work in a really like... [snaps fingers] like that. And I compare it to a mushroom, that the mycelium of the mushroom that has been growing forever, or for a long, long time, it's not until the spring rains come along where we see the fruit, and the fruit is not really what it's about. The real action is underground, where we never even realize what is happening. [. . .] You've got to develop deep roots, you know. If you don't have deep roots, when the winds start coming you're going to get knocked down.

As Crouch and the other grassroots urban agriculture participants of Vancouver and Detroit exemplify, building these deep roots requires not only a foundational critique of the injustices caused by a market-based value system, but also a praxis that actively works to present an

⁶¹ Literally, radical as in "Late Latin *radicalis* 'of or having roots,' from Latin *radix* (genitive *radicis*) 'root'" (Harper, 2013).

alternative. Faced with municipal bankruptcy in Motown and a possible future of sustainable urban living as a class privilege in the City of Glass, perhaps this alternative is exactly what these two cities need.

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Appendix A: Category Table

Table A1. Categories used in foodscape dataset, as adapted from SimpleGeo (2011c).

Category	Type	Subcategory	My classification	City	Keywords
Restaurant	Food & Drink	-	Fast Food/Pizza	Both	McDonalds, Mc Donalds, Mc Donald's, McDonald's, Burger King, Wendys, Wendy's, White Castle, Rally's, Long John Silver's, Long John Silvers, KFC, Kentucky Fried Chicken, Pizza, Pizza Hut, Coney, Church's, Churchs, Carl's Jr, Carls Jr, Carl's Jr., Carl's Jr, Popeye's, Popeyes, Taco, Taco Bell, Domino's, Dominos, Papa John's, Papa Johns, Little Caesars, Little Caesar's, Triple O's, Triple Os, A&W, A & W, Arby's, and Burger
Restaurant	Food & Drink	-	Bakery/Deli	Both	Bakery, deli, delicatessen, sandwich, submarine, subway, bagel, Quizno
Restaurant	Food & Drink	-	Cafe/Coffee/Tea	Both	Cafe, caffe, café, coffee, tea, Starbucks, Starbuck's, Waves, Wave's, JJ Bean, Blenz, Bean Around the World
Restaurant	Food & Drink	-	Restaurant	Both	-
Bars & Pubs	Food & Drink	-	Bars/Breweries/ Wineries	Both	-
Food & Beverages	Retail Goods	Donut	Donut Shop	Both	-
Food & Beverages	Retail Goods	Bakery	Bakery/Deli	Both	-
Food & Beverages	Retail Goods	Candy	Candy Store	Both	-
Food & Beverages	Retail Goods	Dairy	Dairy/Ice Creamery	Both	-
Food & Beverages	Retail Goods	Meat & Fish	Meat/Fish Market	Both	-
Shopping	Retail Goods	Pharmacy	Pharmacy	Both	Vancouver: Shoppers, London Drugs; Detroit: Rite Aid, CVS, Walgreens
Autos & Motor Vehicles	Retail Goods	Fuel & Gas Station	Convenience	Both	Vancouver: 7-Eleven, 7-11, Convenience, Esso, Food Store, Food Stop, Mac's, Minimart, Mini Mart, Seven-Eleven, Shell, Stop N' Go, Town Pantry, Quick Pick; Detroit: BP, Convenience, Fill Up, Food Store (Valero), Fuel, Gas, Mini Mart, Minimart, News, News Stand, Newstand, Petro, Petroleum, Service Station
Shopping	Retail Goods	Tobacco	Convenience	Vancouver	7-Eleven, 7-11, Convenience, Esso, Food Store, Food Stop, Mac's, Minimart, Mini Mart, Seven-Eleven, Shell, Stop N' Go, Town Pantry, Quick Pick, news, newstand, news stand, market

Category	Type	Subcategory	My classification	City	Keywords
Farming	Manufacturing & Wholesale Goods	Dairy Farm	Dairy Farm	Vancouver	-
Food & Beverages	Retail Goods	Fruits & Vegetables	Produce Market	Vancouver	-
Food & Beverages	Retail Goods	Groceries & Convenience Stores	Varies, see page 29	Both	-

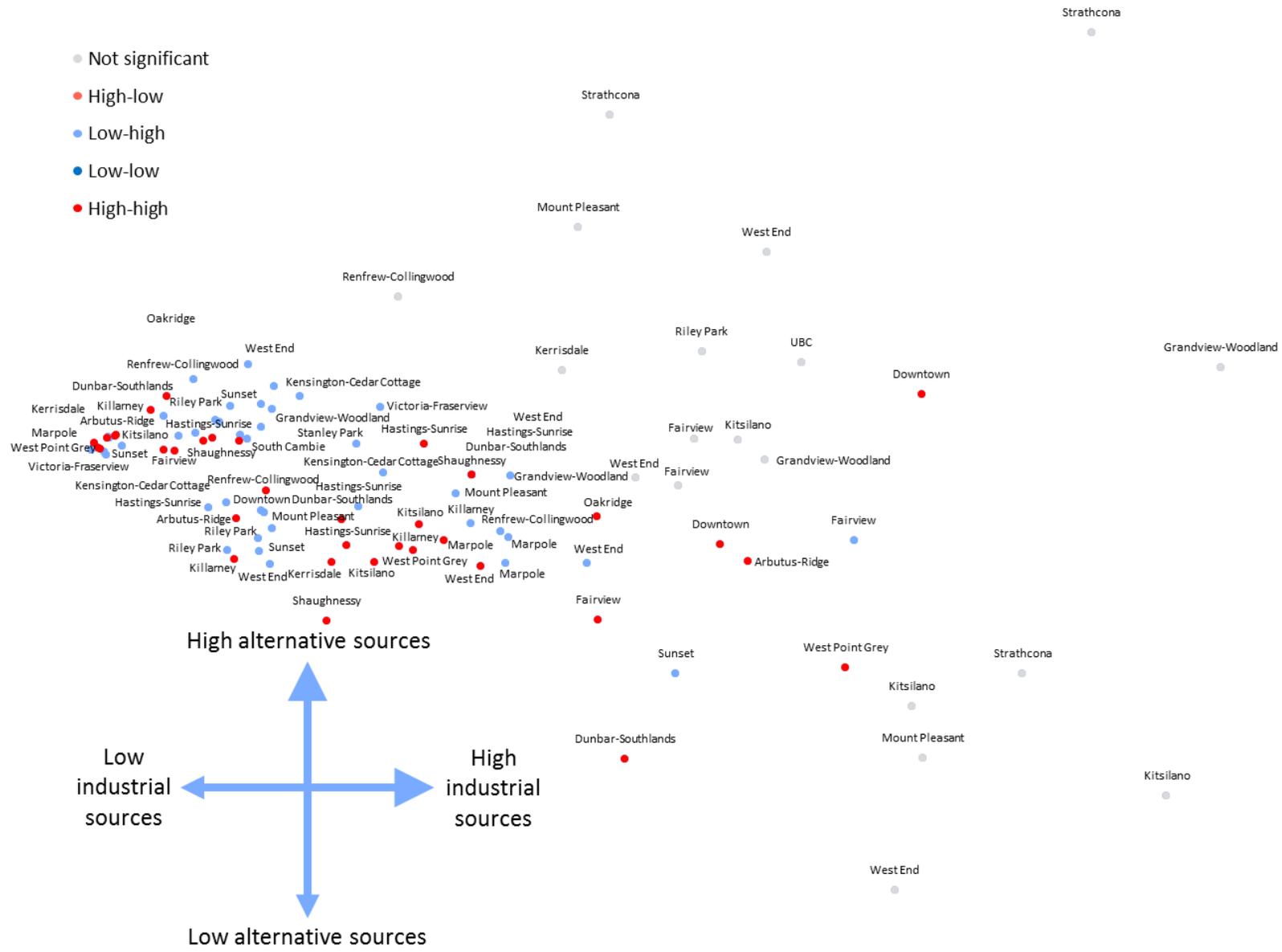


Figure B2: LISA on MDS foodscape data – Vancouver median rent

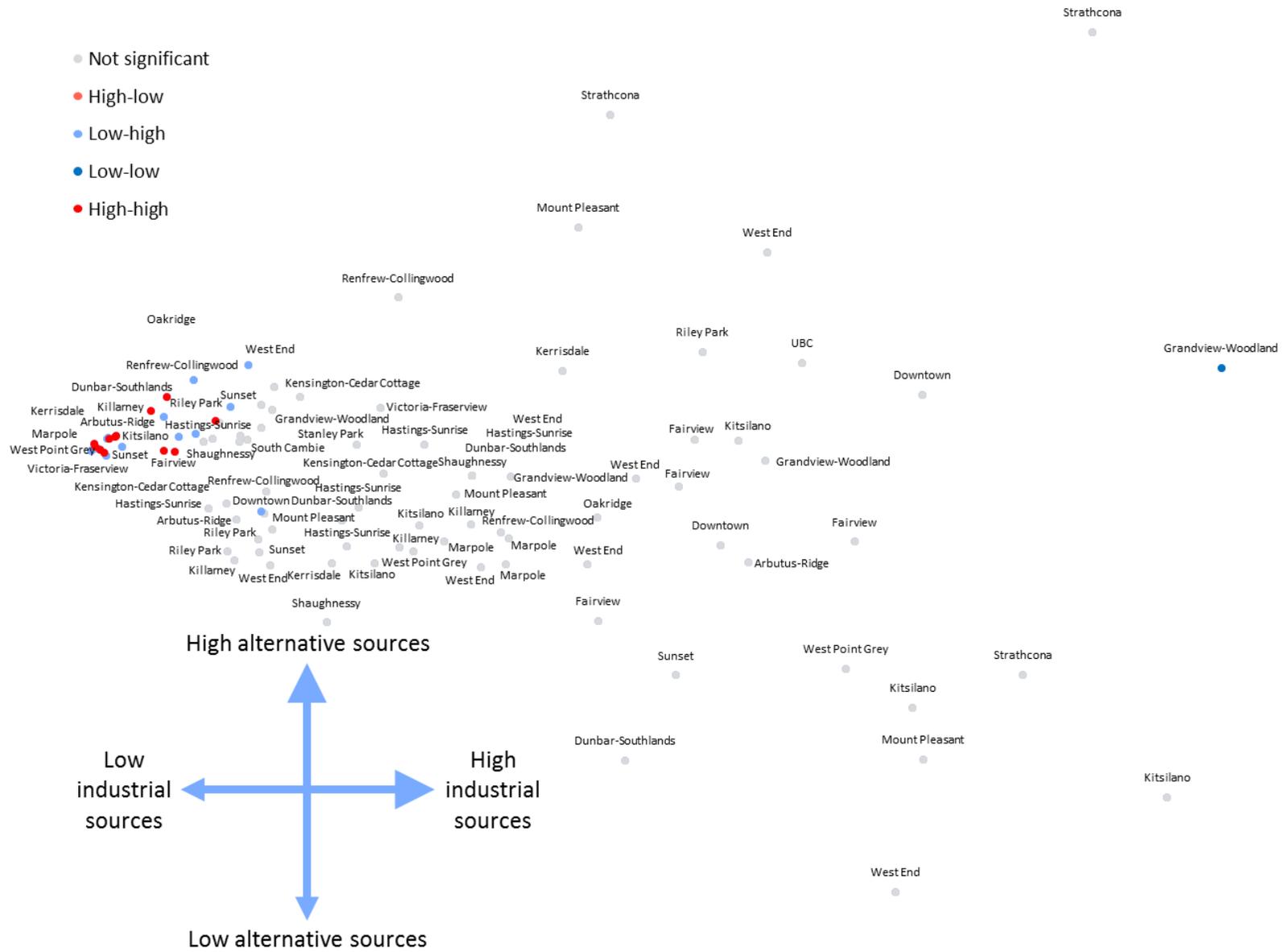


Figure B3: LISA on MDS foodscape data – Vancouver median home value

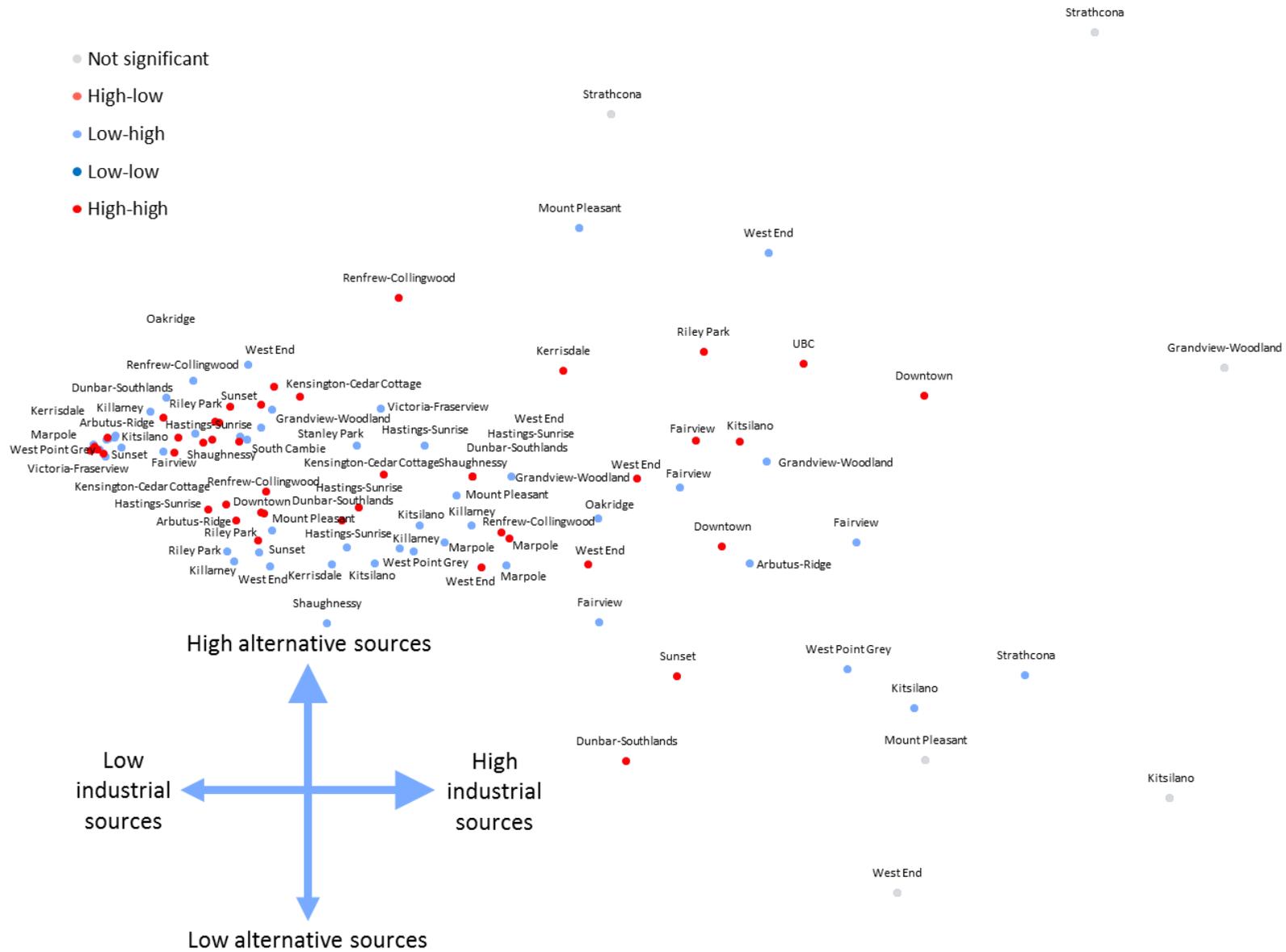


Figure B4: LISA on MDS foodsource data – Vancouver median household income

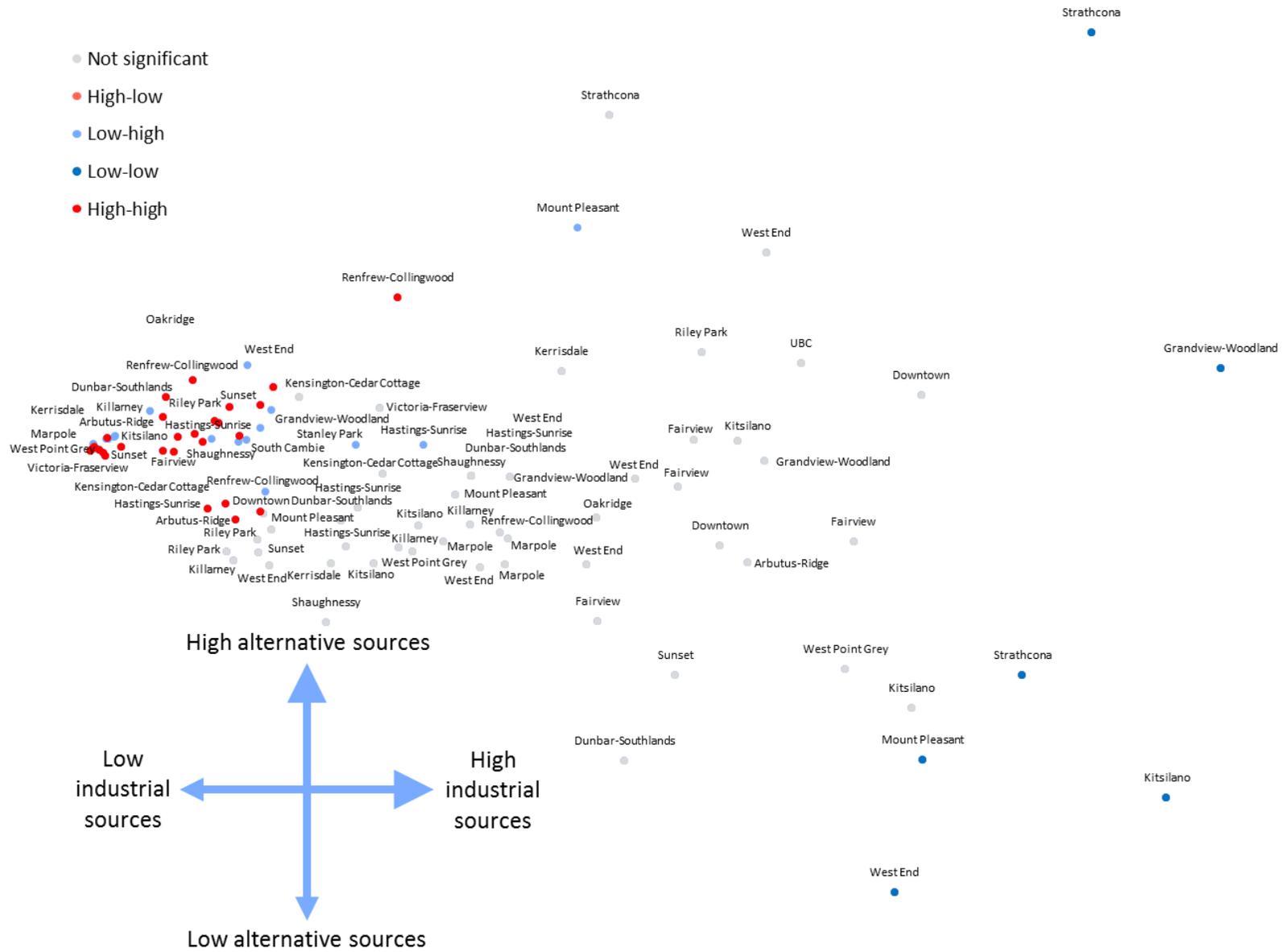


Figure B6: LISA on MDS foodscape data – Vancouver percent of the population identifying as non-white

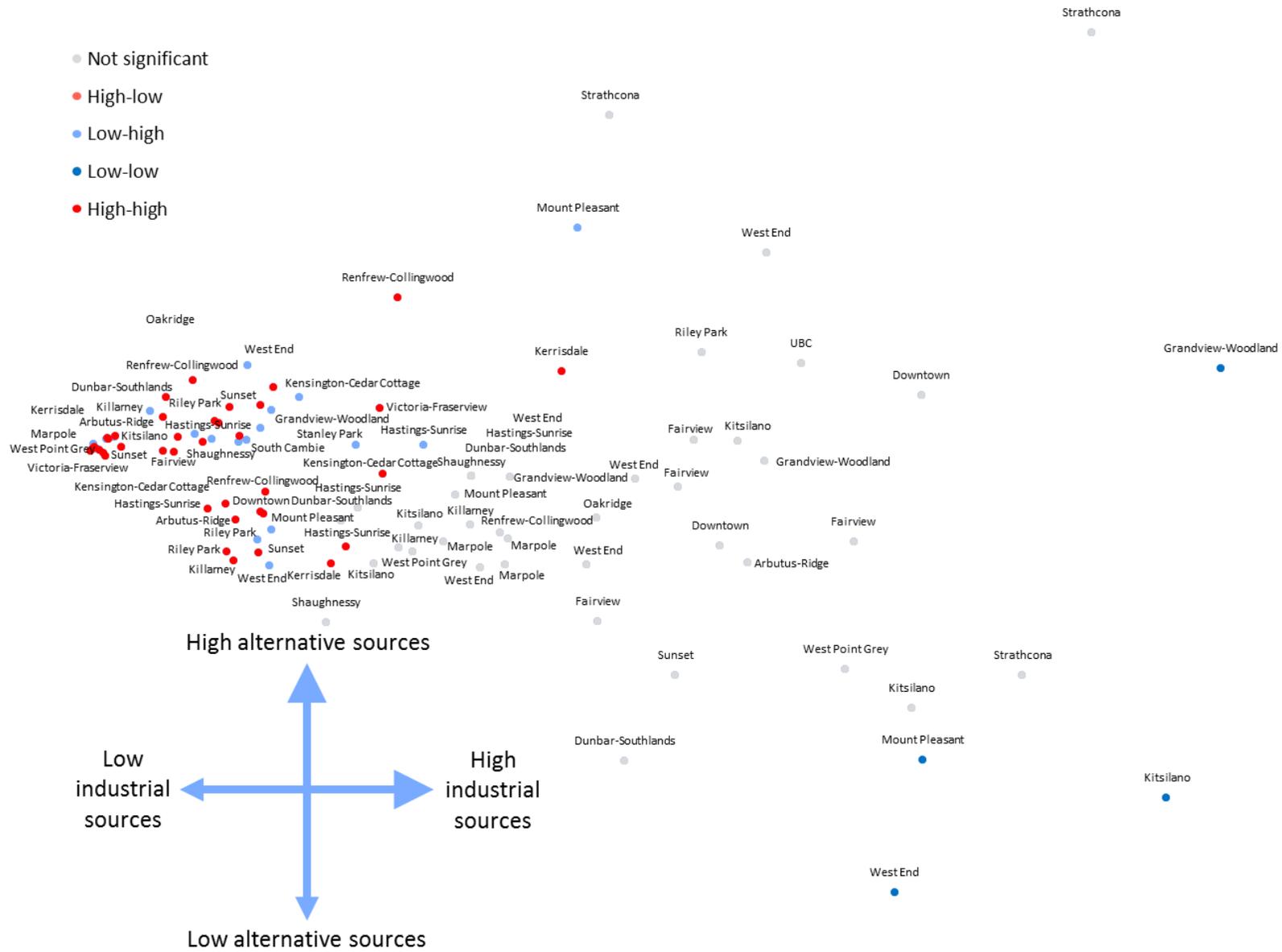


Figure B7: LISA on MDS foodscape data – Vancouver percent of the population foreign-born

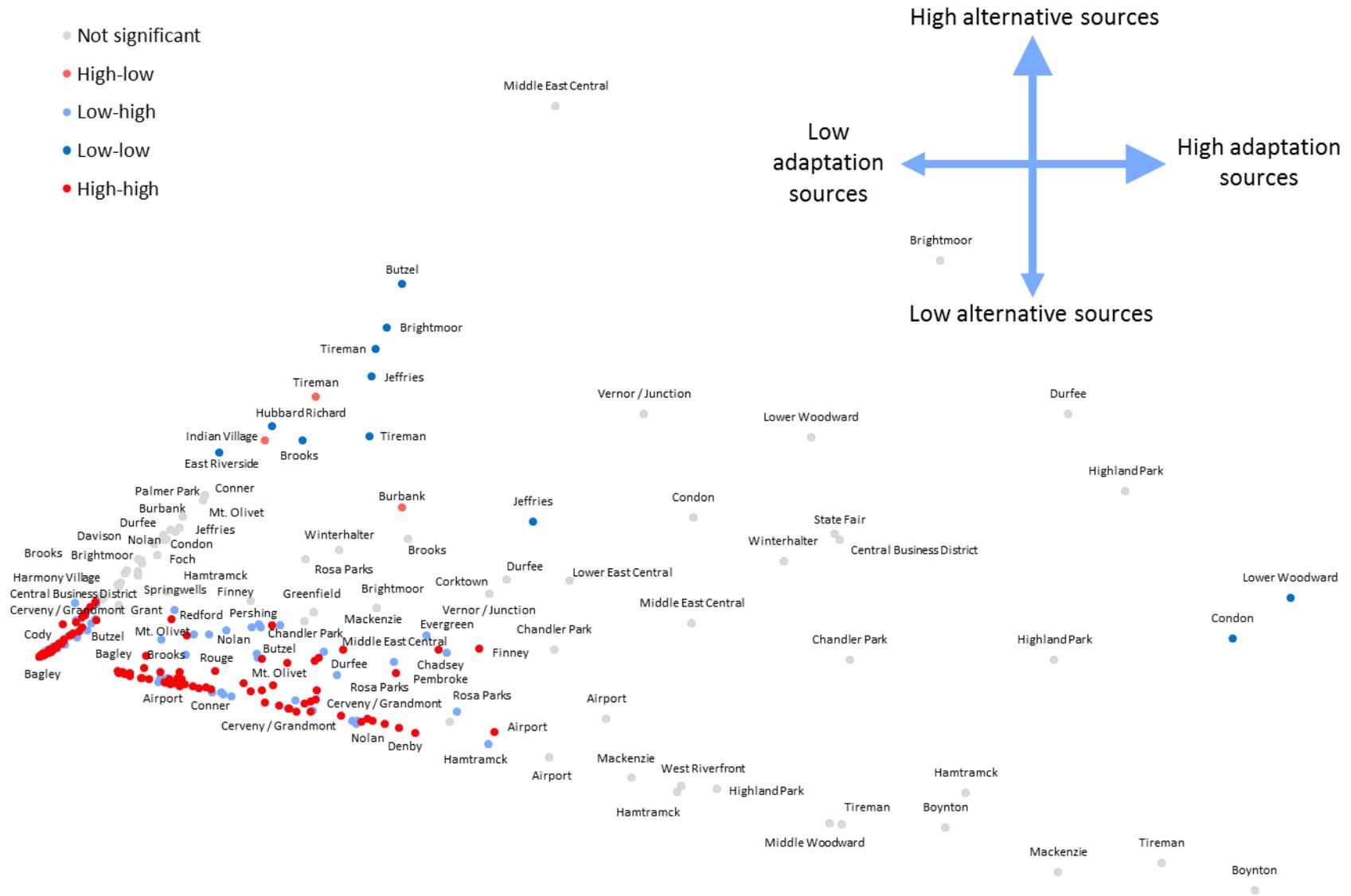


Figure C2: LISA on MDS foodscape data – Detroit median rent

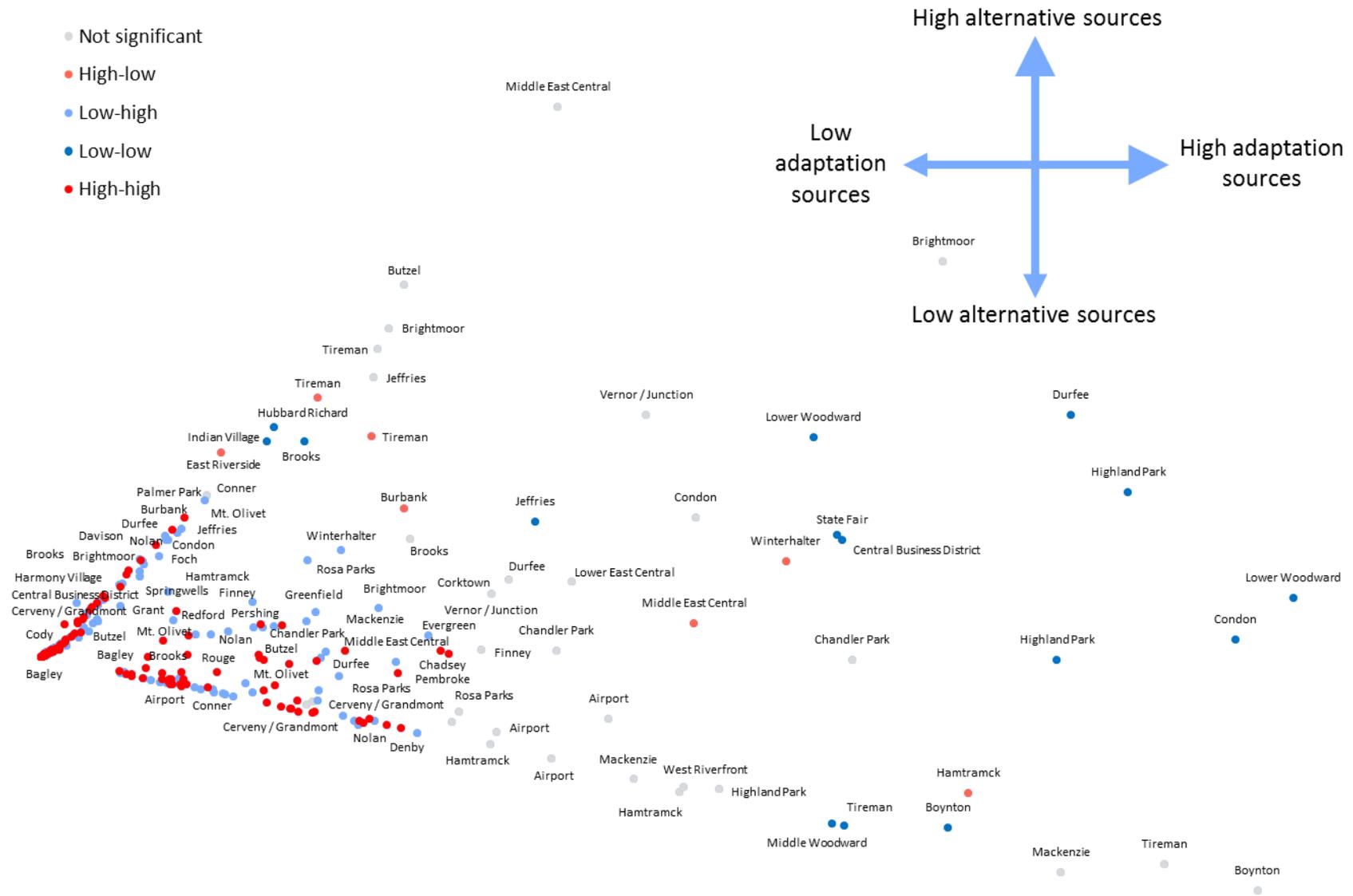


Figure C6: LISA on MDS foodsource data – Detroit median household income

Appendix D: Food Source Average Demographics – Vancouver

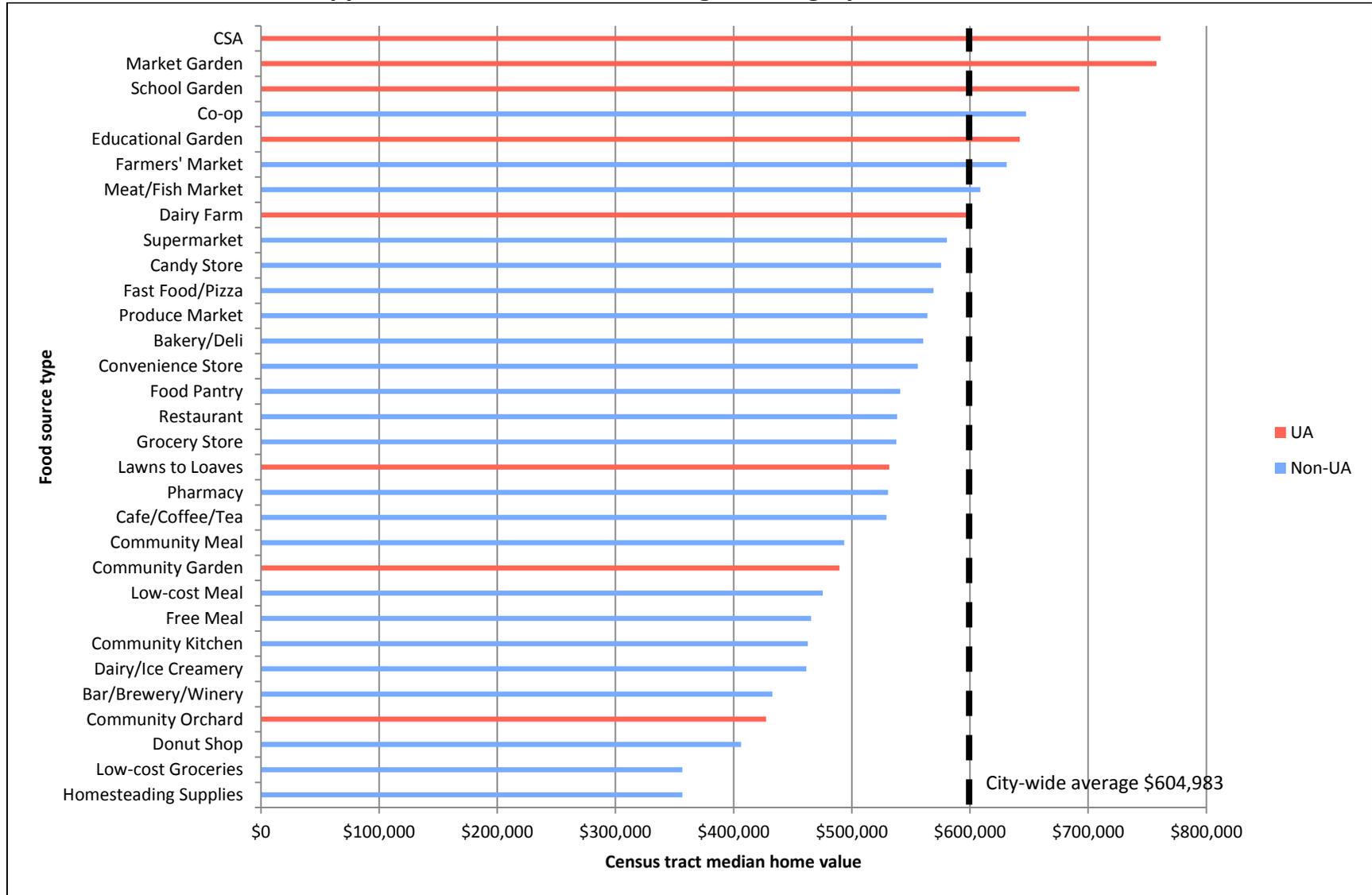


Figure D1. Census tract median home value by food source type, Vancouver.

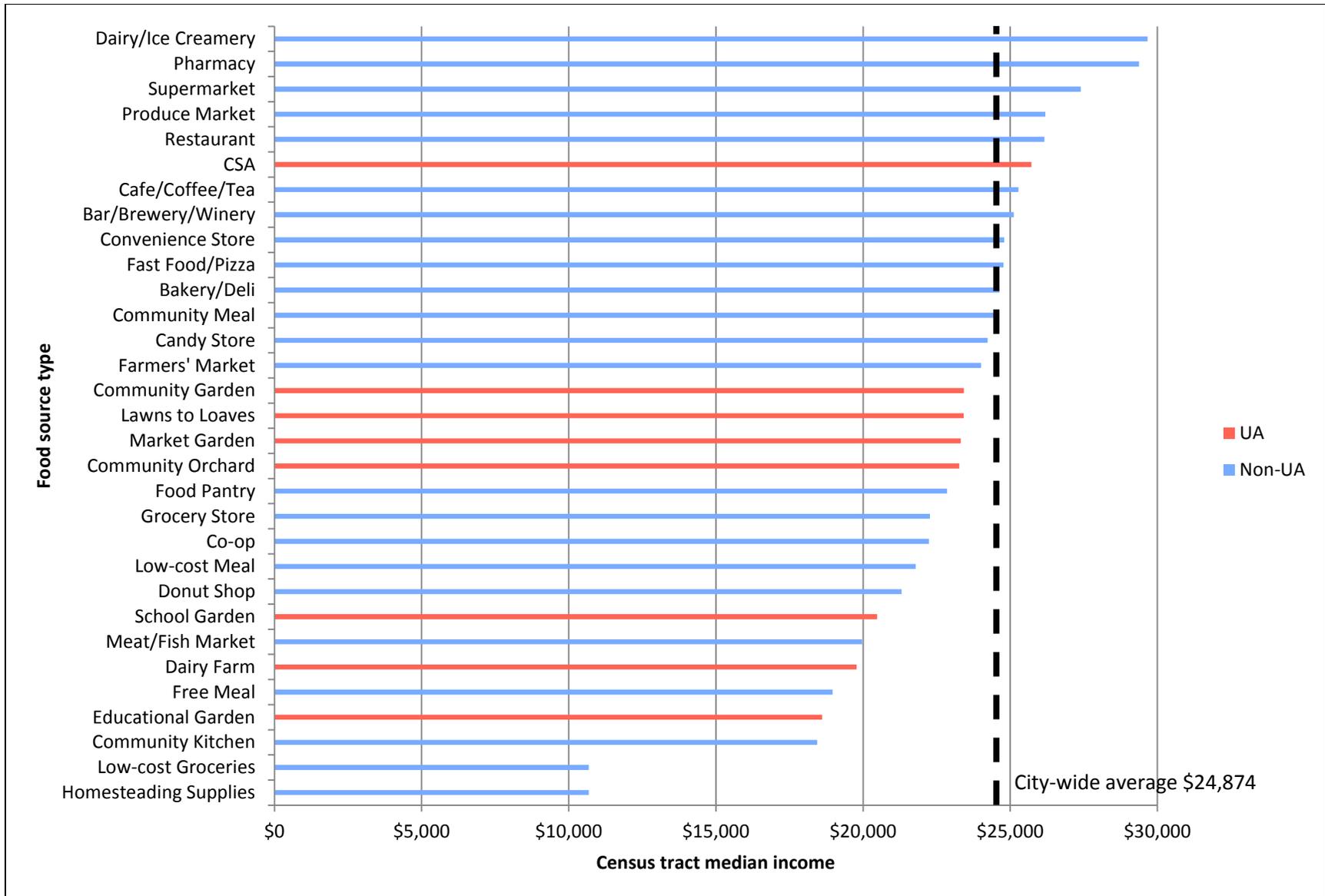


Figure D2. Census tract median income by food source type, Vancouver.

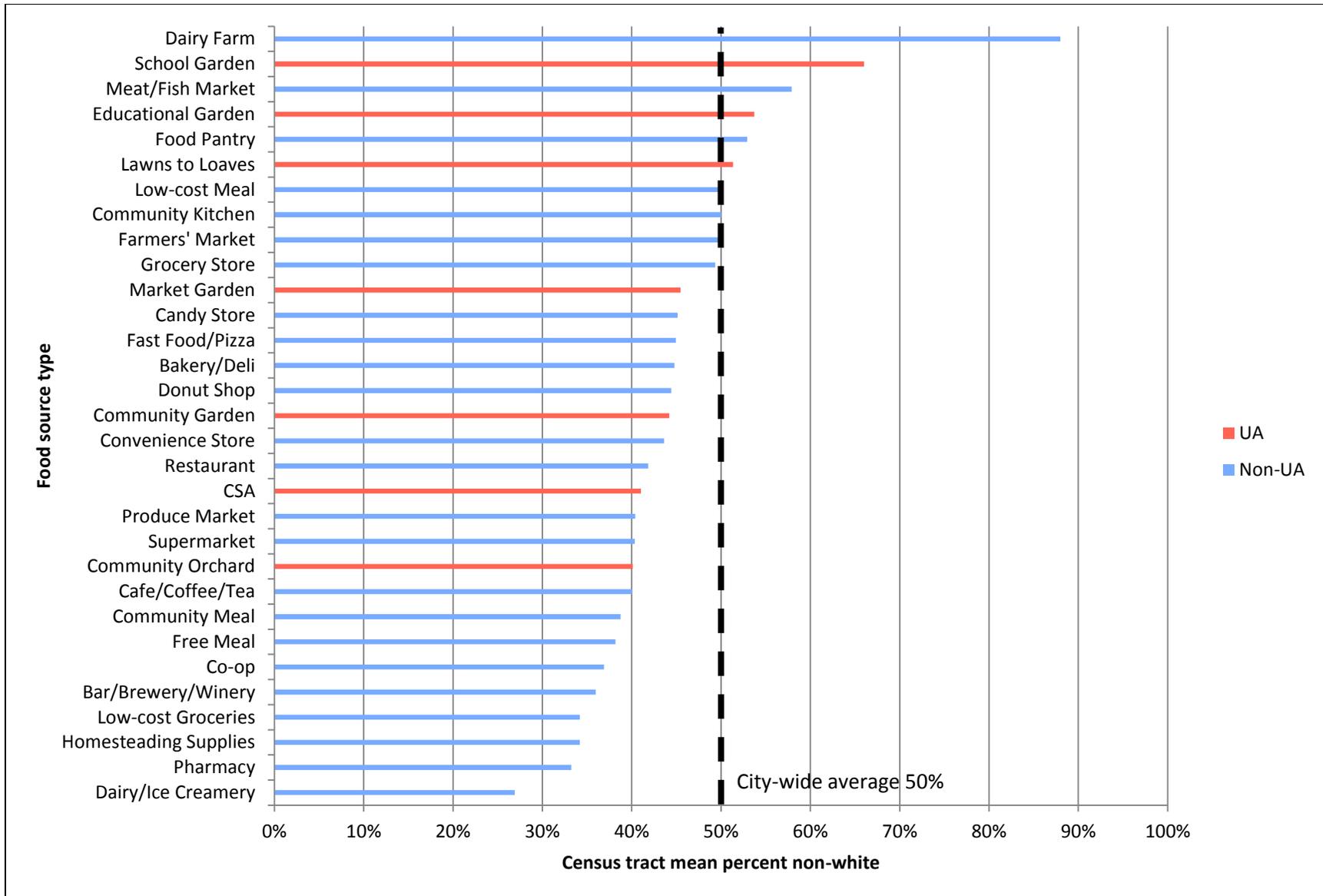


Figure D3. Census tract mean percent non-white by food source type, Vancouver.

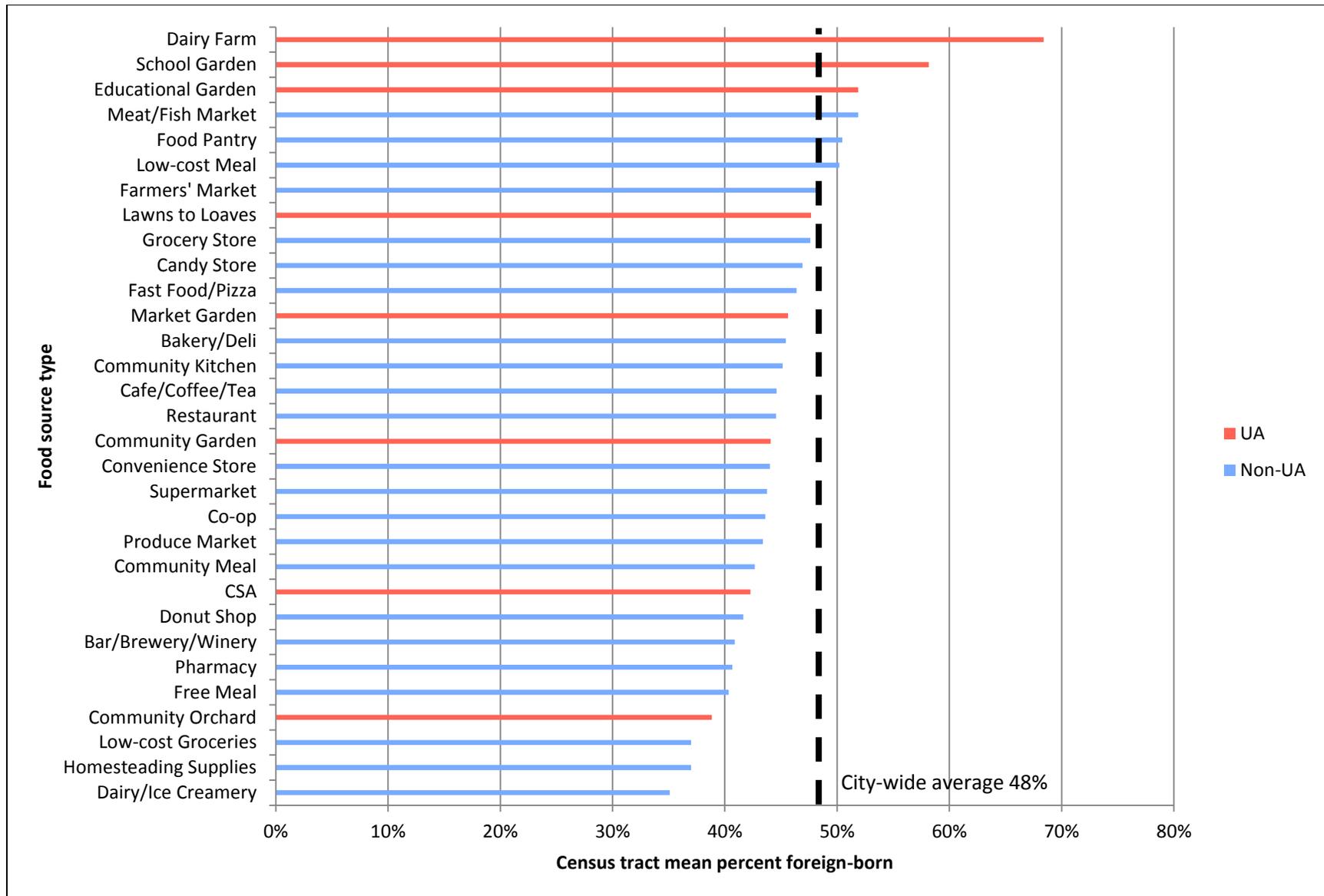


Figure D4. Census tract mean percent foreign-born by food source type, Vancouver.

Appendix E: Food Source Average Demographics – Detroit

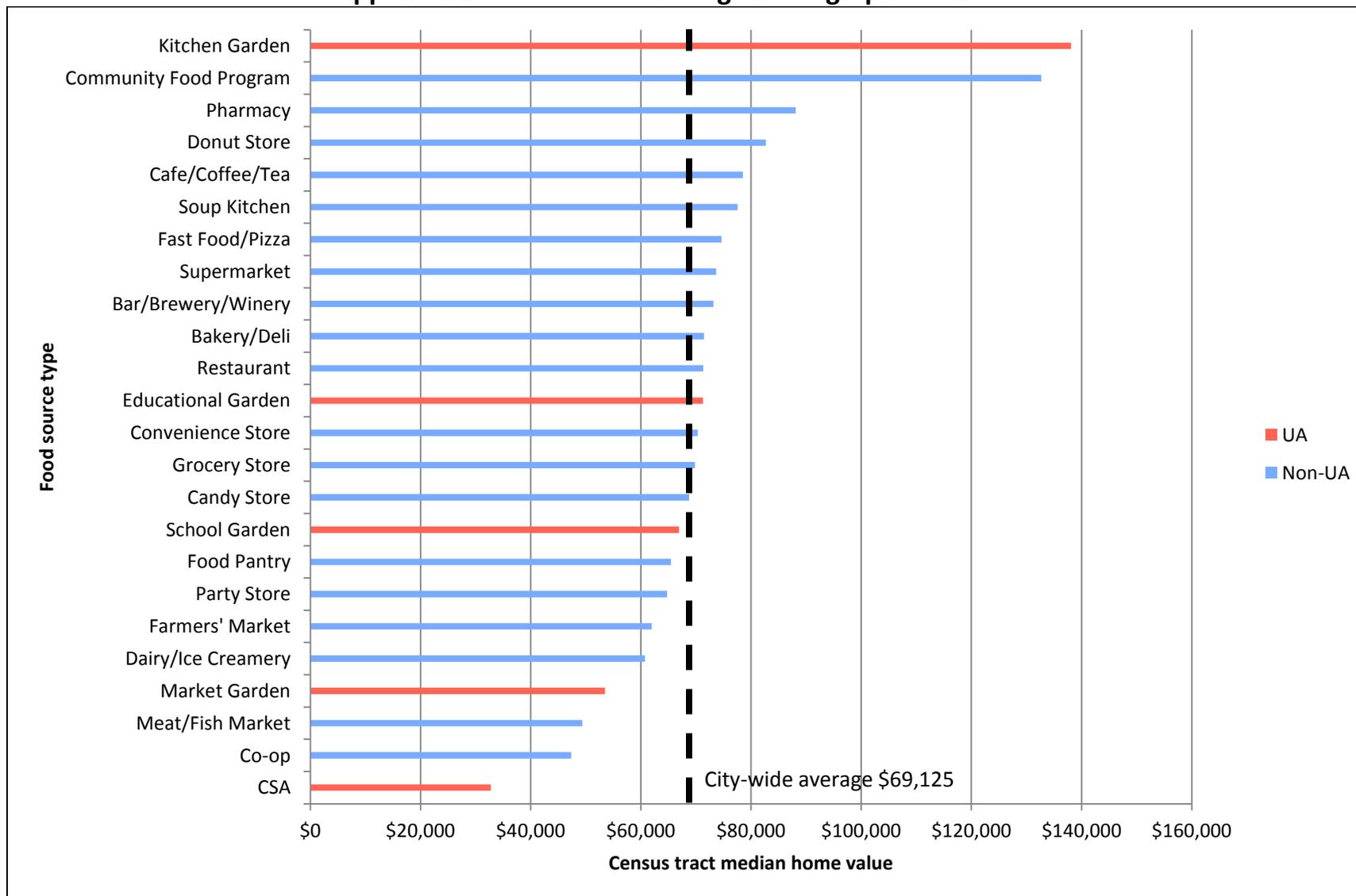


Figure E1. Census tract median home value by food source type, Detroit.

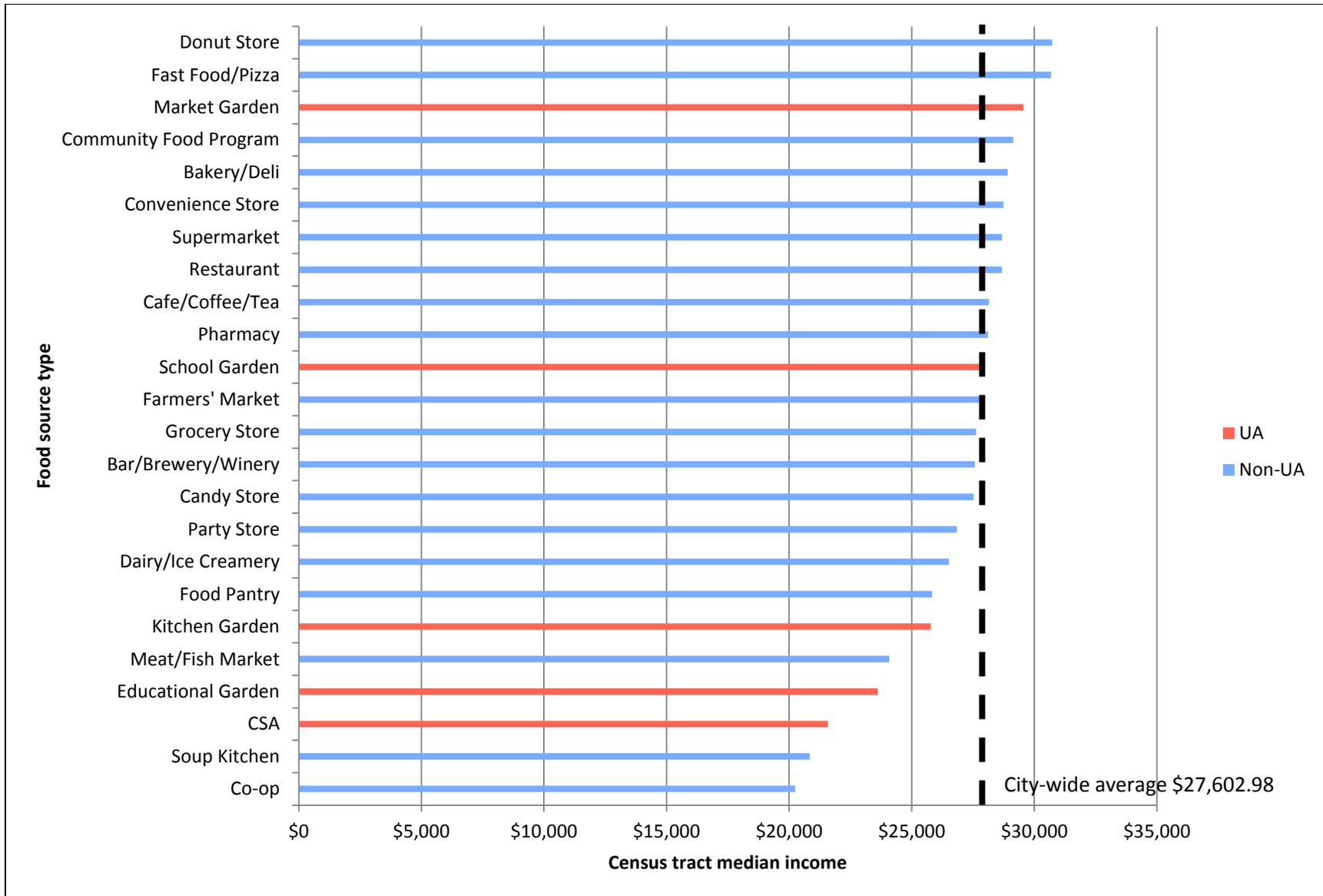


Figure E2. Census tract median income by food source type, Detroit.

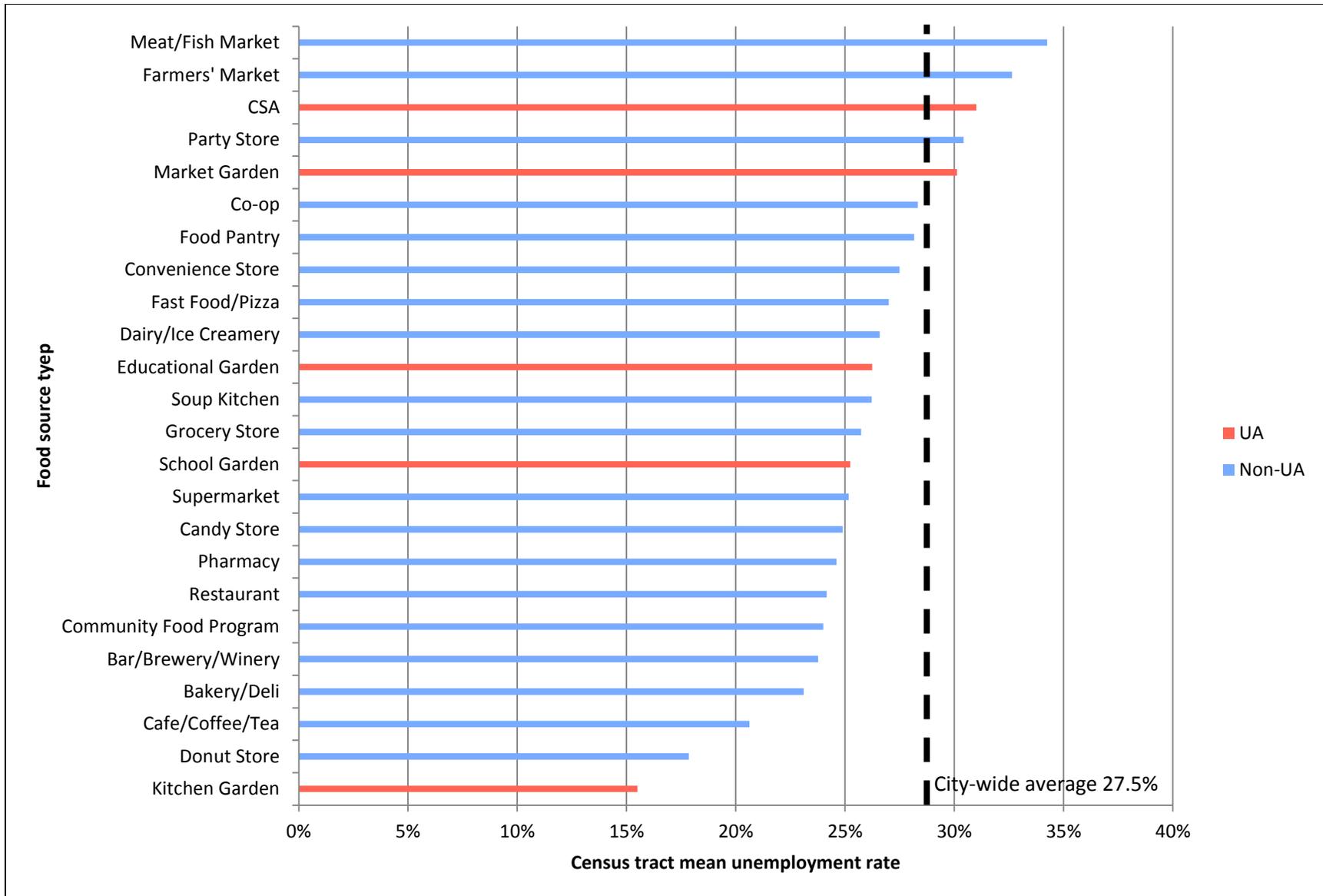


Figure E3. Census tract mean unemployment rate by food source type, Detroit.

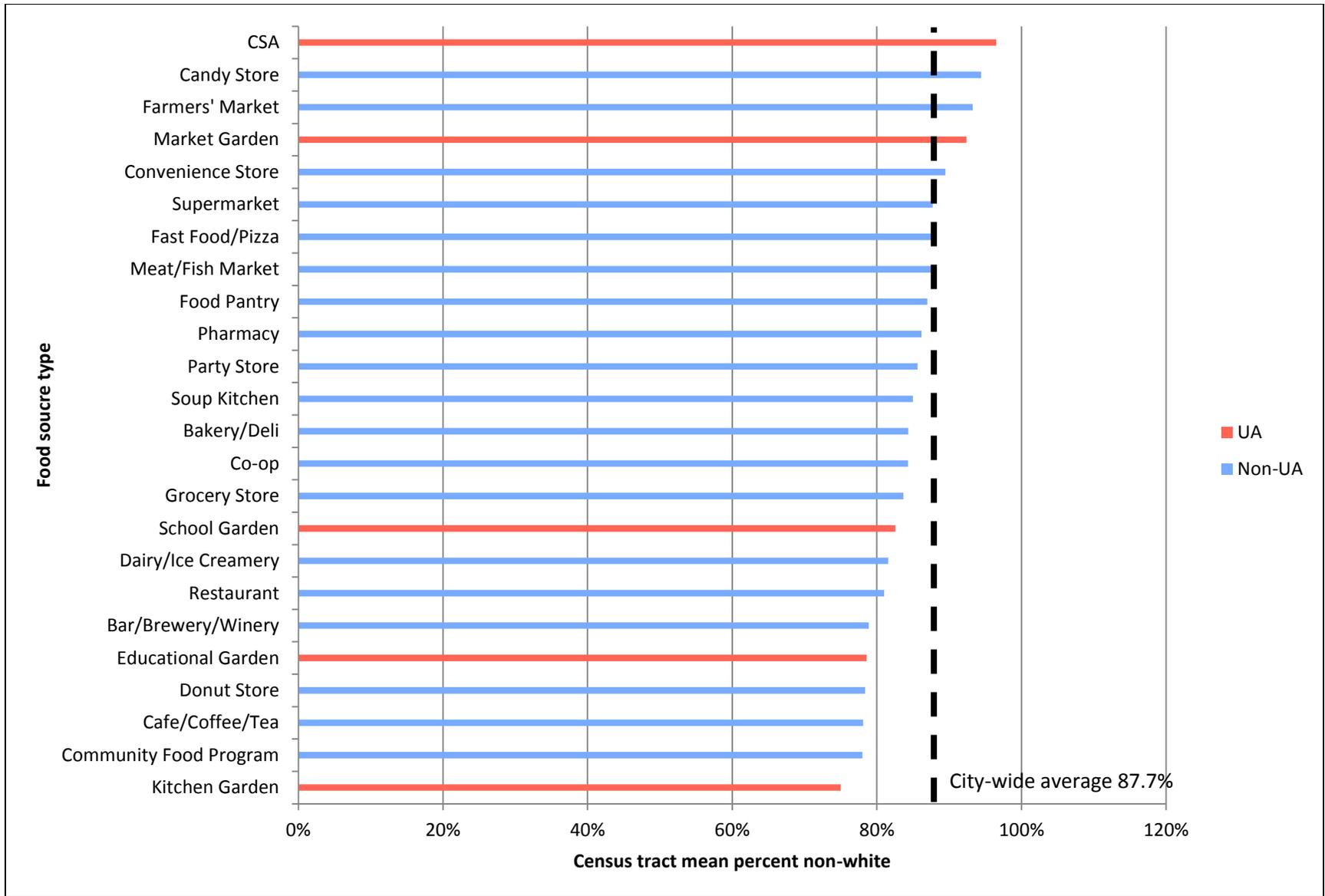


Figure E4. Census tract mean percent non-white by food source type, Detroit.

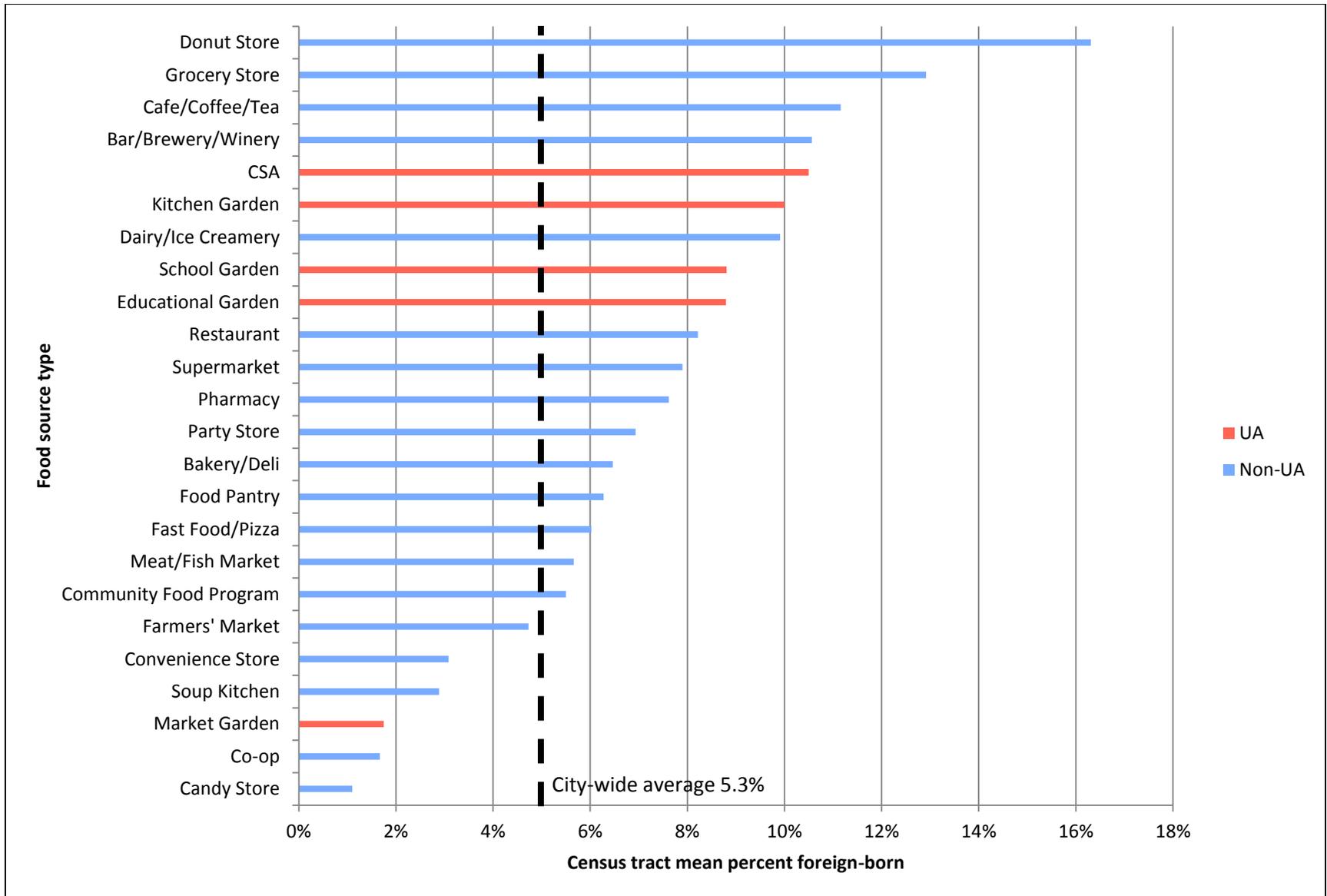


Figure E5. Census tract mean percent foreign-born by food source type, Detroit