

The Retail Food Environment in Toronto, ON

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BACKGROUND

Food insecurity is closely linked to many health concerns, including increased likelihood of obesity, chronic diseases like diabetes or major types of cardiovascular disease, and poor mental health. The retail food environment (RFE) is an important determinant of population health, but has traditionally been concerned with geographic access to food and identifying *food deserts* – low-income areas with limited access to nutritious food sources or food swamps – marginalized areas saturated with fast-food outlets or convenience stores (Minaker, 2016). However, *food mirages* – areas in which healthy food outlets appear plentiful but remain economically inaccessible for low-income households – may be a more appropriate metaphor for understanding population food purchasing and dietary intake (Minaker, 2016). Extant research also tends to exclude non-traditional food stores, like independent minority/ethnic retailers, that may offer food at discounted prices or more affordable cultural staple items. By contrast, other non-traditional food stores, like butcher shops, may sell food items at premium prices (Wiebe & Distasio, 2016). Certain patterns also develop across cities that may lead to the emergence of food mirages and further constrain healthy food access, such as gentrification (Breyer & Voss-Andreae, 2013). Within the contexts of rapid global urbanization and dietary impacts on human health, understanding processes by which food mirages and urbanization are linked is a worthwhile endeavour. **Study Area – Toronto, ON:** Toronto is a rapidly changing city with a serious food insecurity problem. Although a complex combination of factors contributes to food access, over one in eight people cannot afford to eat a healthy and adequate diet in this metropolis (Tarasuk et al., 2014). Toronto is made up of n=570 census tracts and n=3702 dissemination areas. The City of Toronto also developed n=140 neighbourhoods used to monitor wellbeing, help local planning strategies, and reflect diversity and culture across the city.

RESEARCH QUESTIONS

- (1) What is the existing state of the retail food environment in suburban and urban areas in Toronto?
- (2) What is the link between urban renewal and the emergence of food mirages in Toronto?

METHODOLOGY

Data Collection

City of Toronto – Neighbourhoods and Neighbourhood Improvement Areas

Neighbourhood shapefiles and the City of Toronto Neighbourhood Equity Index (NEI) scores were collected from the City of Toronto Open Data portal and geocoded into ArcGIS 10.8.1. Neighbourhood Improvement Areas (n=31) face serious inequalities, require immediate intervention, and have scores below a benchmark score of 42.89.

Social Inequity Index

A Social Equity Index (SEI) was developed at the dissemination area (DA) level, using five indicators drawn from the 2016 Census: (1) median household income, (2) unemployment rate, (3) completion of postsecondary education, (4) access to a personal vehicle, (5) immigration between 2011 and 2016. The index was modelled after the Toronto NEI, used the same benchmark score, and was geocoded into ArcGIS 10.8.1.

Food Retailer Data and Surveying Non-Traditional Retailers

Toronto Dinesafe food retailer data was collected from the Open Data portal and geocoded into ArcGIS 10.8.1. All butcher shops and fish shops in Toronto were interviewed by phone in August and September 2020 to assess if they carried any quantity of healthy food in at least 3 of the 4 categories: (1) both fruits and vegetables, (2) whole grain products, (3) milk, cheese, or dairy products, (4) meats, fish, eggs, or other proteins. Food retailers were grouped into one of three categories: (1) discount, (2) chain, or (3) independent/non-traditional grocer.

Measures of Gentrification

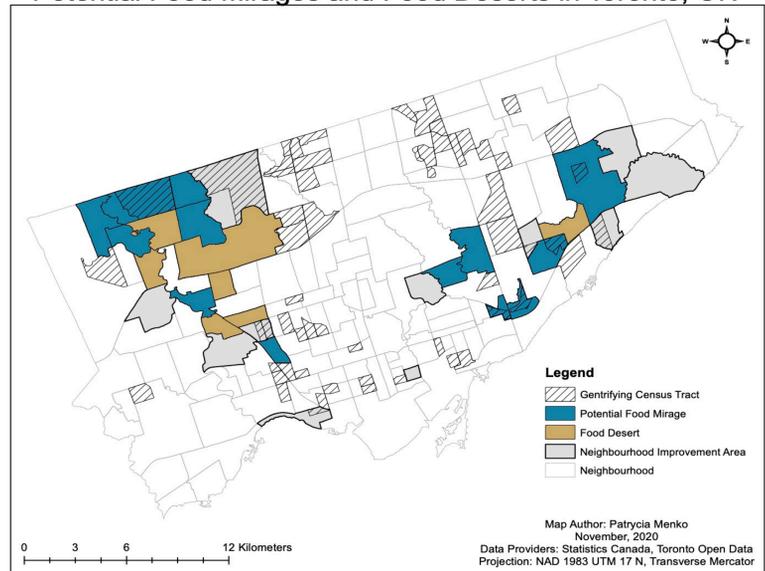
A methodology by Ding et al. (2016) was applied at the census tract level using 2011 and 2016 census data and geocoded into ArcGIS 10.8.1. A census tract was considered gentrifying if it was gentrifiable in 2011 (i.e. had a median household income below the citywide median) and experienced both an above citywide median percentage increase in either its median gross rent or median home value *and* an above citywide median increase in its share of university-educated (bachelor or above) residents.

Mapping Potential Food Mirages

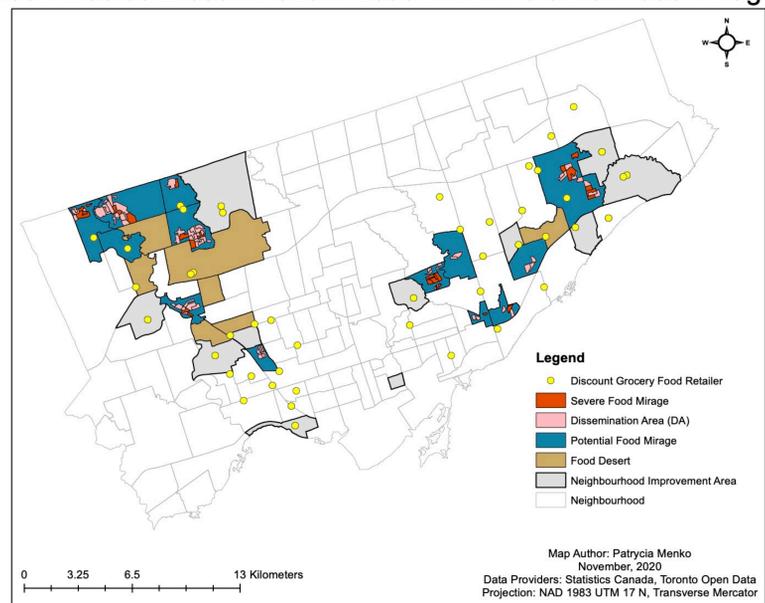
Population-weighted centroids for each NIA were used to derive a 1000m network distance buffer to the nearest food retailer.

- Potential Food Mirage: NIA that had access to only chain grocers *or* only chain and independent/non-traditional grocers within this buffer.
 - DAs within food mirages were isolated to identify areas that experience the lowest access to affordable healthy food.
 - DAs with SEI scores ≤ 42.89 were identified as severe food mirages.
- Food Desert: NIA without any access to grocery food retailers within this buffer.

Potential Food Mirages and Food Deserts in Toronto, ON



Most Affected Dissemination Areas within Potential Food Mirages



RESULTS

Potential Food Mirages

13 NIAs identified as potential food mirages

- 30,102 households affected
- 273,191 people impacted

28 DAs identified as severe potential food mirages

- 29,273 people live in these areas

Food Deserts

8 NIAs identified as food deserts

- 15,259 households affected
- 123,300 people impacted

Gentrification

- 5 gentrifying census tracts overlap with food mirages

NEXT STEPS

A key limitation of this study is that actual food prices were not considered when classifying grocery food retailers. Food affordability was determined based on market knowledge, store ownership, and cross-referenced with Dinesafe's cataloguing. This resulted in the assumption that all independent/non-traditional retailers considered towards this study generally sell food at a higher price point, which is not always the case. Future researchers should consider using the Nutritious Food Basket tool in their analyses to better capture food costs in relation to the retail food environment.

Another limitation of this study is that only a pedestrian network distance was applied to identify the type of retail food environment, when there is rather a great deal of variability in food shopping patterns. For example, vehicle ownership and access to public transit play a significant role in both perceived and actual food acquisition. Future studies should apply multiple network distances based on different modes of transportation to better assess food accessibility, especially in suburban neighbourhoods where walkability is usually weakened.

DISCUSSION

The majority of people experiencing social inequity live outside the downtown core of Toronto. Grocery stores are also reasonably distributed across Toronto, albeit more sparsely in suburban neighbourhoods. When classified based on affordability, approximately half of the discount food retailers are located within or in close proximity to NIAs. However, when network distance is applied to the population-weighted centroids of neighbourhoods, two-thirds of NIAs experience some type and level of food insecurity. This is largely due to one of two reasons: either residential areas do not have walkable access to discounted grocers *or* residential areas do not have walkable access to any type of grocery retailer within the network distances. Potential food mirages suggest that lower cost grocery options *may* be inaccessible.

Extreme potential food mirages also tend to appear across the following few planning areas: Jane-Finch, York University, Rexdale, and South East Scarborough. Moreover, of the 5 gentrifying census tracts that overlapped with potential food mirages, 3 coincided with severe potential food mirage areas. This is concerning because gentrifying areas are driven by the demands of higher-income and higher-educated residents, which could possibly move food accessibility further out of reach for the existing communities.

Understanding social and economic distributions across neighbourhoods in relation to healthy food access and affordability leads to evidence-based intervention strategies, creates allyship across disciplines, and supports the development of impactful and sustainable public health and planning policies.

REFERENCES

- Breyer, B., & Voss-Andreae, A. (2013). Food mirages: Geographic and economic barriers to healthful food access in Portland, Oregon. *Health & Place, 24*, 131–139.
- Ding, L., Hwang, J., Diving, E. (2016). Gentrification and residential mobility in Philadelphia. *Regional Science and Urban Economics, 61*, 38–51.
- Minaker, L. (2016). Retail food environments in Canada: Maximizing the impact of research, policy and practice. *Canadian Public Health Association, 107*, eS1–eS3.
- Tarasuk, V., Mitchell, A., Dachner, N. (2014). Household food insecurity in Canada, 2012. Toronto: Research to identify policy options to reduce food insecurity (PROOF). Retrieved from <http://nutritionalsciences.lamp.utoronto.ca/>
- Wiebe, K., & Distasio, J. (2016, June). Confronting the Illusion: Developing a Method to Identify Food Mirages and Food Deserts in Winnipeg. *The Institute of Urban Studies In-Brief at The University of Winnipeg*.