

Food Deserts or Food Oases? Predicting Grocery Store Locations in Hamilton, Ontario

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Abstract

This is the abstract.

It consists of two paragraphs.

Keywords: Grocery Store, Hamilton

1. Introduction

Nice introduction goes here. . .

2. Data and Methods

2.1. Study Area

My study area is Hamilton, Ontario. Figure 1 below shows the study area.

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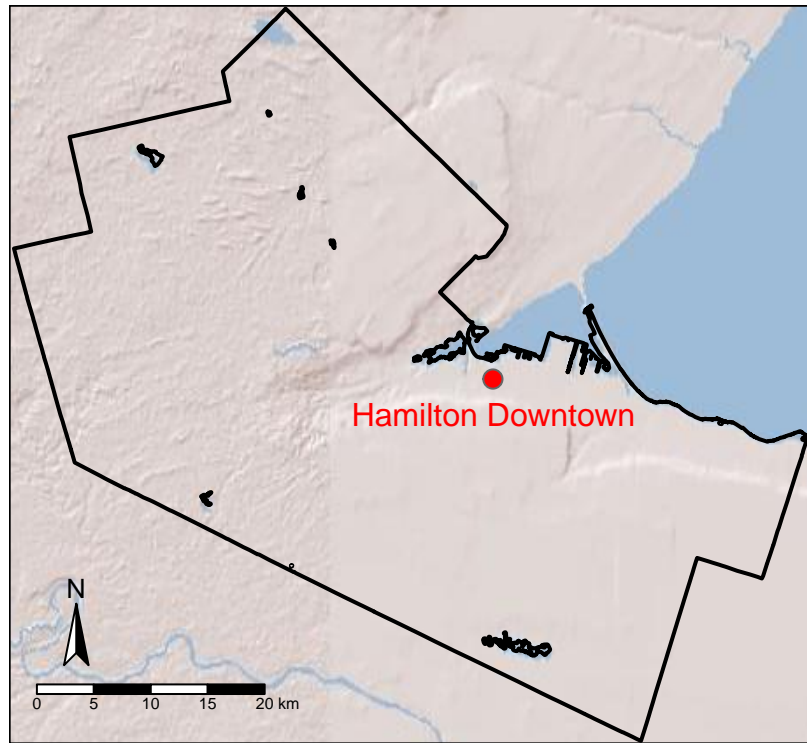


Figure 1: Study Area: Hamilton, Ontario

2.2. Data Sources

My data used in this project are shown in Table 1 below.

Name	Source	URL	Accessed Date
Grocery Stores in Hamilton	OpenStreetMap	https://overpass-turbo.eu/index.html	2024-10-04
HSR Fall 2024 GTFS Static	Hamilton Open Data	https://opendata.hamilton.ca/GTFS-Static/	2024-10-04
Dissemination Area and Census Data in Hamilton	Statistics Canada	https://censusmapper.ca/api	2024-11-16

Table 1: Data Sources

2.3. Methodology

3. Results

3.1. Descriptive Statistics

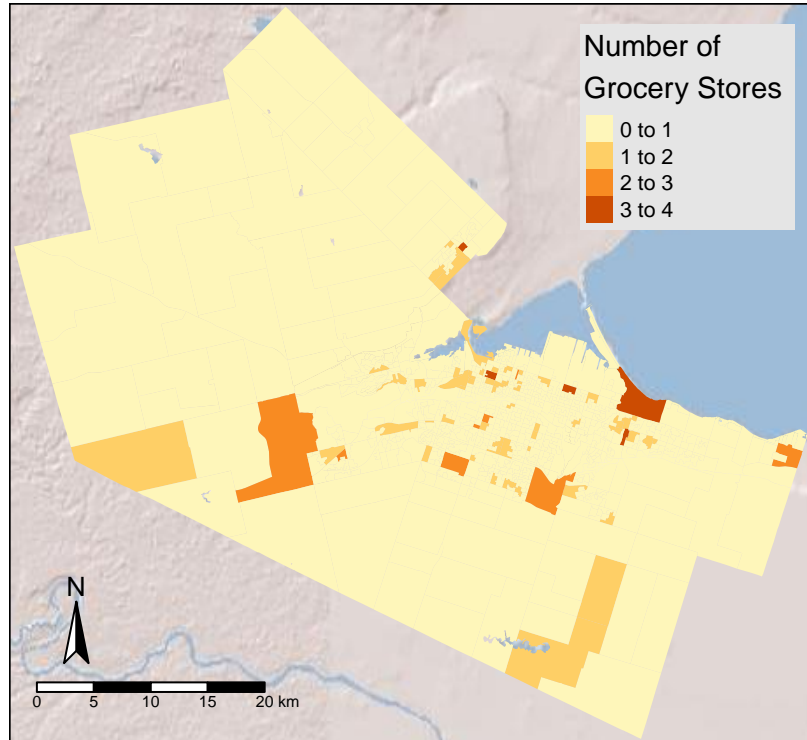


Figure 2: Grocery Store Counts at Dissemination Areas in Hamilton, Ontario

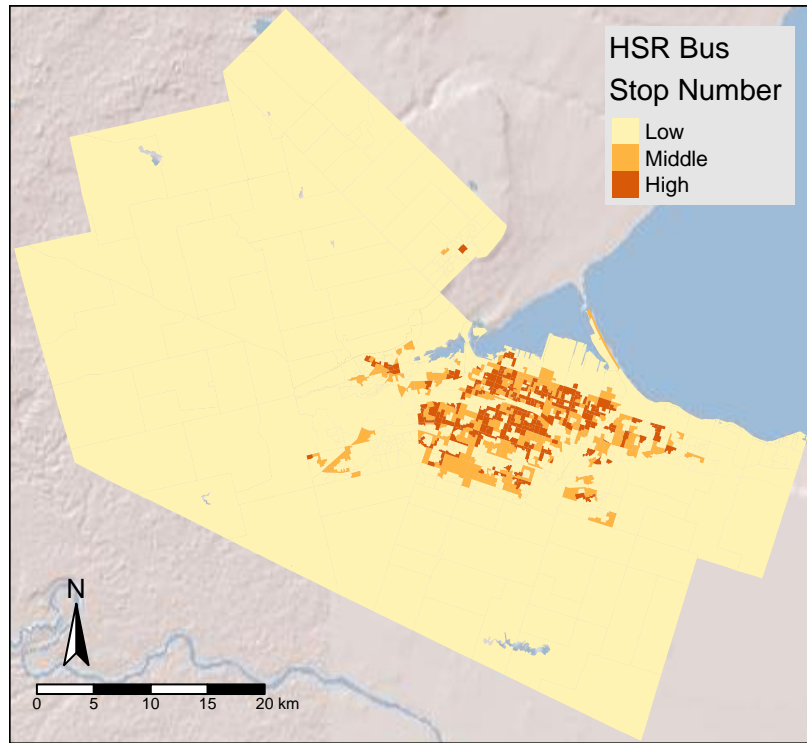


Figure 3: HSR Bus Stop Number at Dissemination Areas in Hamilton, Ontario

4. Zero Inflated Negative Binomial Regression Results

Table 2 below shows the regression results.

5. Discussion and Conclusion

	Zero inflated negative binomial model
Count model: Spatial lag of grocery store count	-2.99*** (0.84)
Count model: Percentage of population aged below 24 years old	0.03 (0.04)
Count model: Percentage of population aged above 65 years old	0.02 (0.02)
Count model: Percentage of population don't know official language	-0.03 (0.10)
Count model: Percentage of population don't speak official language at home	0.17** (0.06)
Count model: Percentage of population live in single detached houses	-0.01 (0.01)
Count model: Percentage of population have annual total income less than 40K	-0.03 (0.03)
Count model: Percentage of population have annual total income more than 100K	-0.02 (0.04)
Count model: Percentage of population that are married or live in common-law	0.03 (0.03)
Count model: Natural log of (population density + 1)	-0.38* (0.17)
Count model: Natural log of distance from DA centroid to Hamilton downtown	-0.50** (0.19)
Zero model: Spatial lag of grocery store count	-8.62* (3.38)
Zero model: Percentage of population don't speak official language at home	0.14 (0.11)
Zero model: Percentage of population that are married or live in common-law	0.11 (0.07)
Zero model: Natural log of (population density + 1)	-1.71* (0.74)
Zero model: Number of HSR bus stops (50-75 percentile)	-2.73*** (0.72)
Zero model: Number of HSR bus stops (75-100 percentile)	-1.50* (0.74)
Zero model: Natural log of area size in square kilometres	-2.36** (0.76)
AIC	508.91
Log Likelihood	-233.45
Num. obs.	876

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; \cdot $p < 0.1$

Table 2: Regression results