

Mapping the Intersection of Income Levels and Food Deserts in Chicago

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FOOD DESERT

A community with no access to nutritious food.

2.4



THE USDA SAYS THERE ARE 2.4 MILLION HOUSEHOLDS IN THE U.S. THAT ARE MORE THAN A MILE AWAY FROM A SUPERMARKET WITH HEALTHY FOOD.



ACCORDING OF THE CENSUS OF 2015-19 OF THE USDA, 40% OF THE POPULATION IN THE U.S. LIVED IN A FOOD DESERT.



HOUSEHOLDS LIVE MORE THAN ONE MILE FROM THE NEAREST GROCERY STORE.



APPROXIMATELY 47 MILLION PEOPLE WHO LIVE IN A FOOD DESERT HAVE A SHORTER LIFE EXPECTANCY THAN THE REST OF THE POPULATION BECAUSE OF THEIR POOR NUTRITION.



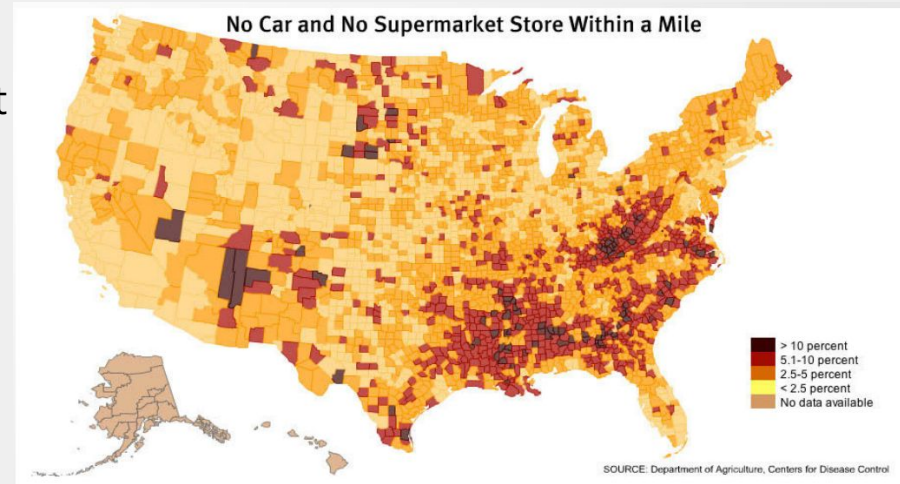
PEOPLE LIVING IN A FOOD DESERT ARE MORE LIKELY TO BE FOOD INSECURE.

What is a food desert?

Food deserts leave lasting impact on local community health (wuft.org)

Food Desert Features and Causes:

- In Chicago, more than 500,000 people live in food deserts, while another 400,000 live in areas where fast food is more convenient
- Owners of grocery stores tend to open locations in affluent neighborhoods, discouraged by the prospect of losing money in poorer ones
- Caused chiefly in urban areas (including Chicago) due to lack of reliable access to public transportation

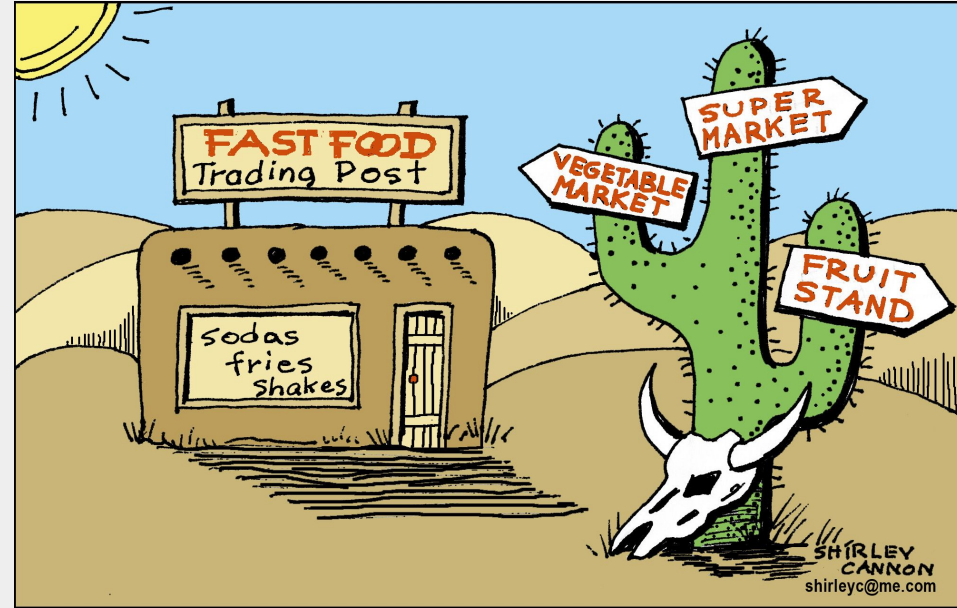


Source:

<https://thehumaneleague.org/article/food-desert>

Major Trends: Relationship between income status and access to fresh, organic foods

- Historically, redlining and segregation have limited access to fresh food and groceries in underserved, minority-majority communities
- Wage deserts describe areas in which wages cannot keep up with basic necessities; creates food deserts and widens insecurity
- In neighborhoods with access to a wide variety of food options, a huge disparity exists between these and underserved communities in life expectancy



Source: <https://foodrevolution.org/blog/food-deserts-food-oasis-healthy-food-access/>

How did we design our map?

Map Design:

- (1) Generated a map of Chicago
- (2) Highlighted the neighborhoods based on income
- (3) Identified and added markers of grocery and liquor stores

Coding Languages Used:

- (1) Javascript/Leaflet
- (2) Python
- (3) SQL
- (4) HTML/CSS

Data Sets Used:

- (1) <https://data.cityofchicago.org/resource/3e26-zek2.json>
- (2) <https://data.cityofchicago.org/resource/kn9c-c2s2.json>
- (3) <https://data.cityofchicago.org/resource/4ijn-s7e5.json>

Check Out Our Map!

<https://arwalden4.github.io/Project3-Group-3/>

Food Inequality by Neighborhoods



Ratio of Grocery to Liquor Stores

Highest Ratios

- (1) Near North Side
- (2) Streeterville
- (3) Goldcoast
- (4) Old Town
- (5) Hyde Park

Lowest Ratios

- (1) Englewood
- (2) Washington Park
- (3) Humboldt Park
- (4) Austin
- (5) Back of the Yards

Is income correlated with the distribution of fast food restaurants, grocery and liquor stores?

Major Trends

- (1) Neighborhoods on the **south** and **west** sides are **disproportionately low income**
- (2) Neighborhoods in the **downtown area** and **north** sides have **relatively higher incomes**
- (3) There is a mostly equal ratio of grocery and liquor stores in the downtown area and north sides
- (4) Areas with a higher liquor to grocery store ratio tend to be in lower income neighborhoods



Grocery and Liquor store locations: Lowest Income Neighborhood Vs Highest income Neighborhood

Neighborhood: **Englewood**

Income: \$11,888

Grocery Stores: 4

Liquor Stores: 17

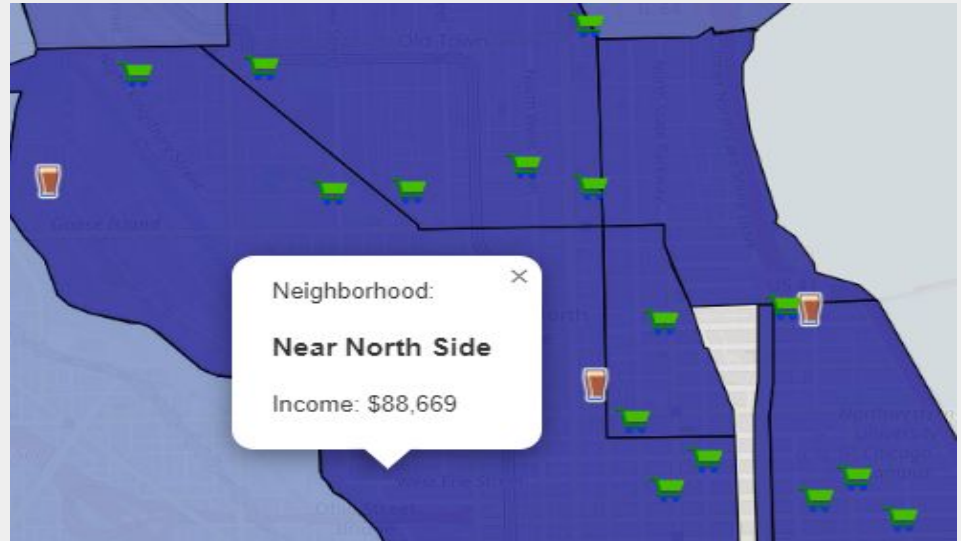


Neighborhood: **Near North Side**

Income: \$88,669

Grocery Stores: 15

Liquor Stores: 3



Limitations & Next Steps: **Datasets**

Liquor Stores

- (1) The data is pulled in **real-time** and directly from the **source API** and is limited to stores with current licenses
- (2) This introduces **inconsistency** in the data from day-to-day
- (3) The stores represented in the data are for stand alone liquor stores and do not capture **other grocery stores** and **gas stations** that carry alcohol.

Chicago Household Income

- (1) The data does not include the percentage of households that own cars or have to use public transport.

Grocery Stores

- (1) The data is **not real-time** and was last updated in June 2020. Has to be manually updated at fixed periods of time.
- (2) Does not show **success metrics** of customer frequency or other business data.
- (3) Low demand could be a response to a **deficit of affordable and healthy food**. It indicates consumer choice is heavily influenced by income
- (4) **Limited in scope** depending on the Chicago Data Portal and its reporting on what is available (compared to more frequently updated Google Maps pins).

Limitations & Next Steps: **Interactive Map**

Population

Our map doesn't show the density of each neighborhood

High density neighborhoods with fewer grocery stores may be more negatively affected by food deserts

Incorporating population density gives us an idea of the **demand** for quality food in Chicago neighborhoods

Distance and Travel Time

Food deserts are defined by the miles and commute time for a person to access a grocery store

Mapping grocery stores depicts **availability** but not **accessibility**

A map that shows both allows for a better analysis of Chicago neighborhoods affected by food deserts

Conclusion

- We found that the economic status of the area affected how many grocery stores were accessible to residents
- Areas with more liquor stores generally had fewer grocery stores
- Lower income areas had higher grocery store to liquor store ratios
- Areas on the northside and downtown were generally more affluent and had fairly equal grocery store to liquor store ratios
- Areas on the west and southside of Chicago generally had lower incomes and a higher liquor store to grocery store ratio



