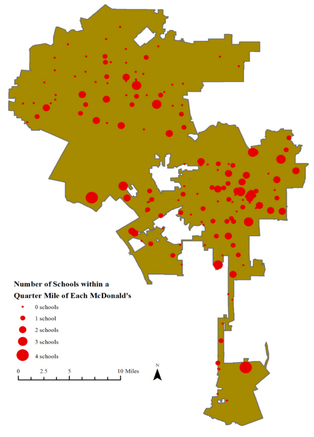
An Examination of the Spatial Distribution of McDonald's in Los Angeles

INTRODUCTION

Fast food is driving an obesity and diet-related disease epidemic in our country. In the past thirty years, childhood obesity in the US has tripled.[1] Meanwhile, every day, one-third of US children eats fast food.[2] Every second, McDonald's sells more than 75 hamburgers.[3] Obesity is affecting low-income populations and people of color disproportionately. For example, for every 1% increase in the poverty rate, there is a 1.17% increase in childhood obesity/overweight rates.[4] Furthermore, Latinx and Black preschoolers are three and two times more likely to be obese than White preschoolers.[1]

McDonald's, with 156 locations in the city of Los Angeles alone, markets its unhealthy food specifically to low-income, Black, and Hispanic communities.[5] In 2016, McDonald's offered a deal called "McPick 2," in which customers could buy two food items for $5.[6] In addition, a study performed by the University of Connecticut Rudd Center for Food Policy and Obesity found that unhealthy snack marketing to Black and Latinx populations was significantly higher and increasing than to White populations.[7] McDonald's even has websites specifically targeting minorities, such as 365black.com and MeEncanta.com.[8] Meanwhile, McDonald's restaurants in Black neighborhoods are twice as likely to display Happy Meal toys than those in majority-White communities.[8]

Figure 1. McDonald's and Schools



McDonald's also advertises to impressionable children in schools through fundraisers, called McTeacher's Nights. In September of 2016, the Vice President of United Teachers Los Angeles, the second largest teacher's union in the US, published an open letter denouncing McTeacher's Nights for marketing unhealthy food to children, exploiting teachers, and earning as little as $1 per student.[9]

This study aims to examine the spatial distribution of McDonald's in LA relative to the populations most targeted by its marketing, such as children and low-income, Black, and Hispanic communities.

This investigation sought to answer the following spatial questions:

- Are McDonald's locations close to schools?
- Do McDonald's cluster in low income areas?
- Do McDonald's cluster in areas where there are higher percentages of people of color and minorities?

1. http://stateofobesity.org/obesity-rates-trends-overview/
2. http://www.usatoday.com/story/news/2015/09/16/kids-fast-food-calories/72325838
3. http://www.usatoday.com/story/money/markets/2013/11/19/five-things-about-mcdonalds/3643557/
4. http://www.counselheal.com/articles/19434/20160108/low-income-communities-tend-to-have-higher-rates-of-childhood-obesity-study-finds.htm
5. ReferenceUSA
6. http://www.brandeating.com/2016/08/mcdonalds-returns-mcpick-2-for-5-and-adds-triple-cheeseburger-to-choices.html
7. http://www.uconnruddcenter.org/files/Pdfs/SnackFACTS_2015_FullDraft02.pdf
8. http://www.alternet.org/economy/mcdonalds-black-history-month-marketing-scheme-flimsy-distraction-their-unhealthy-food-and
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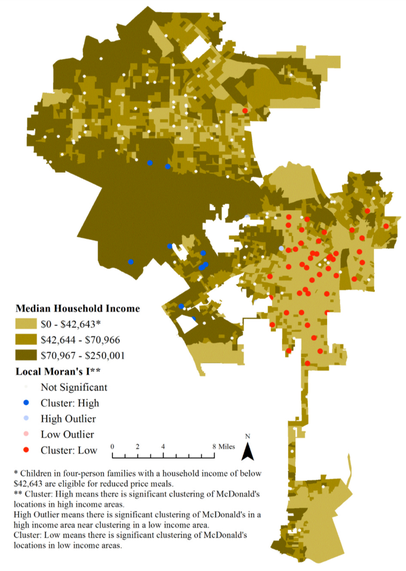
METHODS

McDonald's and school locations— To begin, McDonald's locations and school locations were obtained in tables from ReferenceUSA and the LA County GIS Data Portal. These locations were geocoded based on their latitude and longitude. Quarter-mile buffers were created around McDonald's locations and followed by a join of schools to the buffer layer. These buffers were then depicted using graduated symbols that represent the number of schools within those buffer zones.

Schools within a half mile of McDonald's— Data on median household income, race, and Latinx populations, estimated from American Community Surveys, were joined to block groups and depicted graphically using graduated colors. The block group attributes were then joined to school points that fell near those block groups. Schools within a half mile of McDonald's and outside of a half mile of McDonald's were selected and the demographic data were summarized in a table.

Figure 2. Clustering by Income



Cluster analysis— Block group attribute data were joined to McDonald's points that fell within the block groups. Local Moran's I was performed on McDonald's locations with respect to income, percent White, percent Black, percent Asian, and percent Hispanic or Latinx to determine if there was clustering in relation to those demographics.

RESULTS

There are up to four schools within a quarter mile of the McDonald's locations in LA (Fig. 1). Local Moran's I tests demonstrated there is mostly significant clustering in low-income (Fig. 2), predominantly Black (Fig. 3), and low percentage White parts of South LA (Fig. 5). In addition, there was significant clustering in high percentage Hispanic and Latinx neighborhoods in western and northern parts of LA (Fig. 4). There was also some significant clustering both just north and just south of Topanga State Park in high-income and high-percentage White areas (Fig. 2 and 5). There was no clustering of McDonald's with respect to Asian population distribution (map not depicted here).

In addition to examining clustering in relation to demographics in LA, the demographics of schools in neighborhoods within a half mile and greater than a half mile from McDonald's are depicted in the table below.

Distance to McDonald's	Household Income	Percent Black	Percent Hispanic or Latinx	Percent White
Schools < 0.5 mi	$48,311.24	10.6%	52.6%	47.8%
Schools > 0.5 mi	$61,947.59	93.7%	44.7%	55.8%

DISCUSSION & LIMITATIONS

The findings from this investigation demonstrate that McDonald's locations cluster in low-income and non-White areas of LA. As a result, these communities are confronted with more marketing. Children are especially vulnerable to fast food marketing. Therefore, the city of LA should impose restrictions on where McDonald's and other fast food chains can set up locations to ensure that they are outside of walking distance from schools. The city should also ensure that there are affordable, healthy alternatives to fast food and that there are restrictions on marketing unhealthy food to children using toys and educational fundraisers.

Figure 3. Clustering in Black Communities

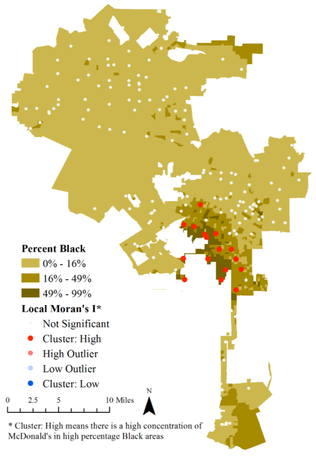


Figure 4. Clustering in Hispanic and Latinx Communities

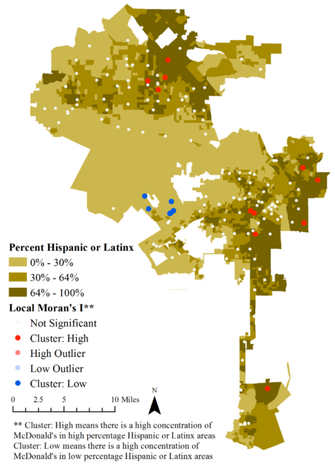
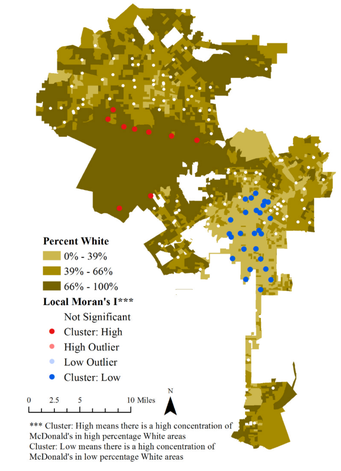


Figure 5. Clustering in White Communities



This investigation was limited in its scope as it only examined McDonald's locations. There are certainly other fast food outlets within walking distance of schools in LA. In addition, this study could not investigate whether McDonald's are placed closer to schools than they might otherwise be. Future studies could investigate other cities to demonstrate a trend in McDonald's marketing.

Sophie Dulberg

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Date: 19 December 2016

Projection: Lambert Conformal Conic

Coordinate system: NAD 1983 StatePlane California V FIPS 0405 Feet

Data sources: ReferenceUSA, Los Angeles County GIS Data Portal, Social Explorer Tables, Census Tiger, ESRI

Image sources: http://a.dilcdn.com/bl/wp-content/uploads/sites/8/2014/04/ronald.jpg

Tufts UNIVERSITY