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A Descriptive Analysis of Farmers' Market Neighborhoods and Who They Serve

One of the primary roles of a planner is to ensure that the basic needs of his jurisdiction's residents can be met adequately and equitably. This means that planners employ tools to address issues regarding access to affordable housing, clean air and clean water. However, the issue of access to good food is only recently becoming a subject of planning practice. While many planners still struggle to determine whether addressing access to good food is even a planning issue, other planners and advocates have a lot of work to do to define the specific food-related issues in the jurisdictions they serve. If "good food" advocates and planners are going to make the case that good food access is a public good and a planning issue worth addressing with public money and policy, then they must assess the food access and justice issues affecting the health of their communities. And farmers markets are a good place to start.

Farmers markets are popular. At least thirty-four farmers markets operate within the political boundaries of the City of Los Angeles. They offer communities a spread of benefits, serving as a public gathering space for a community; providing communities access to "good food;" and potentially providing an economic opportunity to local farmers. Because of their popularity as an alternative source of fresh, local, good food, farmers markets are an important indicator and proxy for a neighborhood's access to good food. The Los Angeles Food Policy Council defines "good food" as "healthy, affordable, fair, and sustainable." Arguably, good food is important for planners because it's not available to all communities equitably and because it's important to the issue of food security. Food planning scholar Kameshwari Pothukuchi defines "food security" as "a situation in which all community residents obtain a safe, culturally

acceptable, nutritionally adequate diet through a sustainable food system that also maximizes community self-reliance and social justice" (Pothukuchi 2).

Farmers markets are rooted in the food justice movement in the 1970s. Robert Gottlieb and Anupama Joshi provide a brief history of the contemporary farmers' market movement in their book *Food Justice*. Farmers markets were meant to increase "affordable fresh, local, high-quality food in low-income communities" (Gottlieb & Joshi 165). However, the emphasis on this vision diminished as market forces in the 1980s drove farmers markets into wealthier neighborhoods where shoppers could pay more for their products. The problem persistend into the 1990s, where some farmers market associations became frustrated in their efforts to start markets in low-income communities. Farmers markets simply weren't profitable there. So farmers markets became a "white" thing: the farmers were white; the customers were white (Gottlieb & Joshi 164). As something that started as a movement to address the social justice issues around access to good food and transformed into something nearly as socially exclusive as Whole Foods, little is known about where farmers markets stand now. Who do they serve now? Indeed, a lot has changed in the past two decades.

The analysis that follows evaluates the demographic characteristics within defined zones around farmers' markets operating within the jurisdictional boundaries of the City of Los Angeles. The analysis starts with the hypothesis that farmers markets serve an exclusive group of Angelenos. We expected to find that factors relating to median age, population over age 62, household income, race, median rent, median home value, ratio of renters to property owners, and ratio of families to non-families were correlated with farmers' market locations. We believed that farmers markets would be concentrated in areas with a higher rate of young, white, wealthy,

single residents where home values and rental rates were higher than the averages for the city as a whole. While parts of this hypothesis were validated by a GIS analysis, the results were more mixed than expected.

Data Sources

To determine who farmers' markets in Los Angeles serve now, GIS is useful. It provides a means to spatially define a Farmers' Market Neighborhood (FMN) using the buffer tool and derive summary statistics based on locational information, comparing the mean and median values of several attributes between the City of Los Angeles as a whole against farmers' market neighborhoods within the City of Los Angeles.

Five sources of data were used in this farmer's market GIS study:

1) Farmers' market location and attribute data from the California Federation of Certified Farmers' Markets;
2) a listing of which farmers' markets accept EBT from the Los Angeles County Department of Public Social Services;
3) a City of Los Angeles Area Planning Commission boundary polygon shapefile from the City of Los Angeles Department of City Planning;
4) a 2007 TIGER/Line shapefile of all the census tracts in Los Angeles County from the United States Census Bureau; and
5) Los Angeles County census-tract-level data tables on race, ethnicity, household income, median age, age 62 and over, median rent, median home value, ratio of families to non-families, and ratio of renters to owners from American Fact Finer at census.gov.

Farmers' Market Neighborhood Defined

This analysis required a spatial definition of a Farmers' Market Neighborhood (FMN) in the City of Los Angeles. Ideally, block-level data would be available for the factors we defined in the introduction above. This data is, however, available at the census tract level. So for the purposes of this research, we defined a FMN as being any census tract in the City of Los Angeles that has its polygon centroid within a one-mile buffer radius of a farmers' market.

To gain information on the demographic criteria listed in the introduction (age, household income, race, median rent and median home value), census tract level data had to be used. Using a more fine-grained level, like the block level, would be ideal since the smaller grouping would allow more area within the FMN to be included. However, the smallest scale at which the data we need to determine who the farmers' markets serve is at the census tract level. While some census tracts are contained within the farmers' market neighborhood, some census tracts have area inside and outside of the neighborhood with a centroid that may be within or outside of the buffer as well. As such, some areas within the farmers' market buffer zones are not counted where they otherwise would be counted where demographic data available at the block level. This may skew this study's results, but by how much is unknown.

One mile is a distance of maximum walkability. Anything beyond this distance may be more accessible by car. A walkable distance is important in defining a FMN since it's a measure of motile access. If a person does not have a car, a bicycle or cannot use public transportation, that person could hypothetically still walk to the farmers' market. Also, if a farmers' market is not within a person's neighborhood, that person who is not as motile, we posit, is not as likely to go to another farmers' market.

Working with Farmers' Market Data

Some farmers' market data can be found easily on the internet, like site location, operating hours and time, market operator, and whether EBT is accepted. This last criterion is important because whether a farmers' market accepts EBT can have an impact on who patronizes the market. That is, a market that does not accept EBT may not serve low-income residents. Arguably, however, some markets may not have to accept EBT, given the FMN definition of a one-mile radius. Other than the data on EBT, the rest of the information about markets noted above can be found on the online search database of the California Federation of Certified Farmers' Markets (CFCFM) (http://www.cafarmersmarkets.com). The data on which farmers' markets in Los Angeles accept EBT can be found at The Los Angeles County Department of Public Social Services (DPSS) website (http://dpss.lacounty.gov/dpss/calfresh/pdf/FarmersMarketsListing.pdf).

The information available in these two sources defined our use of proxy data from the US Census. Neither set of farmers' market data provided information on number and kind of vendors, number and kind of patrons, market revenue. Additionally, the farmers' markets in both files differed. The DPSS market list included more farmers' markets than the CFCFM list. This difference could be attributed to seldom updates to the list, poor data gathering, or that the DSPP list includes farmers' markets that are not certified. The farmers' markets included in this study are based on the CFCFM list. That is, only farmers' markets that are verified as certified are included.

Neither data source was in a table or a shapefile format. Instead it appeared as text on a web page. To make this information useful, I created a .xls table of farmers' markets within the City of Los Angeles based on the California Federation of Certified Farmers' Markets list.

Geocoding this list of markets became a challenge since ArcMap 10.1 does not include the tool needed to geocode these addresses. However, with the help of Ms. Shrewsbury's version 10.0, the data was geocoded into a shapefile with point features representing each farmers' market.

The first (and easiest) question to answer was whether a spatial pattern emerged in which farmers' markets accepted EBT. Since this information was not populated in an attribute table field of the geocoded markets, I selected the records in the farmers' markets attribute table that accepted EBT, exported those records into a new layer, and symbolized them using a spate color to distinguish between the markets that do and do not accept EBT. The spatial pattern between the two is either unclear or absent.

Clipping Census Tracts within the City of Los Angeles

The U.S. Census does not have census tract shapefiles just for the city of Los Angeles. The lowest political boundary level available for the purposes of this study is the county level. Because this study does not focus on county but on the city level instead, I had to use the clipping tool on two sets of polygon shapefiles. I downloaded the 2007 TIGER/Line shapefile of all the census tracts in Los Angeles County from the United States Census Bureau and the City of Los Angeles Area Planning Commission boundary polygon shapefile from the City of Los Angeles Department of City Planning. While this study does not examine data related to the Los Angeles Area Planning boundaries, that shapefile does provide City of Los Angeles political borders that the Los Angeles County census tracts could be clipped to. After the county census tracts were clipped to the LA City polygon, the next step would be to add census tract data from American Fact Finder.

Deriving Summary Statistics from U.S. Census Data

To draw a conclusion about who farmers' markets serve eight general steps were taken. Here is a summary of the first five steps discussed so far: 1) the geographic boundaries of the FMNs had to be defines. For our purposed, we defined it as a one-mile radius around a farmers' market. 2) Farmers' market data had to be processed into a useful Excel table and geocoded to gain a point shapefile for all certified farmers' markets in Los Angeles. 3) After adding the farmers' market shapefile as a layer, farmers' market records from its attribute table were selected for whether EBT is accepted at that location. Then those records were exported into a new layer that populated only EBT-accepting farmers' markets and symbolized with a color distinguishing them from farmers' markets that do not accept EBT. 4) The farmers' market points were buffered with a one-mile radius to represent its neighborhood. 5) LA County Census Tract shapefiles were clipped to the boundaries of a LA City shapefile in order to work with only those tracts within the City of Los Angeles and exported as a new layer.

Three more steps were taken to provide our final results: 6) US Census Tract data tables representing six data categories were each joined to the new LA City Tracts layer and then exported as a new layer. 7) Using the "Select by Location" tool, Census tracts from each of the layers resulting from the joining of the LA City Tracts with the US Census Tract data tables that had a centroid within the one-mile buffer around each farmers' market were selected and exported as new layers. 8) Summary statistics (found in the "Classification Statistics" window under Properties>Symbology>Quantities>Graduated Colors>Classify) between a U.S. Census data shapefile layer and its corresponding Farmers' Market Neighborhood layer were compared to determine whether a relationship exists between farmers' markets and the eight census categories defined: median age, population over age 62, household income, race/ethnicity,

median rent, median home value, ratio of families to non-families, and ratio of renters to property-owners.

Results & Discussion

Few of criteria used to determine who farmers' markets serve validate the hypothesis. Instead the results show that farmers' markets in the City of Los Angeles are fairly equitable.

Farmers' Market Neighborhoods vs. Citywide Averages	Farmers Market Neighborhood (FMN)	Citywide	Higher Average	Validates Hypothesis
Median Age	33.94	34.40	Citywide	N/A
Mean Percent Age 62 and above	12.31%	13.32%	Citywide	N/A
Median HH Income	$ 38,667	$ 48,266	Citywide	No
Median Home Value	$ 465,000	$ 403,600	FMN	Yes
Median Rent	$ 1,041	$ 1,102	Citywide	No
Mean Ratio Renter to Owner	0.53	1.52	Citywide	No
Mean Ratio of Families to Nonfamilies	1.93	2.70	Citywide	Yes
Mean % of Latino Population	46.58%	46.04%	FMN	No
Mean % of White (non-Latino) Population	45.58%	50.43%	Citywide	No
Mean % of Black Population	10.16%	9.76%	FMN	No
Mean % of Asian Population	14.99%	11.45%	FMN	No
Mean % of Pacific Islander Population	0.12%	0.18%	Citywide	Yes
Mean % of Other Population	23.38%	22.37%	FMN	No
Mean % of Two or More Races Population	4.65%	4.59%	FMN	No

The median age of those living in a FMN tracks closely to the citywide average as does the senior population. Household income and median rent are actually lower although median home value is higher. Slightly more homeowners than renters reside within a FMN although the rate of renters in FMNs is slightly higher than the citywide average. (A ratio greater than 1 means more homeowners than renters. A ratio less than 1 means fewer homeowners than renters.) Slightly fewer families live in FMNs than the citywide average but still represent a greater proportion of the population than non-family households. (A ratio greater than 1 means more families than non-families. A ratio less than 1 means fewer families than non-families.) In almost all racial and ethnic categories, people of color are represented in FMNs more than the citywide average while white people are represented slightly less than the citywide average.

These results suggest that farmers' markets serve a more diverse population in terms of age, income, housing status, race, and ethnicity than the citywide average. Additionally, the

notion that farmers' markets are a program for young, wealthy white people may be misguided or else it has changed since the 1990s. Of all the racial categories examined, for example, the white and the Pacific Islander populations are the only ones that dropped in FMNs. However, the map of FMNs shows that the core parts of the city have the most farmers' markets while South Los Angeles and the San Fernando Valley remain poorly served by farmers' markets. While farmers' markets do serve a more diverse group than the citywide average, they still do not serve many areas of the city that need good food options. One reason for this observation may be that the farmers' market dataset used shows only certified farmers' markets, whereas non=certified farmers' markets may serve these areas. Without looking at a more complete farmers' market dataset, this remains unknown.

This study is merely suggestive of trends and is not conclusive. No regression models were built, and no tests for statistical validity were conducted. Instead average demographic trends within FMNs were compared to average citywide trends. Furthermore, whether or not there's a positive relationship between the census data categories selected and farmers' markets is unclear. Did farmers' market operators choose locations with more diversity? Or did diversity result from the siting of these farmers' markets? A longitudinal study can be applied to examine this relationship further.

The most glaring omission in this study may be the factors that the farmers' market operators themselves identify as their location siting choices. Very little data about operators' location choices for farmers' markets is publicly available. Given more time, this information would be gathered directly from the farmers' market operators. Additionally, the data used

includes only farmers' markets currently operating. Whether other farmers' markets have since shut down remains unknown. And any reasons for their closure also remain unknown.

In addition to studying the areas left open by this study just noted, this study may also be repeated to compare citywide averages to farmers' markets with specific characteristics like whether it accepts EBT, its hours of operation, its day(s) of operation, or the kind of operator (private, public, non-profit) managing the farmers' market. Given more time, this kind of examination may reveal interesting findings even with the limited and general data used in this study.

Planners must include food systems among the basic structures that they address in urban places. Where good food cannot be readily accessed by a community, planners can use their tools to find solutions the way they do with other health issues like housing, clean air and clean water. Bringing farmer' markets into neighborhoods needing them most cannot be left to the free market.