Using CLQ to Estimate the Vernacular Great Plains and Midwest Boundary

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Introduction

This study uses the collocational quotient (CLQ) to analyze the boundaries of vernacular regions. We employ the CLQ metric on four regional terms "Great Plains," "Midwest," "Prairie," and "High Plains," that cluster across a group of states running from Ohio in the east into the edge of the Northern Rockies in eastern Colorado, Wyoming, and Montana. The use of CLQ allows the establishment of bidirectional spatial relationships between individual categorical variables, in this case, the words in the names of businesses. Additionally, using this approach and hotspot analysis enables us to establish the degree to which keywords are spatially collocated. Therefore, the use of CLQ potentially offers a more sophisticated understanding of how vernacular regions are bounded and how the terms interact with one another on the margins of regions. By understanding how multiple regional terms interact spatially, we can obtain a more robust understanding of the regional boundaries and subtle differences in keyword placement relative to one another.

Study Area

Prior studies of vernacular regions at the subnational level have tended to use the contiguous United States as the study area. This approach can potentially pick out anomalous pockets far from a core region, such as the Dixie region in Utah (Andrews & Finchum 2020). However, this expansive approach can necessitate creating statistical neighborhoods that are too expansive to examine the data at the appropriate spatial scales. Therefore, data for this study were limited by defining a study area "box" that roughly covers the entire central US containing the Midwest and Plains regions as broadly defined in texts, etc.

The study area is shown in the map to the right as a trapezoidal shape based on roughly following meridians running through central Ohio in the east and the Colorado/Utah state line in the west. In the north the are is bounded by the 49th parallel in the north and includes all but the gulf coast areas in the south.


Methods

Data for this project was gathered using ArcGIS Pro's Generate Points From Business Listings tool, searching for the keywords "midwest" and "great plains" within the study area. One each set we ran a standard Co-Location Quotient against the other. This provided results showing the co-location properties of businesses with Midwest in the name vs, those with Great Plains, and vice versa. This allowed us to determine if there were obvious and visual similarities in the two results.

Results
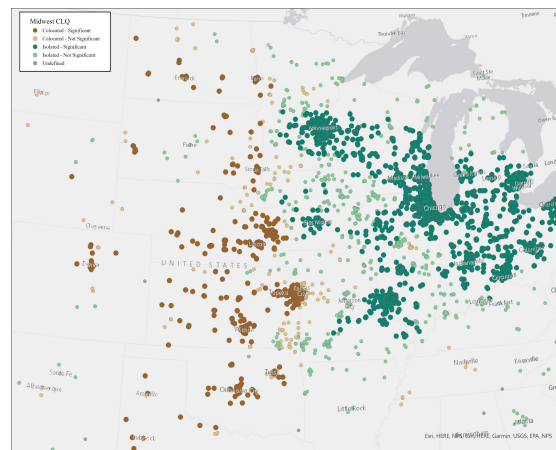
The first map shown is for the Midwest Co-Location model as shown above. The green points in this map are businesses using "Midwest" in their name that are not co-located or "near" businesses using "Great Plains" in their name. What can be noted here is a strong demarcation line of co-located businesses beginning along a line best defined by I-35 from Oklahoma City to Kansas City and then the Missouri River and I-29 north of Kansas City.

Results
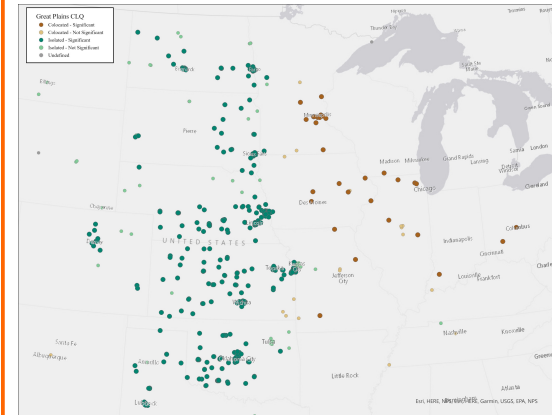
The second map shown is for the Great Plains Co-Location model as shown above. What can be noted here is the same strong demarcation line of along a line best defined by I-35 from Oklahoma City to Kansas City and then the Missouri River and I-29 north of Kansas City. On this map we see that the Great Plains businesses that are not co-located are west of the line and the few co-located businesses are east of the demarcation line.

Conclusions

The novel use of CLQ in this study provides a new way to delimit vernacular region boundaries. This approach shows particular promise in illuminating regions with fuzzy boundaries such as Midwest and Great Plains. CLQ defines a series of well-defined borders between the clusters of the keywords.

Based on observing the results of this study we can see that a strong division line exists where the vernacular "Midwest" region ends and the vernacular "Great Plains" regions begins to dominate in business naming.

Reference:
Andrews, J.R., & Finchum, G.A. (2020). Paring Old Dixie Down: The Dixie Highway and the Mapping of a Vernacular South. Southeastern Geographer 60(4), 345-359 doi:10.1353/sgo.2020.0028.