

The Macomb Food Cooperative: An Exploration into an Alternative Food Network in Rural Midwest

*Sunita George, Raymond Greene and Tatsaneewan Phoesri
Western Illinois University*

The project investigated the meaning of ‘local’ for an alternative food retail operator whose brand is built, in part, on bringing local foods to market. There is literature which argues for a separation of 100 miles as close enough to be ‘local’ but, beyond the pleasing roundness of 10 raised to the power 2, there is not much reasoning. It seems clear to us that what is local may well depend on both place and time—rural locations with sparse settlements must surely experience distance in different ways than more settled, urbanized places; and as technology changes, the ability to overcome distance must surely grow the space that is considered ‘local’.

Figure 1 is a digital recreation of the data shared with us by the Manager of the Macomb food Co-op, showing the coverage area of the Co-op’s suppliers i) within 100 miles of Macomb (Euclidean distance), and ii) across the three-state region, given Macomb’s location close to Illinois’s western border.

Figure 2 shows the suppliers within this radius. Of the 34 suppliers in the Macomb Co-op database, only 2 are outside Illinois—1 in northeast Missouri, and 1 in southeast Iowa. Here we see another way to think about the concept of “local”: The Macomb Co-op’s 100-mile radius buffer covers 3 states, with Illinois making up by far the largest share of the covered area (see Figure 3) at nearly 62% of the buffered area. 62 percent of 34 suppliers is only 21, but there are 32 suppliers from Illinois, so that the home state is overrepresented. This overrepresentation suggests that for an Illinois-based operation, there is a “local” quality to being in the same state.

The circular buffer used by the Co-op can only be an approximation because suppliers are reached not by direct flight but by travel along the road network. The next stage of this study therefore was to create a network buffer using the roads (highways, county roads, unpaved roads) in this area. Figure 4 shows three network service areas defined for travel distances of 75, 100, and 125 network miles. It can be seen that all suppliers lie within 100 network miles of Macomb (specifically the Co-op’s location in Macomb), so that the Co-op’s estimation of local is a good approximation by distance.

Figure 5 shows three network service areas defined for travel times of 60, 90, and 120 minutes. As with the distance service area, above, a range of targets around the central value were tested and, if we accept the prior definitions of “local”, i.e., within 100 miles of network travel, we see here that the distribution of suppliers is different: All Illinois-based suppliers are within 60 minutes drive of the Co-op but those outside the state are at greater travel times. For the Macomb Co-op, “local” may really mean “within Illinois.”

Fig. 6 and 7 compare the sizes of the circular buffer to the network service areas defined by distance and by time, respectively. Both middle-value service areas (100 miles, 90 minutes) cover less territory than does the circular buffer, and in the case of time-defined service area the 120 minute area is completely enclosed by the circle. This suggests that the Co-op’s use of a 100 mile radius to define its “local” area is a very conservative measure indeed.

Fig. 1: Macomb Co-op 100 mile buffer

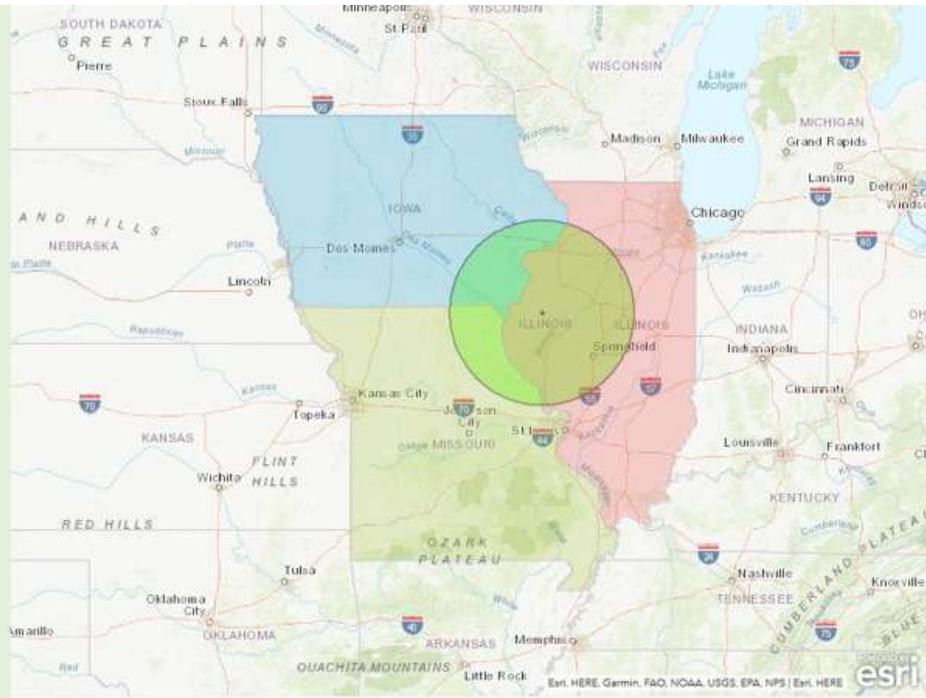


Fig. 2: 100 mile radius buffer from Macomb Co-op

--Coop suppliers' locations indicated

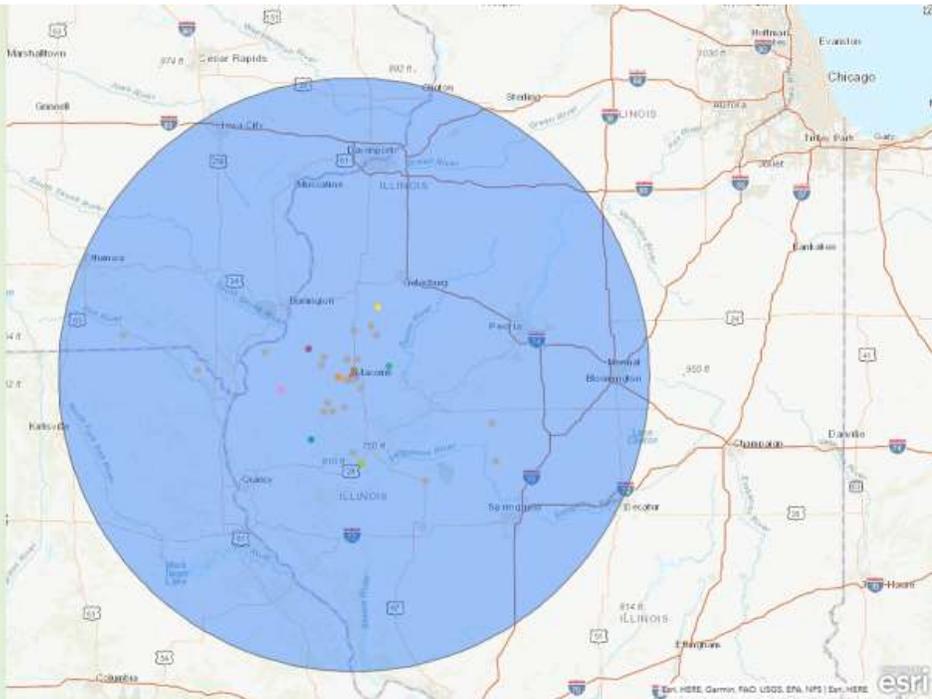


Fig. 3: Comparison of areas covered—circular vs. network distance buffer to 100 miles, by state

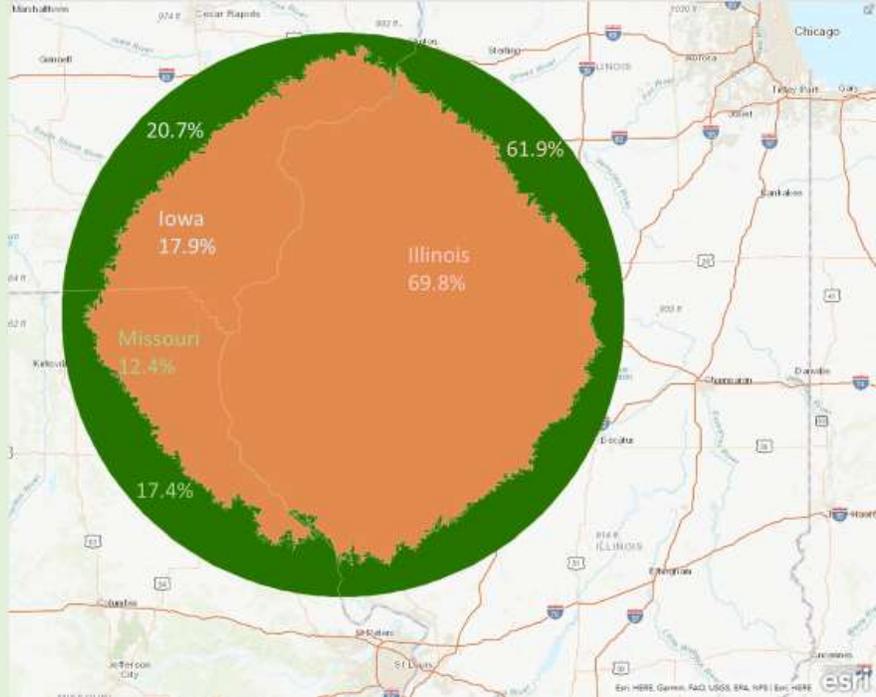


Fig.4: Network travel distances from Macomb Co-op (75 100 125 miles)

(Rural Driving algorithm, allows use of unpaved roads)
--Coop suppliers' locations indicated

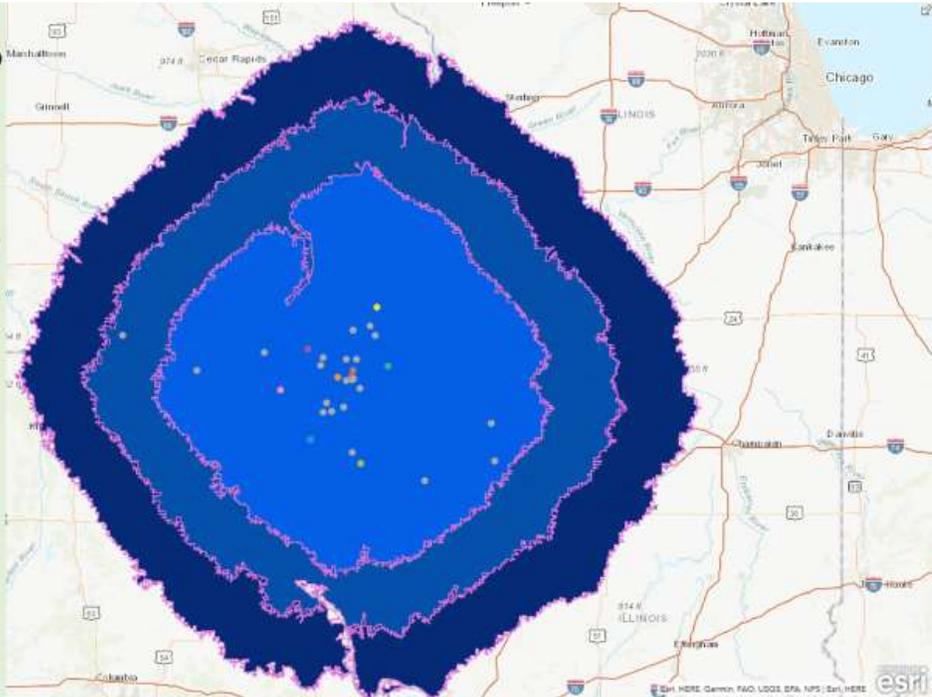


Fig. 5: Network travel times from Macomb Co-op (60 90 120 minutes)

- Rural Driving algorithm, allows use of unpaved roads
- Coop suppliers' locations indicated

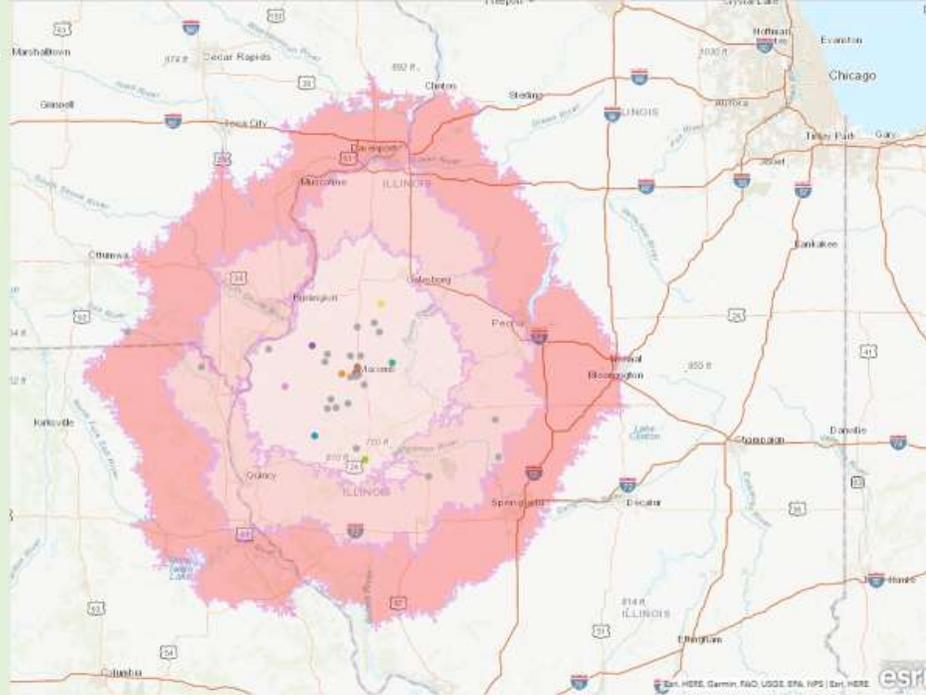


Fig. 6: Comparison of areas covered—circular buffer vs. network distance (100 miles)

Buffer Type	Area (sq mi)
Circular	31,412
Network	21,639
$\Delta =$	- 45%

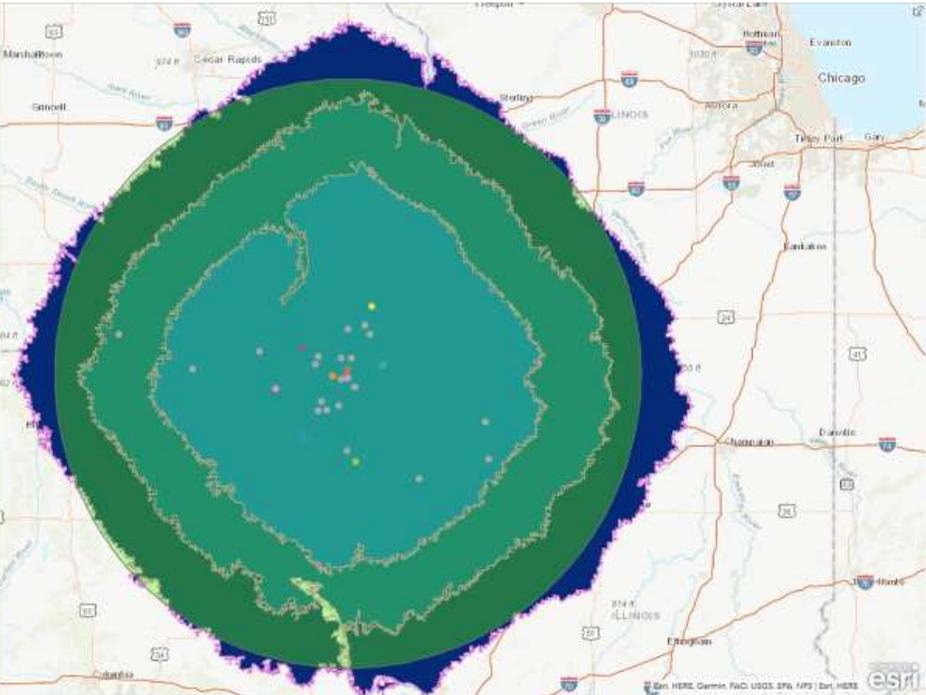


Fig. 7: Comparison of areas covered—circular buffer (100 miles) vs. network travel time (60 90 120 minutes) from Macomb Co-op

(Rural Driving algorithm, allows use of unpaved roads)
--Coop suppliers' locations indicated

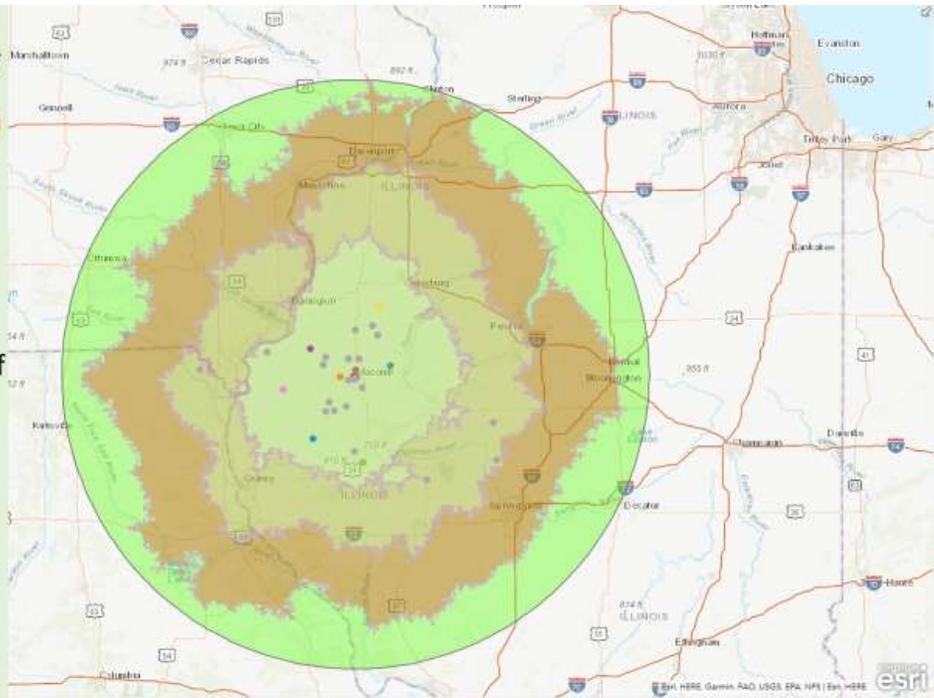


FIG. 8: MEASURING THE "LOCAL"

Comparison of time-based to distance-based service areas (120 minutes to 100 miles)

