

Alternative Perspectives on the Territorial Delineation of Industrial Clusters

Neil Reid

**Department of Geography & Planning and Urban Affairs Center
The University of Toledo**

Bruce W. Smith

**Department of Geography &
Center for Regional Development
Bowling Green State University**

Michael C. Carroll

**Department of Economics &
Center for Regional Development
Bowling Green State University**

Spatial Delineation of Industrial Clusters

- Growing acceptance of cluster-based economic development strategies has resulted in much research on this topic.
- Alternative methods have been proposed to delineate geographic footprints of clusters.
- Bathelt (2005) observed that one should consider spatial proximity, economic interactions, and social relations in the delineation of a cluster.



Purpose

- To illustrate and compare the use of various methods of delineating the spatial footprint of industrial clusters.
- To comment on the utility of those methods.
- Use data from Maumee Valley Growers greenhouse cluster as a case study.



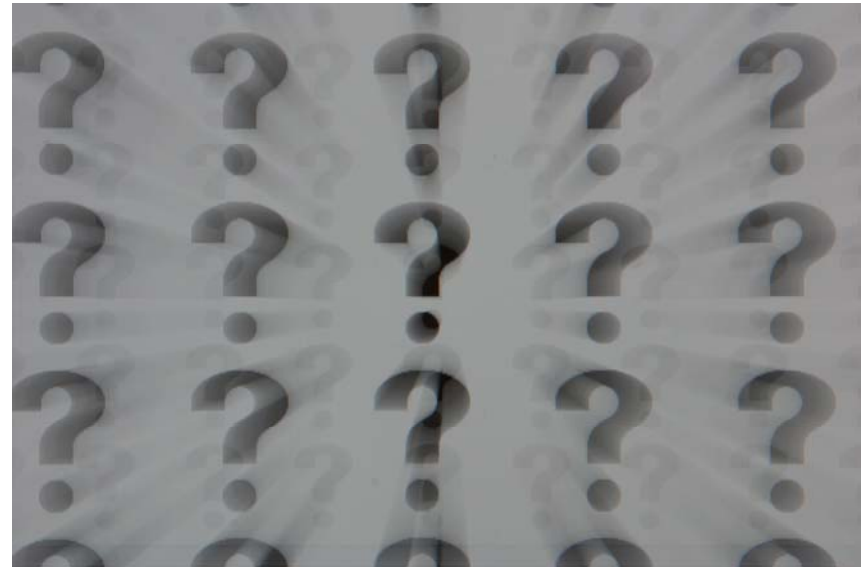
Maumee Valley Growers

- Industrial cluster focused on 60+ greenhouses in northwest Ohio.
- Goal is to collaborate to solve large scale industry-wide problems such as high energy costs.



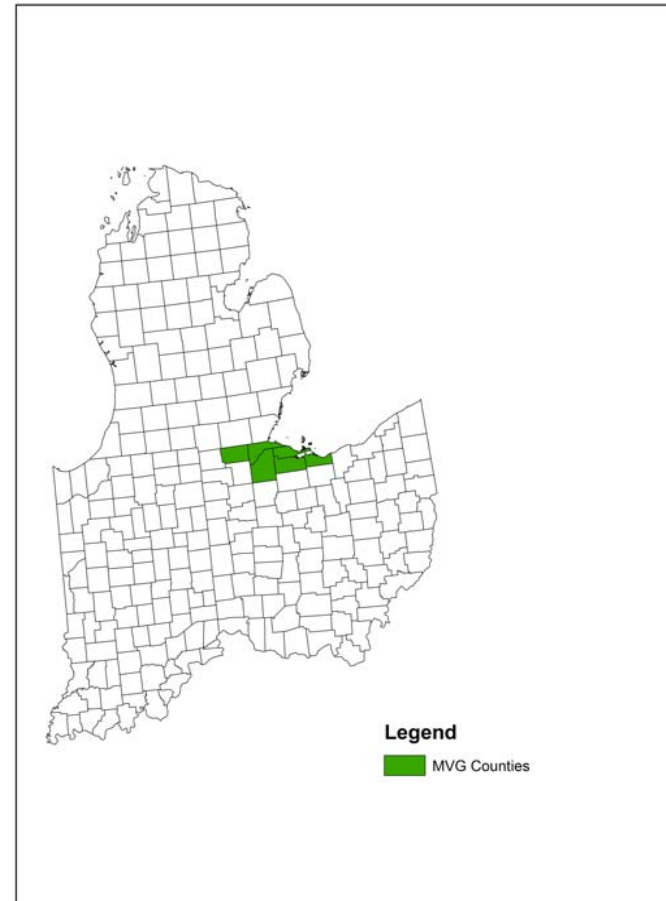
Methods of Spatial Delineation Compared

- Political definition
- Location quotients
- Spatial statistics (G_i^*)
- Social network analysis



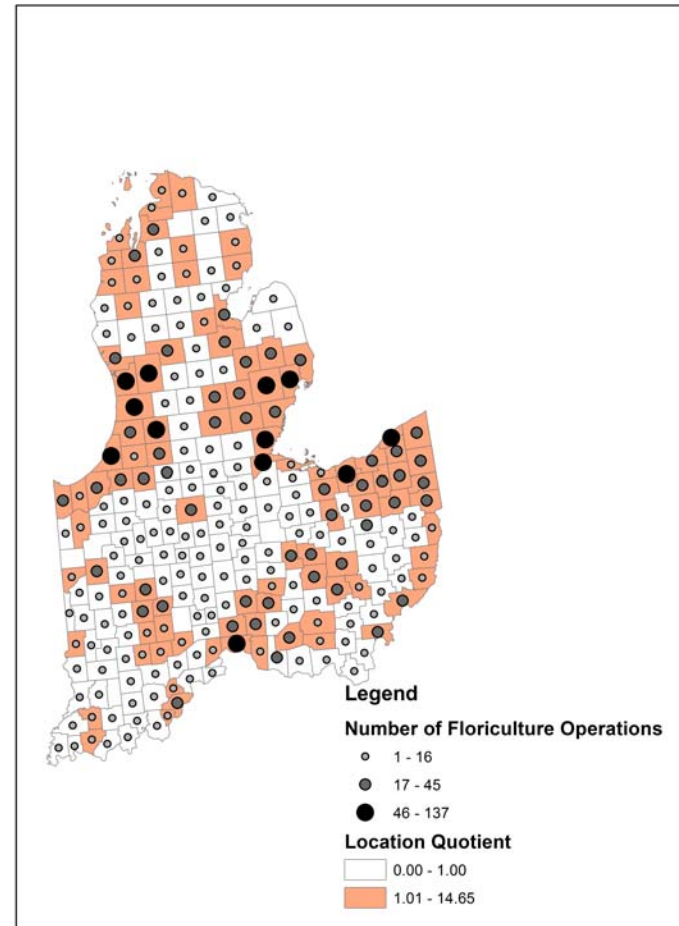
Political Definition

- Corresponds to congressional district of Representative Kaptur.
- Political definitions correspond to the flow of political and financial support.
- Economic relationships do not conform to political boundaries.



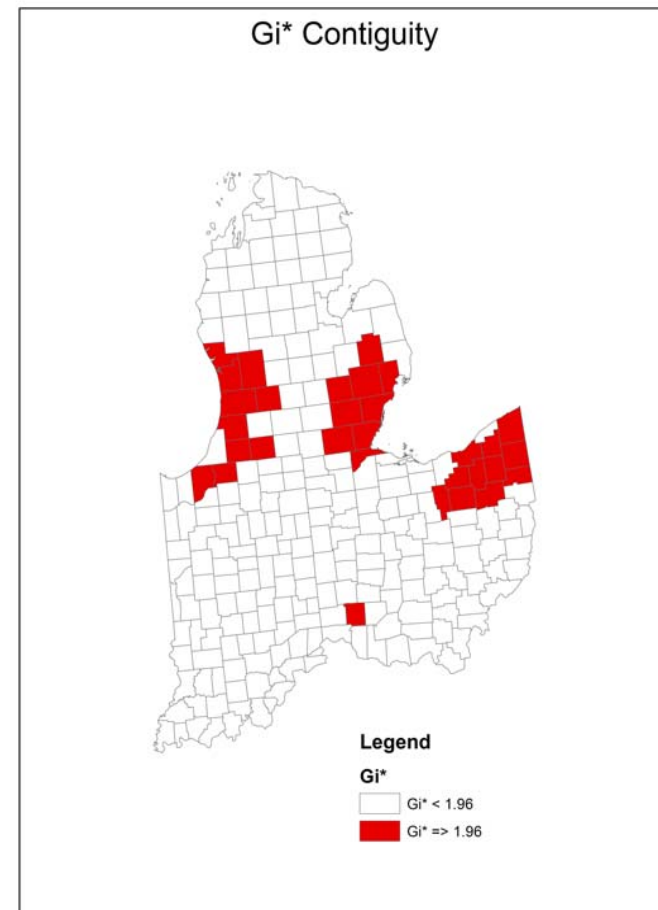
Location Quotients

- Identifies counties which are specialized in the industry.
- Problem is the selection of appropriate level of specialization.
- Does not take into account concentrations in neighboring areal units.



Spatial Statistics (Getis-Ord G_i^*)

- In contrast to location quotients, considers amount of industry in neighboring counties.
- Identification of appropriate spatial weights matrix is problematic.



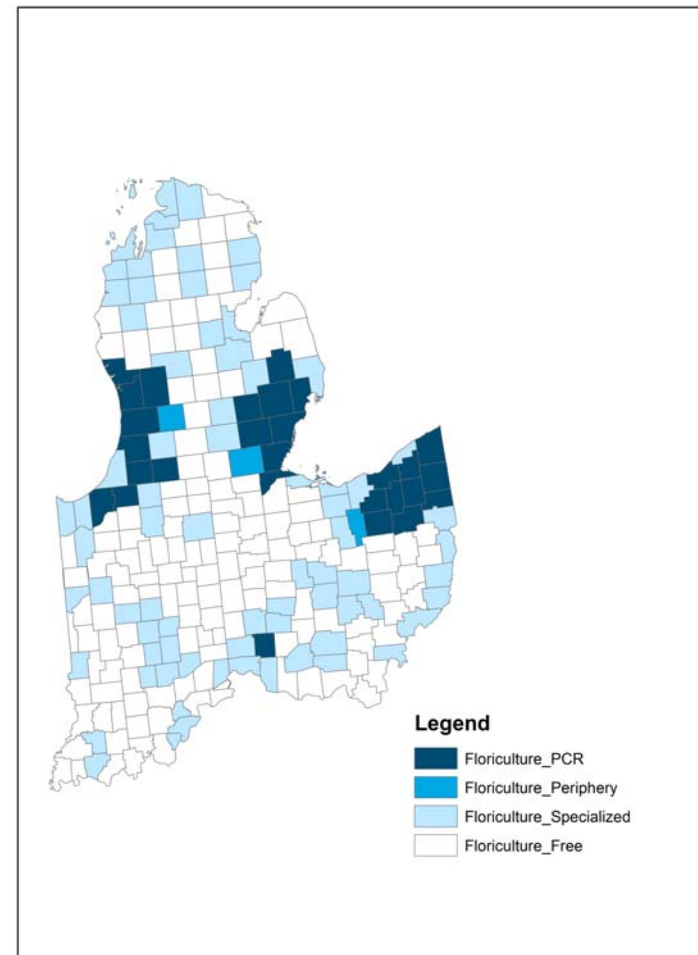
Combine G_i^* and Location Quotients to Identify PCRs.

- Potential Cluster Regions (PCR) is a concentration of geographically proximate firms which may have the potential to be a cluster.
- It includes counties with high location quotients and G_i^* values.
- These counties have high potential because they are specialized in floriculture production and their neighbors have high levels of production.



County Classification

- PRC has high LQ and GI^* . Best opportunity for a cluster.
- Periphery has high GI^* and low LQ.
- Floriculture-Specialized has high LQ and low GI^* .
- Floriculture-Free has low LQ and GI^* .



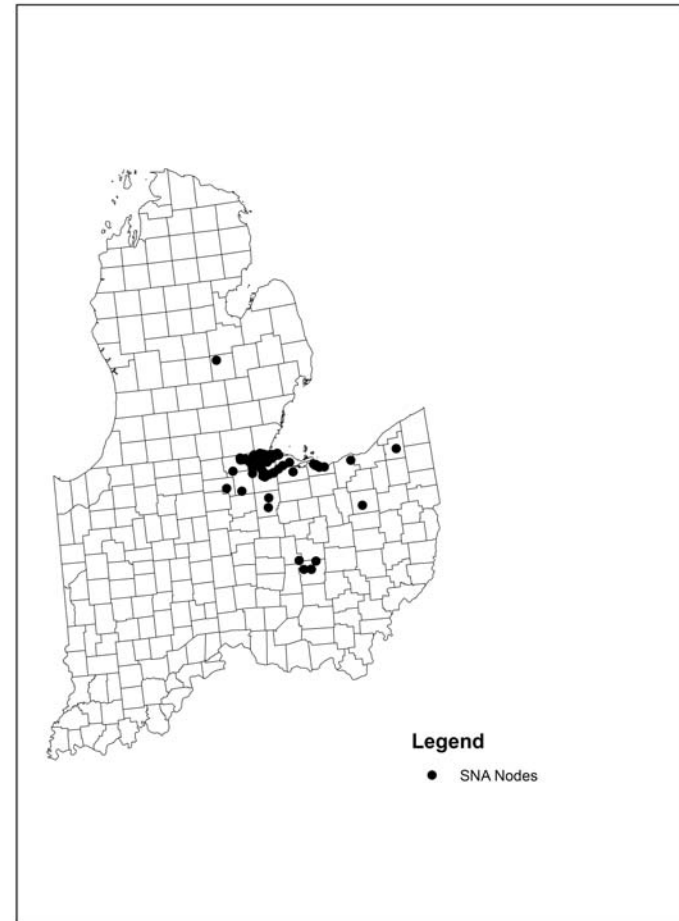
Combining G_i^* and Location Quotients

- Combines strengths of location quotients and G_i^* .
- Does not solve problem of spatial weights matrix.
- This approach and preceding methods ignore social relations.



Social Network Analysis

- SNA analyzes networks of interpersonal links within a group of individuals.
- It indicates the people with whom individuals in a cluster are linked through collaboration, exchange of ideas, etc.
- SNA nodes are those people with whom cluster members are linked.
- Indicates the interaction space of the cluster.



Conclusions

- Each method provides a different perspective on the spatial footprint of an industrial cluster.
- Using a combination of all methods is the best approach.
- Social network analysis is helpful because one can identify linkages that may be formed to strengthen the network through network weaving.
- None of these methods takes into consideration the behavior of firms.

