

Economic Development Opportunities in Northern Wisconsin:

Wood Products Industry Clusters

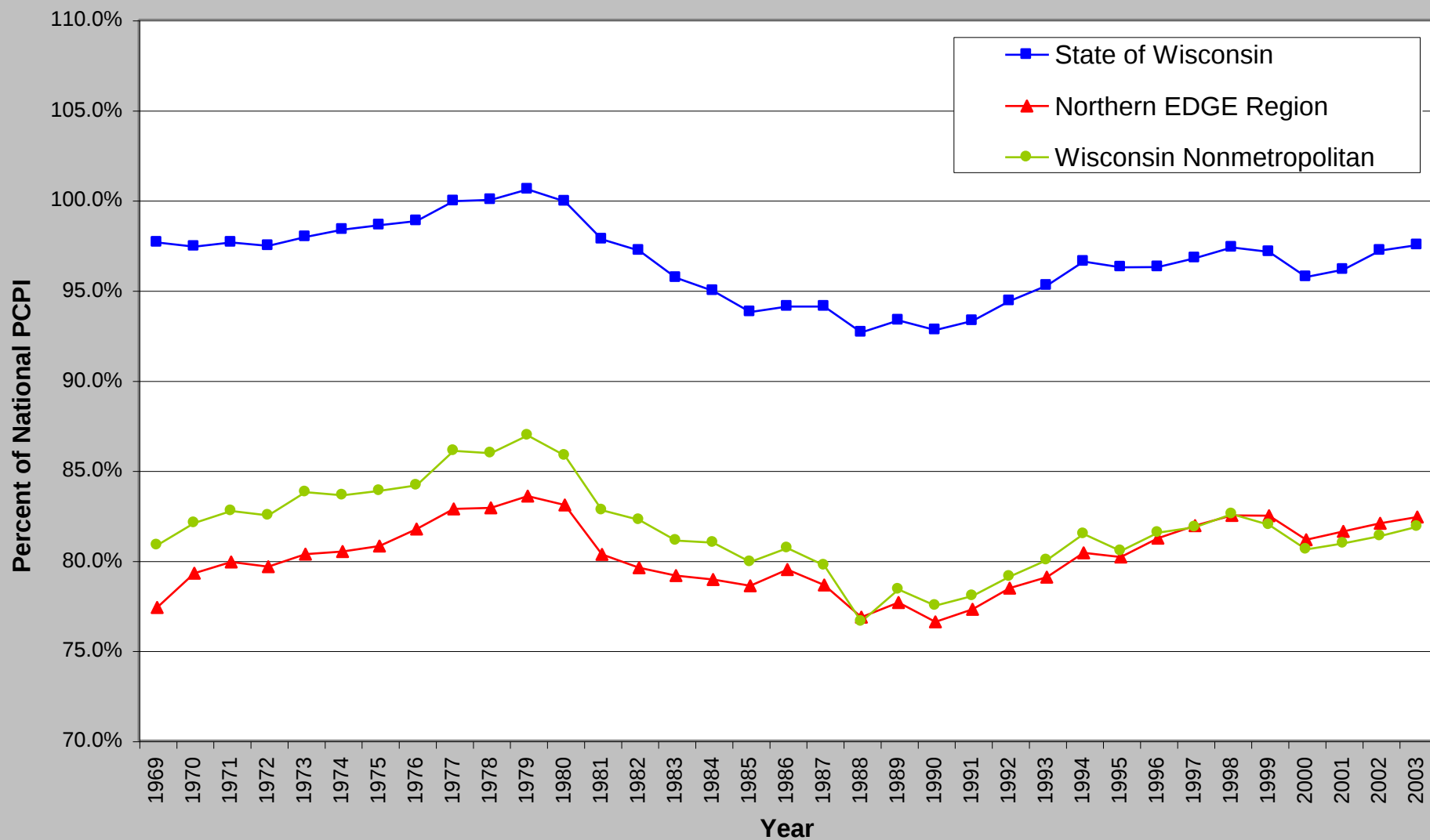
April 6, 2006

*Matt Kures
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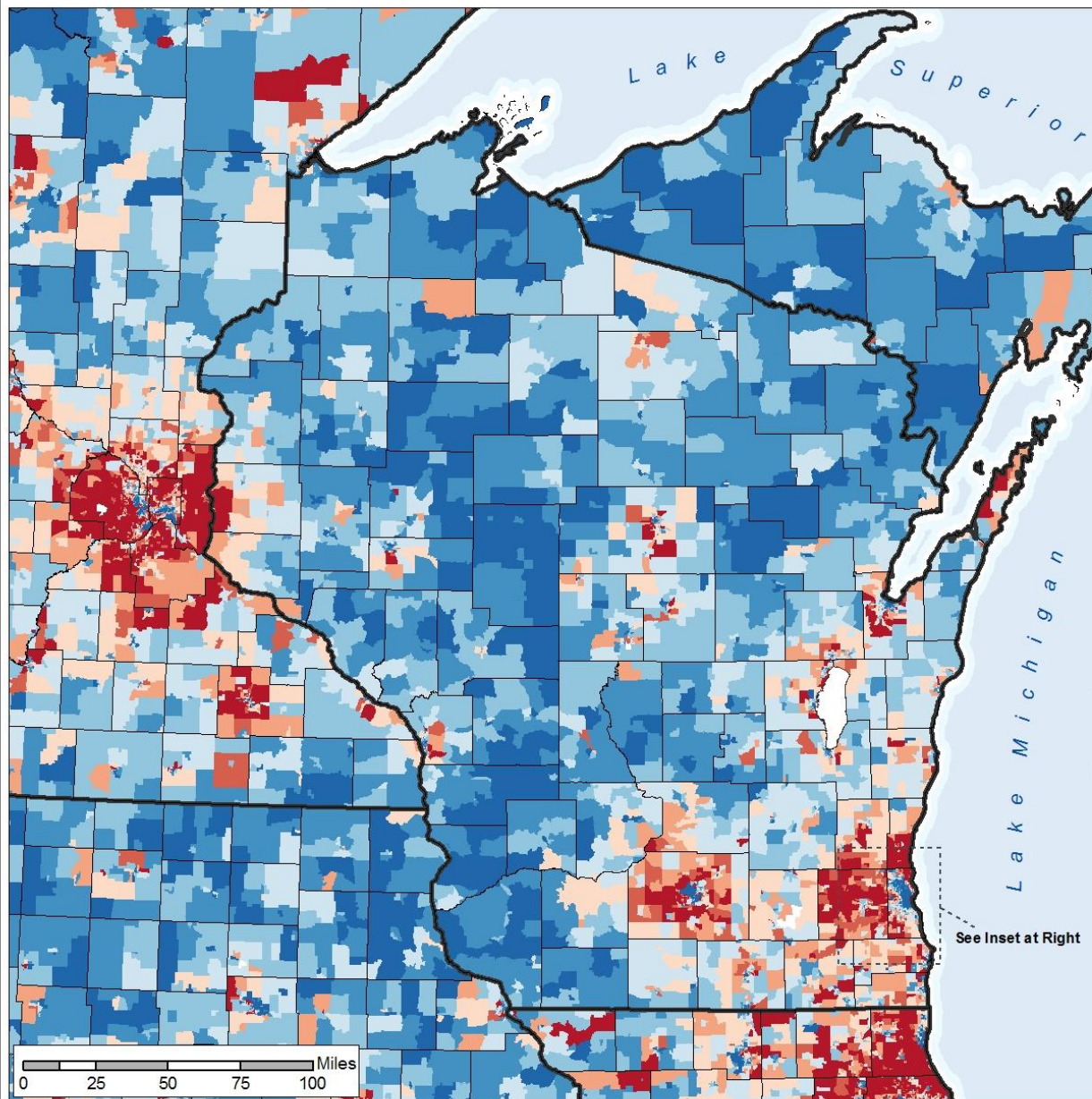
*University of Wisconsin – Extension
Center for Community Economic Development*

Trends in Per Capita Personal Income (PCPI) - 1969 to 2003

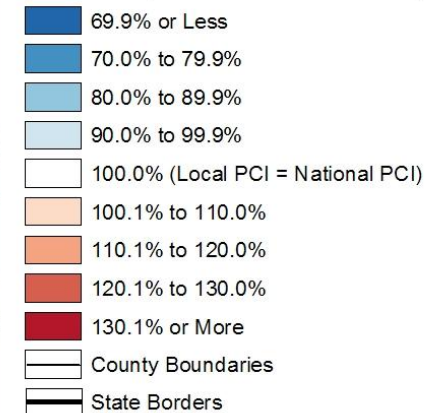
Local Per Capita Personal Income as a Percent of the National PCPI



Wisconsin Regional Per Capita Incomes by Census Block Group (Shown as Percentage of the National Per Capita Income)

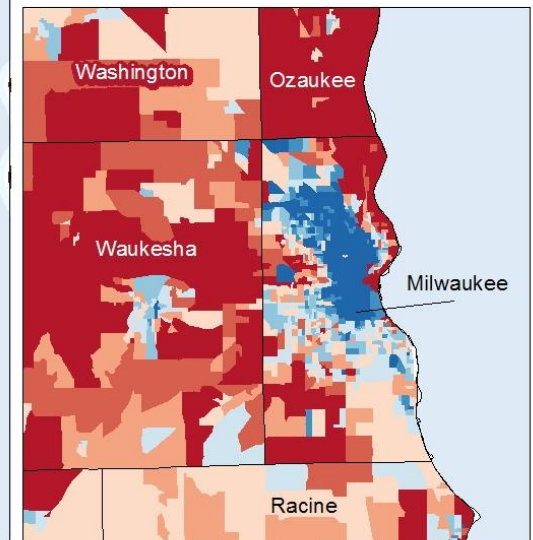


Per Capita Incomes in 2004 (Block Group PCI as % of National PCI)



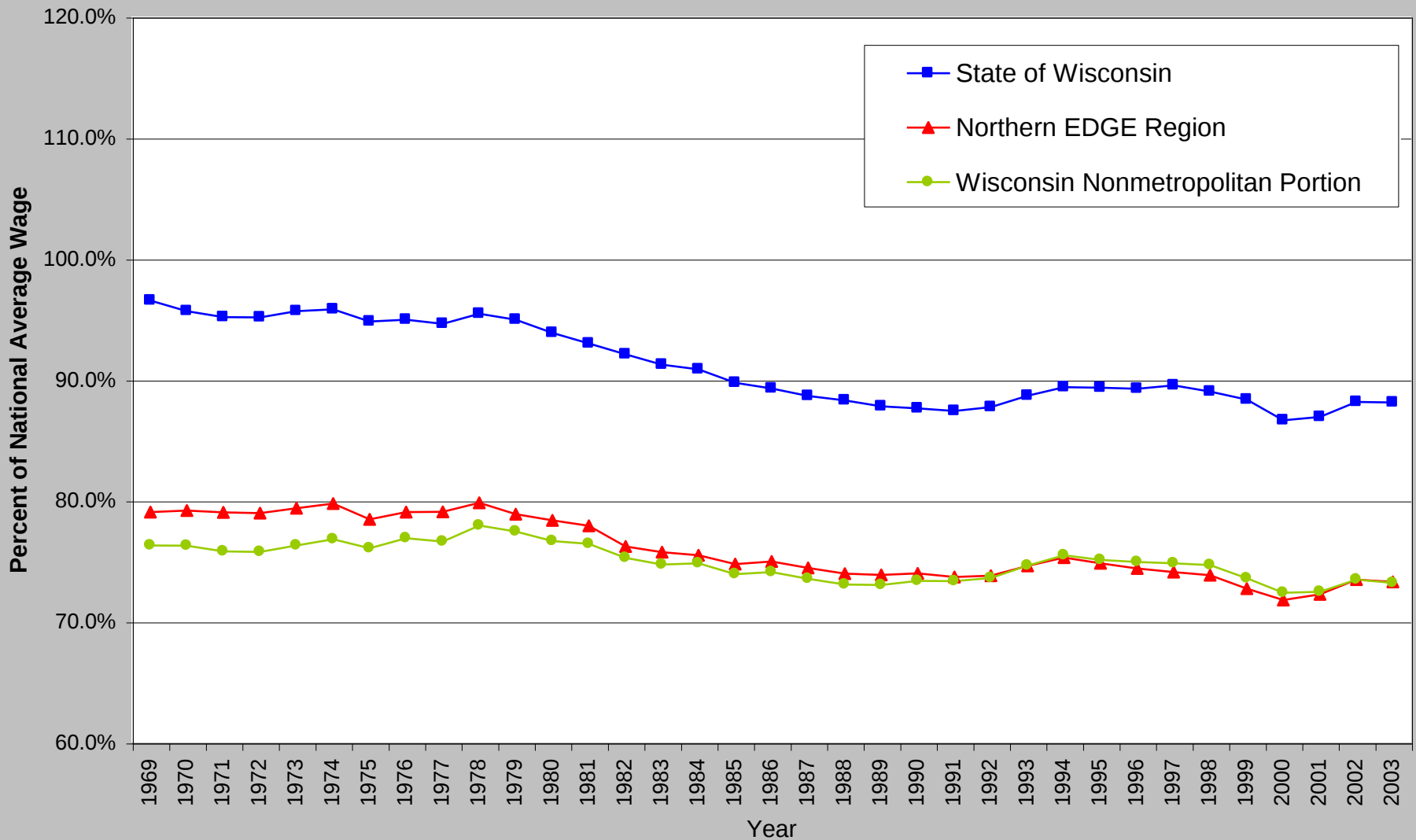
Data Source: ESRI Business Information Solutions and UWEX
Map Production: Matt Kures - July 2004

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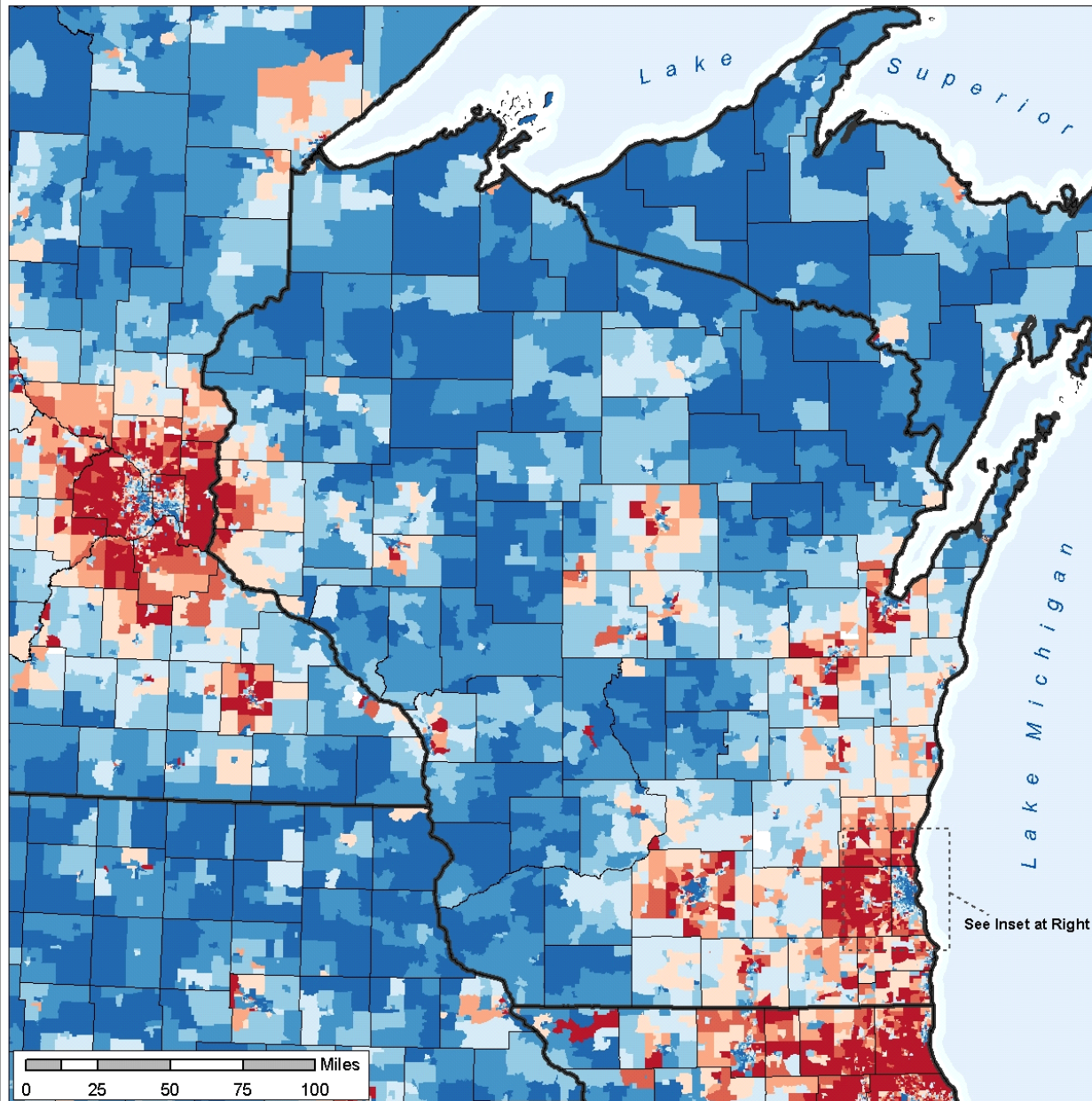


Trends in Average Wage and Salary Per Job - 1969 to 2003

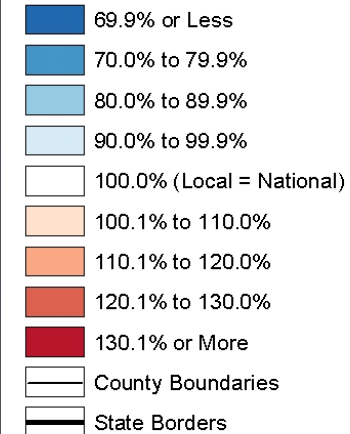
Local Average Wage as Percent of the National Average Wage



Average Household Wage and Salary Income by Census Block Group (Shown as Percentage of the National Average Wage and Salary Income)



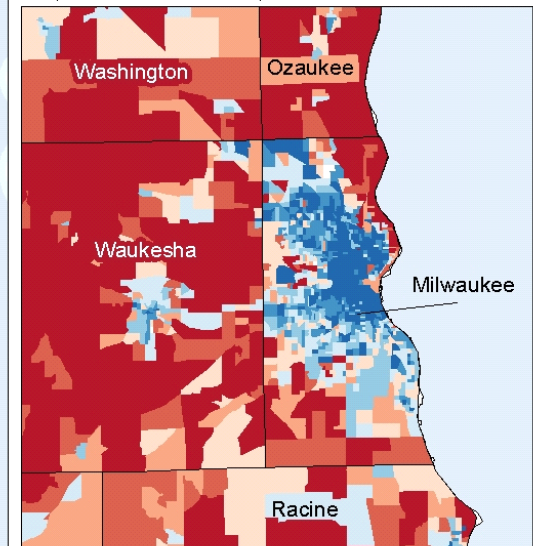
Average Household Wage by Block Group (as % of National Avg. Household Wage)



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1999 National Avg. Household Wage and Salary Income = \$54,358
 1999 Wisconsin Avg. Household Wage and Salary Income = \$51,234
 Due to the data collection methodology, these estimates differ from
 incomes reported by the Bureau of Economic Analysis.

Data Source: 2000 U.S. Census Bureau SF3 and UWEX
 Map Production: Matt Kures - April 2004



Re-inventing Non-Metro Economies

1. *Build a home for a regional partnership*
2. *Find your region's unique, competitive niche*
3. *Focus on retention and expansion (grow the farm system)*
4. *Create clusters around your core niche*
5. *Improve and leverage local amenities*
6. *Invest in your people (partnerships and labor force)*
7. *Enrich the region's supply of equity capital*
8. *Tap technologies suited to your region*
9. *Invest in 21st Century Infrastructure*
10. *Reinvent regional governance*

Source: Mark Drabenstott
Center for the Study of Rural America

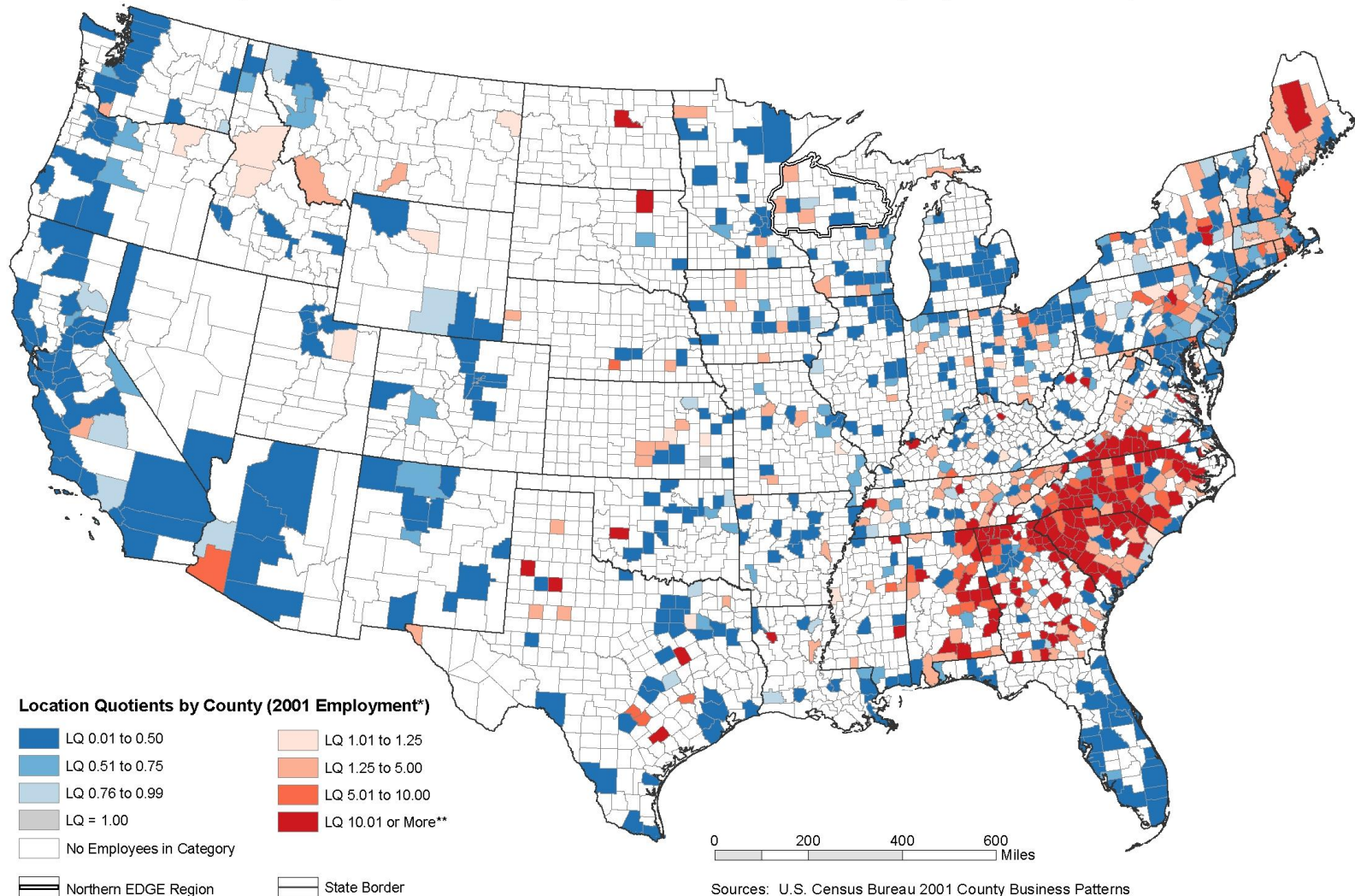
Definition of an Industry Cluster

“Clusters are geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions (e.g. universities, standards agencies, trade associations) in a particular field that *compete but also cooperate*” (Porter: 1998, 2000)

- Clusters are concerned with *what is produced, how efficiently it is produced, and product innovation*
- Clusters share *specialized inputs*, labor markets and supporting businesses
- Clusters are faced with common *opportunities and threats*
- Clusters have networks for business transactions, strategies, and communications (*Need private sector leadership*)

What is meant by Geographic Concentrations?

NAICS 313 - Textile Mills Industry Concentrations (County Location Quotients based on 2001 Employment Levels)



*Due to disclosure requirements, some employment values were estimated.

Sources: U.S. Census Bureau 2001 County Business Patterns
and UWEX Center for Community Economic Development
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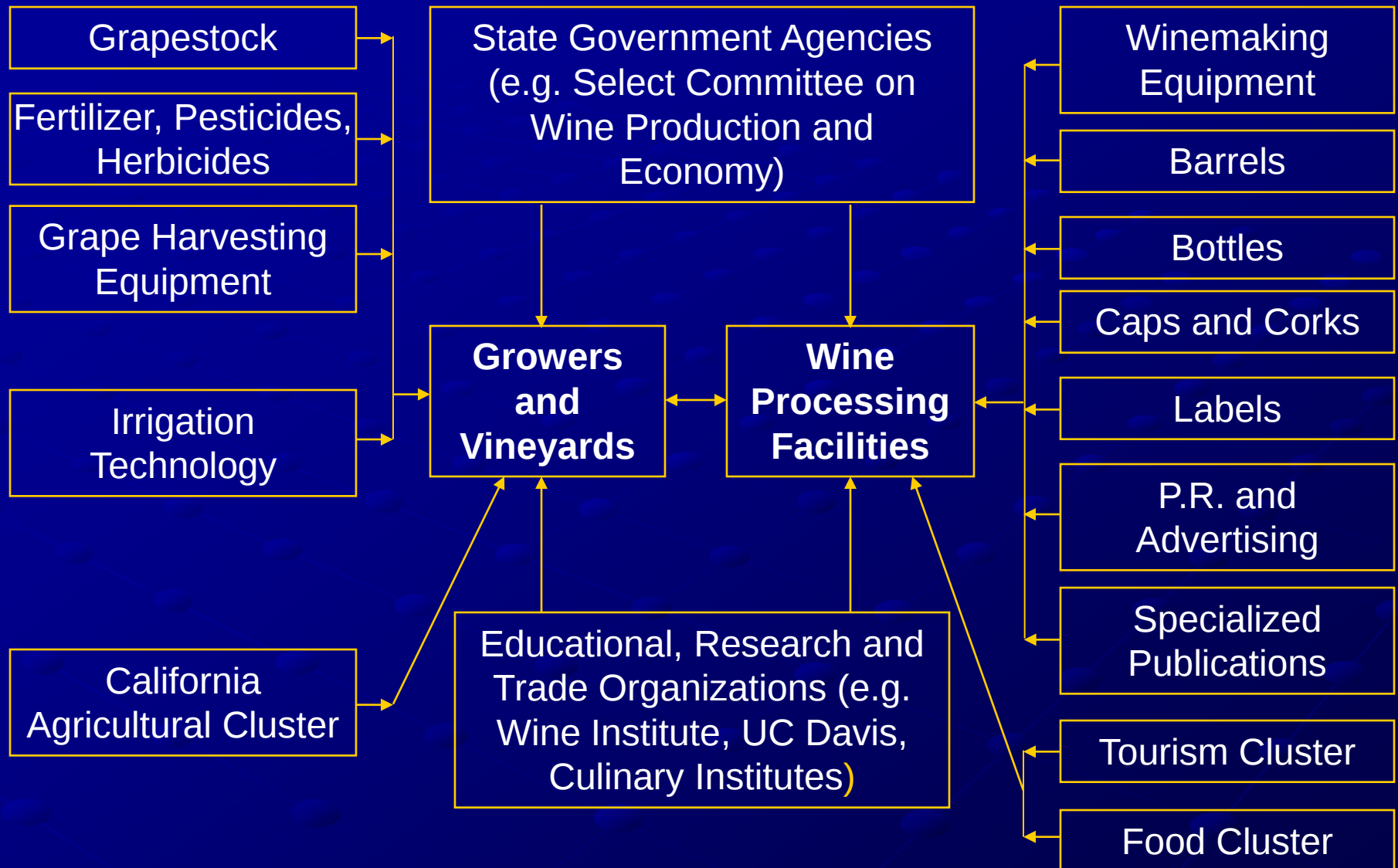
How do you Identify a Potential Industry Cluster?

Start by Identifying “*Driver Industries*” - Industry sector that could define the competitive core of a region’s economy.

What combination of criteria are used to identify driver industries?

1. Geographical Concentration/Specialization (Location Quotients, etc)
2. Number of Employees/Establishments
3. Wages, Income and other Value Added Measures
4. Export-based and/or large local demand
5. Local and Professional Knowledge
6. Significant Size and/or Rapid Growth

What is Meant by Interconnected?



Why Should Regions Consider Clustering as an Economic Development Strategy?

Using clusters as part of an economic development strategy allows a region to:

- Identify and improve its core/niche industries that form the basis of its **competitive advantage**
- **Raise awareness of key industry sectors** and urge decision-makers to think about their future direction (from both public and private perspectives)
- Examine opportunities for strengthening and growing core industry sectors (**Business retention & expansion, as well as recruitment**)
- The forward and backwards linkages inherent in a clusters suggest that programs supporting specific industries will also have **relatively large multiplier effects** (Potential “bang for the buck”)

Why Should Businesses Consider Clusters as a Strategy?

- Create greater *access to suppliers and customized support services*
- Create a framework for companies *to organize, work together, and work with government* to meet common needs and promote common interests (provides a “seat at the table”)
- Develop *specialized labor pools* within the work force.
- Foster *new business entries* into the market and *spin-off companies*.
- Create local knowledge, relationships and motivation that *distant rivals and competitors cannot match*

The AOIA - A Case Study of Cluster Cooperation

Through collaborative efforts, the Arizona Optic Industry Association (AOIA) has:

- Increased the visibility and presence of their cluster with state and local government entities
- Developed a program to build long term export capacity
- Established a large industry trade show, attracting hundreds of domestic and international firms
- Focused on workforce development issues with the community colleges
- Jointly bid and received several large contracts with NASA (that companies could not bid on individually)
- Influenced the AZ legislature to designate a portion of a sales tax increase to the University of Arizona for optics research

Cluster Initiatives in Wisconsin

Wisconsin Dept. of Commerce has identified a number of statewide industry clusters:

Established Clusters

- Dairy
- Food Products/Processing
- Paper
- Plastics
- Printing
- Small Engine Manufacturing
- Tourism

Emerging Clusters

- Biotechnology
- Information Technology
- Medical Devices

Top Sectors by Employment in Northern WI

NAICS and Description	Northern EDGE Emp.	Percent of Total	Southern WI %	State of WI %
722 Food services & drinking places	36,383	7.4%	6.3%	6.4%
230 Construction	27,503	5.6%	5.6%	5.6%
112 Livestock	20,994	4.2%	1.4%	1.8%
321 Wood Product Mfg.	15,752	3.2%	0.4%	0.8%
42 Wholesale Trade	14,754	3.0%	3.7%	3.6%
621 Ambulatory health care	13,231	2.7%	3.3%	3.2%
541 Professional, scientific & technical services	13,127	2.7%	4.9%	4.6%
622 Hospitals	12,953	2.6%	2.7%	2.7%
623 Nursing & residential care	12,895	2.6%	1.9%	2.0%
445 Food & beverage stores	12,463	2.5%	1.8%	1.9%
811 Repair & maintenance	11,201	2.3%	1.9%	2.0%

Source: IMPLAN 2002

*Percentage of
State
Employment*

Low

High



**Global
Economy**
(outside WI, outside a
region, etc.)

New \$

Exports

Export-Driven Industries

Manufacturing, agriculture,
knowledge, etc.

\$

Products/Services

Linkage Industries

Business Services, Distribution,
Transportation, etc.

\$

Products/Services

Population-Driven Industries

Retail, Real Estate, Construction, etc.

Source: Mary Jo Waits – Arizona St. University

Location Quotients

A location quotient compares an industry's local employment concentration to the rest of the nation.

$$\begin{array}{lcl}
 \text{Industry Location Quotient} & & \\
 \text{Manufacturing} & = & \frac{\frac{\text{Industry's local employment}}{\text{Total local employment}}}{\frac{\text{Industry's national employment}}{\text{Total national employment}}} = 8.9
 \end{array}$$

Industry's local employment: 15,572
 Total local employment: 494,699
 Industry's national employment: 597,617
 Total national employment: 166,230,999

- Location Quotient greater than 1.0 (or ~1.25) – Often indicates an industry is an **export activity** and is a link to the outside economy (brings outside \$ into the region)
- Indicates specialization to some degree

Top Sectors by LQ in the Northern EDGE Region

NAICS and Description	Northern EDGE Emp.	Northern EDGE LQ	Southern WI LQ	State of WI LQ
321 Wood Product Mfg.	15,752	8.9	1.2	2.3
113 Forestry & Logging	3,323	7.5	0.5	1.6
112 Livestock	20,994	5.6	1.8	2.4
316 Leather & Allied	813	4.9	1.7	2.2
322 Paper Manufacturing	5,842	3.7	4.1	4.0
333 Machinery Manufacturing	8,588	2.4	3.0	2.9
326 Plastics & rubber products	5,856	2.4	1.9	2.0
447 Gasoline stations	6,334	2.3	1.1	1.3
332 Fabricated metal products	10,213	2.2	2.2	2.2
311 Food products	10,060	2.1	2.0	2.0
327 Nonmetal mineral prod.	3,129	2.0	0.8	1.0

Top Sectors in the Northern EDGE by Wages/Salary

NAICS and Description	Average Annual Wage/Salary*	Percent of Regional Wages
230 Construction	\$29,251	5.8%
621 Ambulatory health care	\$46,243	4.4%
42 Wholesale Trade	\$39,386	4.2%
622 Hospitals	\$37,899	3.6%
321 Wood Product Manufacturing	\$33,008	3.3%
332 Fabricated metal products	\$42,533	3.1%
333 Machinery Manufacturing	\$46,498	2.9%
541 Professional, scientific & technical services	\$29,905	2.8%
311 Food products	\$37,722	2.7%
722 Food services & drinking places	\$9,819	2.6%

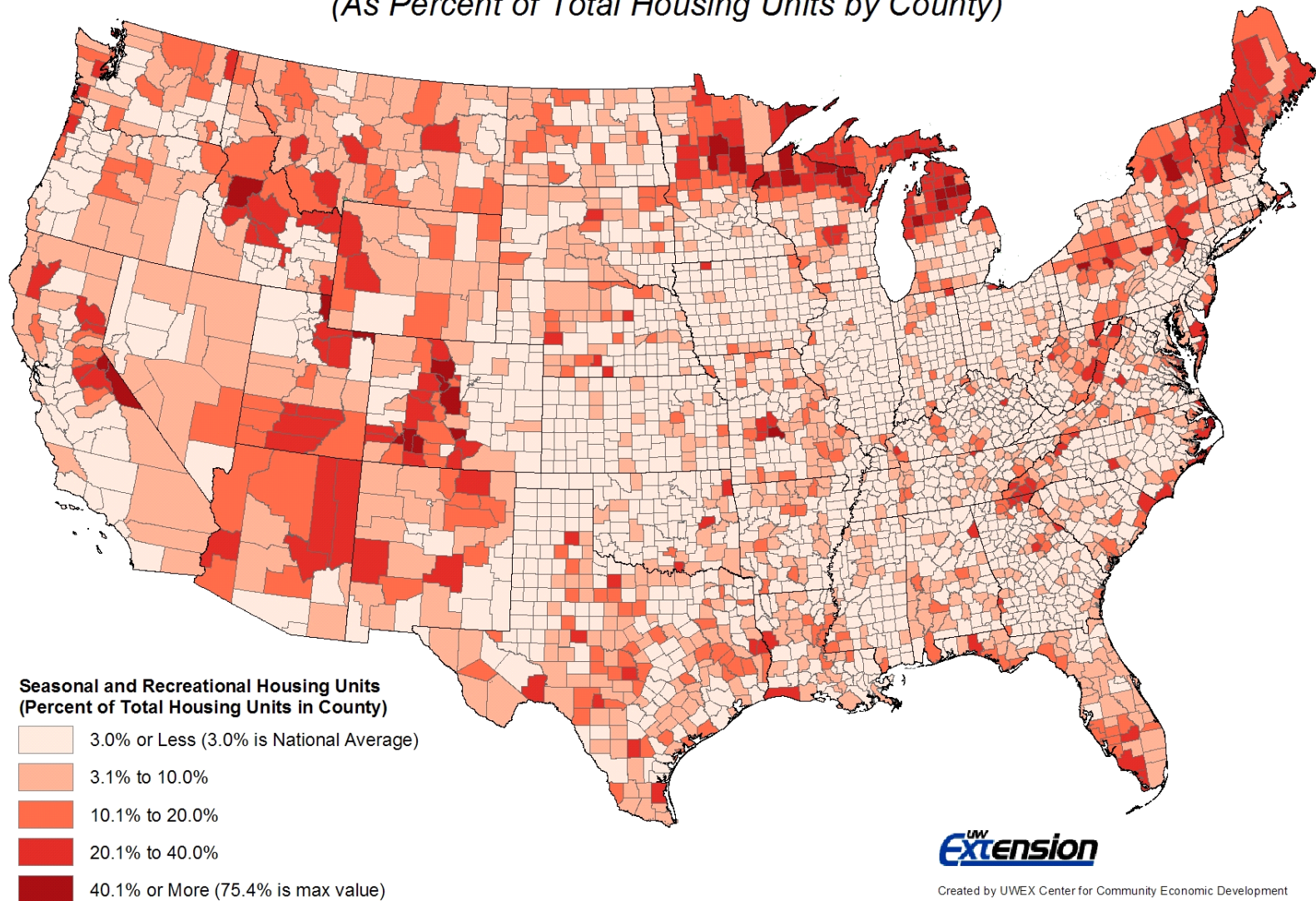
*Average Wage for the Northern EDGE in 2002: \$27,927

Potential Driver Industries in the Northern EDGE Region

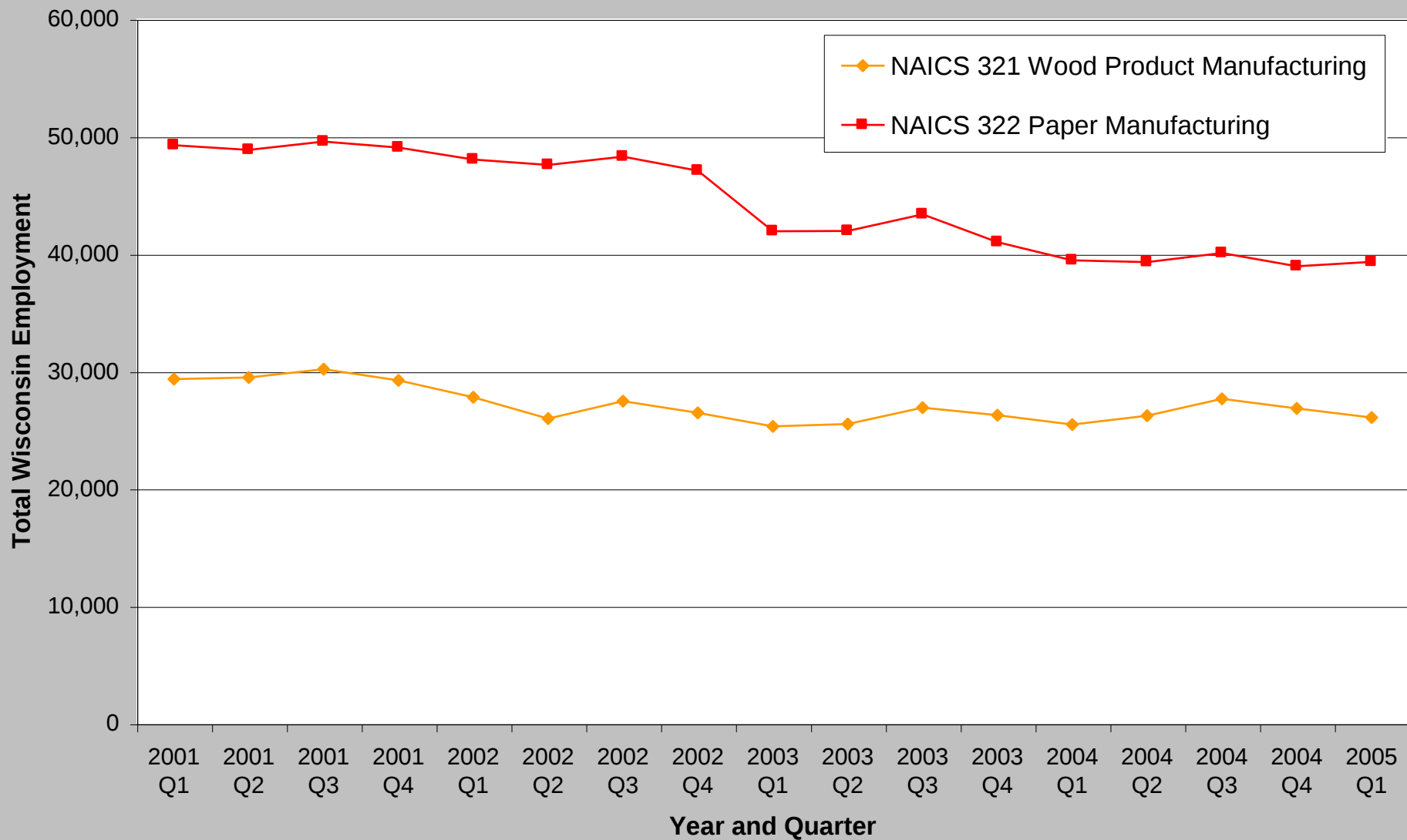
- Wood Product Manufacturing (NAICS 321)
- Paper Manufacturing (NAICS 322)
- Plastic and Rubber Product Manufacturing (NAICS 326)
- Food Product Manufacturing (NAICS 311)
- Health Care Providers (NAICS 621, 622, 623)
- Tourism/Hospitality (Various NAICS categories)
- Fabricated Metal Product and Machinery Manufacturing (NAICS 332 and 333)
- Others (Dairy, Transportation, Arts, etc)

Connection between Tourism and Forest Products?

Seasonal and Recreational Housing Units in 2000
(As Percent of Total Housing Units by County)

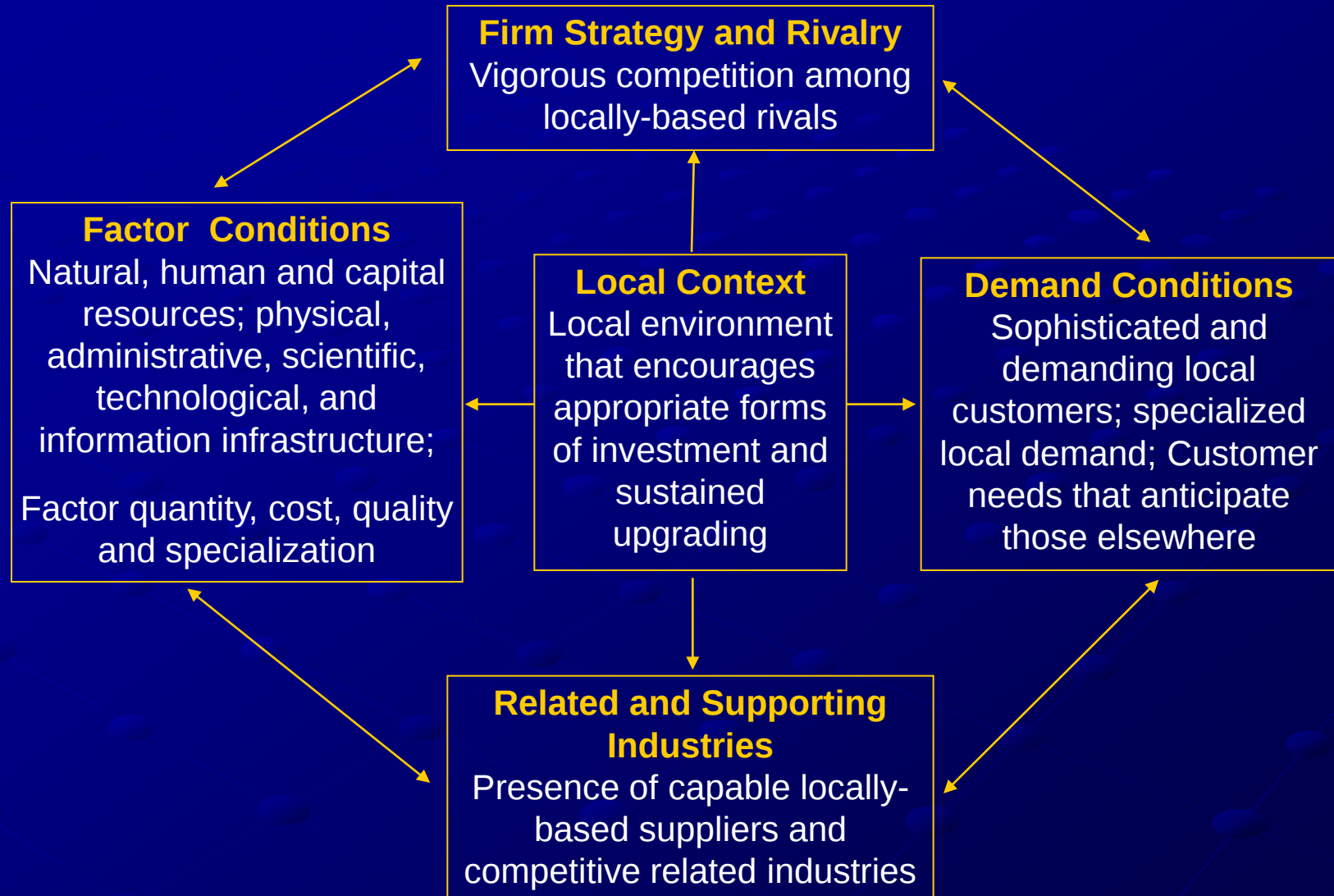


Employment Trends in Wood Product Manufacturing and Paper Manufacturing



Upgrading and Improving Industry Clusters

Factors of Competitive Advantage



Examples of Policies used to Support Clusters

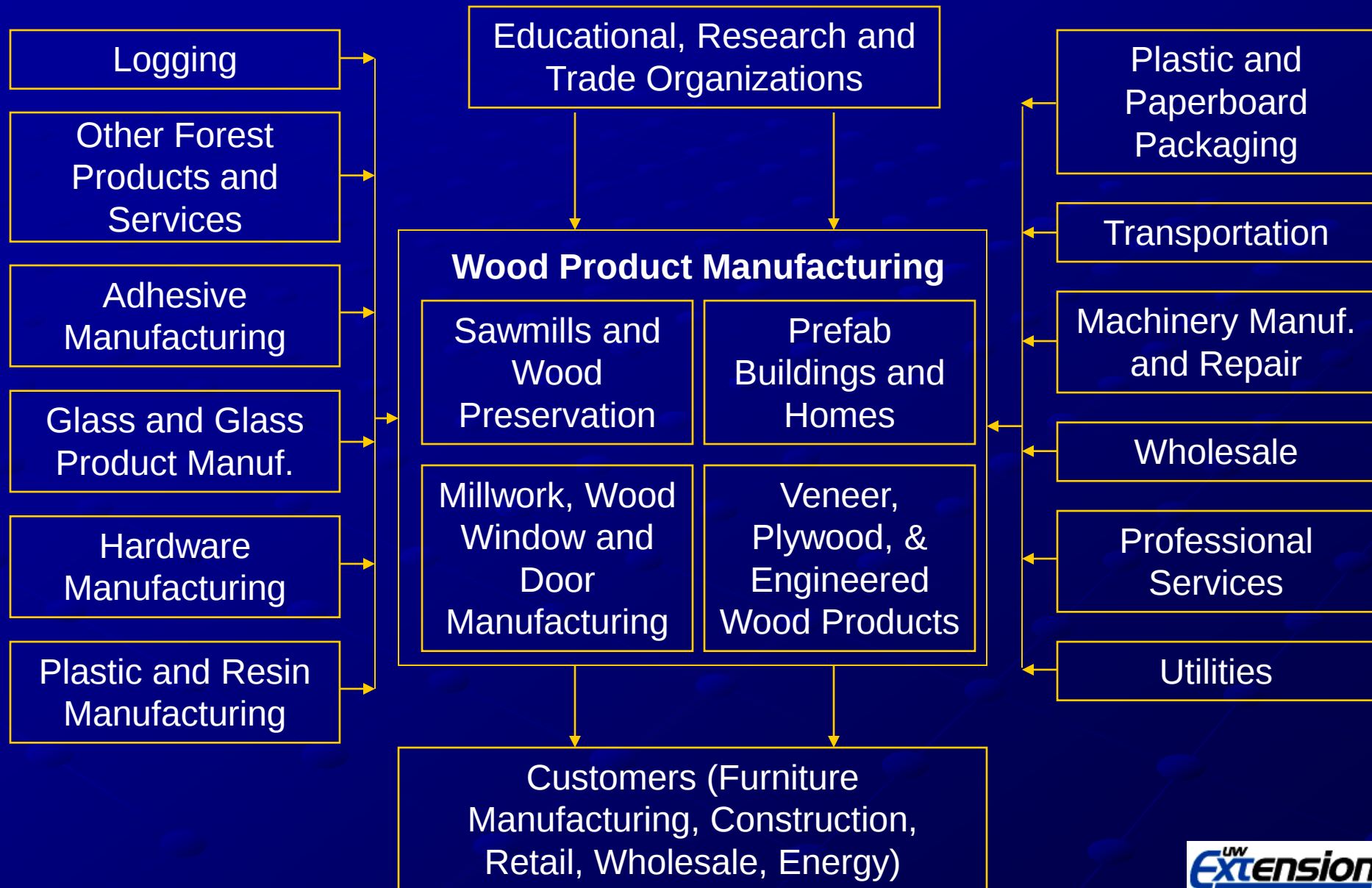
Organize service delivery around clusters

- *Aggregate, collect and sort information by cluster* – data should include information on associated industries as well as driver industries
- *Encourage and support multi-firm activity* – Build networks of cluster members and build incentives for multi-firm applications to funding programs

To organize service delivery around clusters, we must know what industries and areas could constitute an industry cluster

Identifying Cluster Members by Industry:

Potential Wood Product Manufacturing Connections



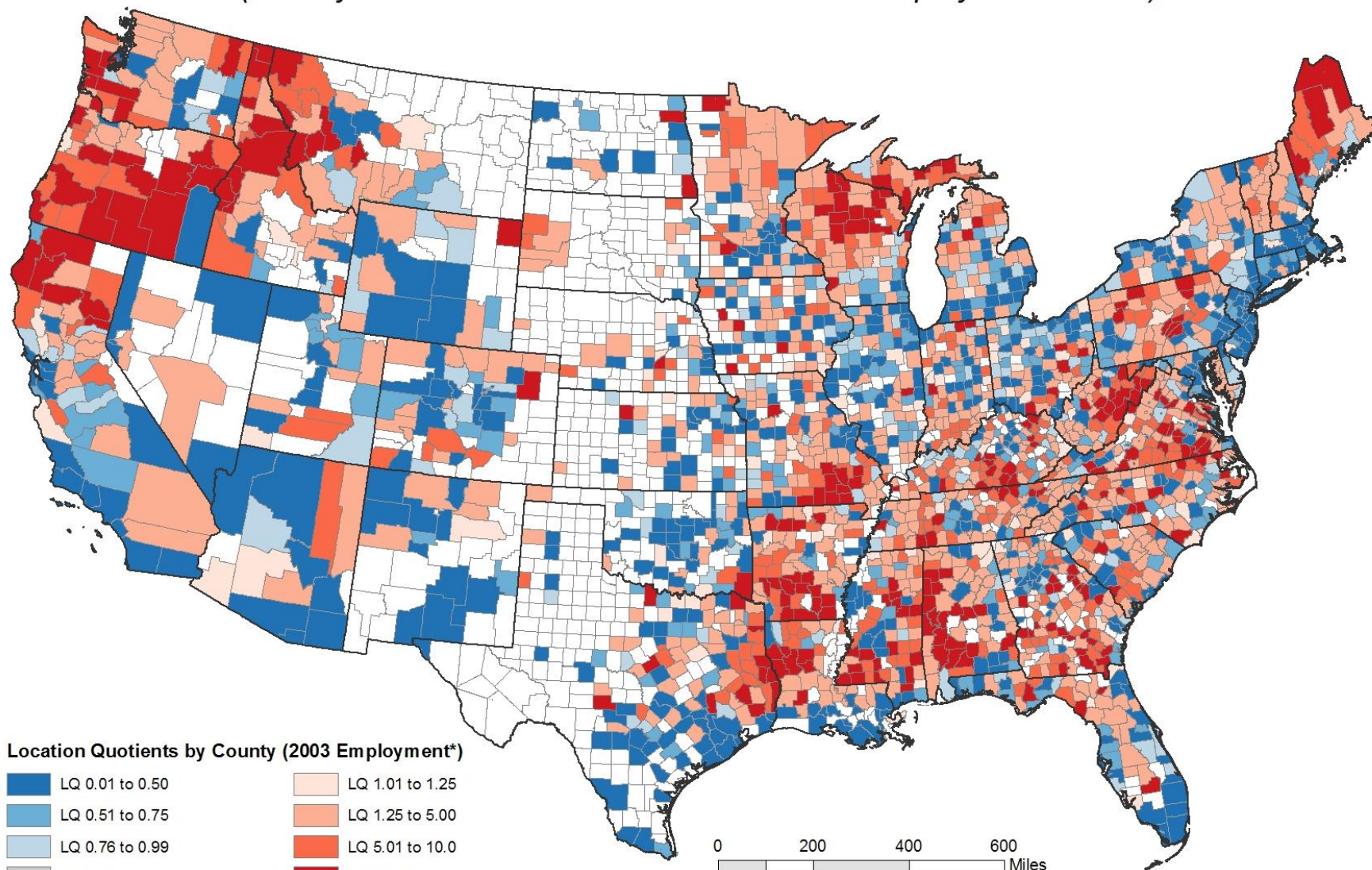
Identifying Cluster Members by Geography: *Using GIS to Analyze Industry Distributions*

Clusters are inherently geographic

We can use Geographic Information Systems (GIS) to perform choropleth mapping and calculate spatial autocorrelation:

- Examine geographic concentration and possible competitive advantage
- Identify potential regional partners and competition. *State borders or political boundaries should not dictate cluster boundaries*

NAICS 321 - Wood Product Manufacturing Industry Concentrations (County Location Quotients based on 2003 Employment Levels)



Location Quotients by County (2003 Employment*)



*Due to disclosure requirements, some employment values were estimated.

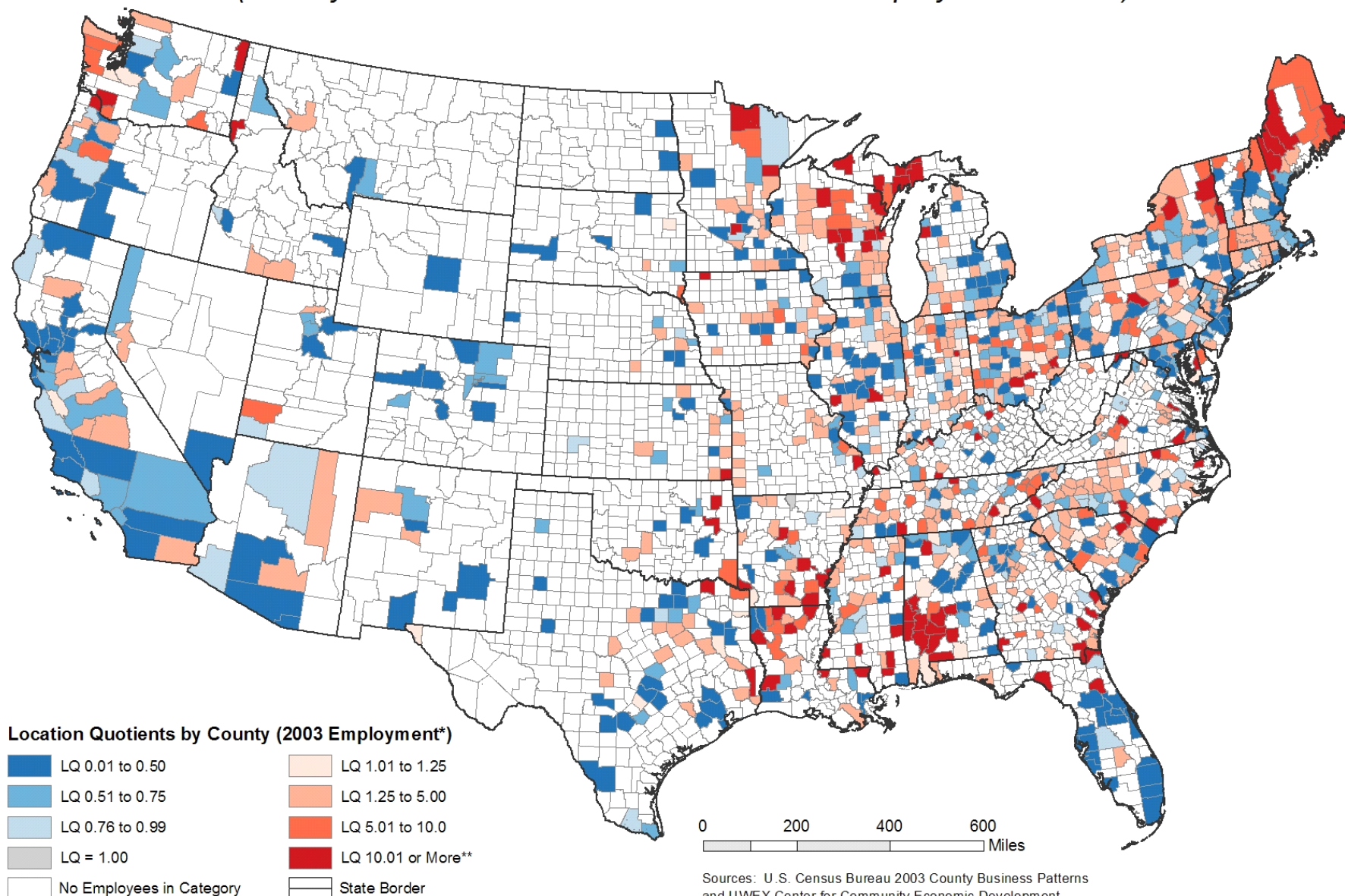
**Maximum Location Quotient is 73.6



Sources: U.S. Census Bureau 2003 County Business Patterns
and UWEX Center for Community Economic Development

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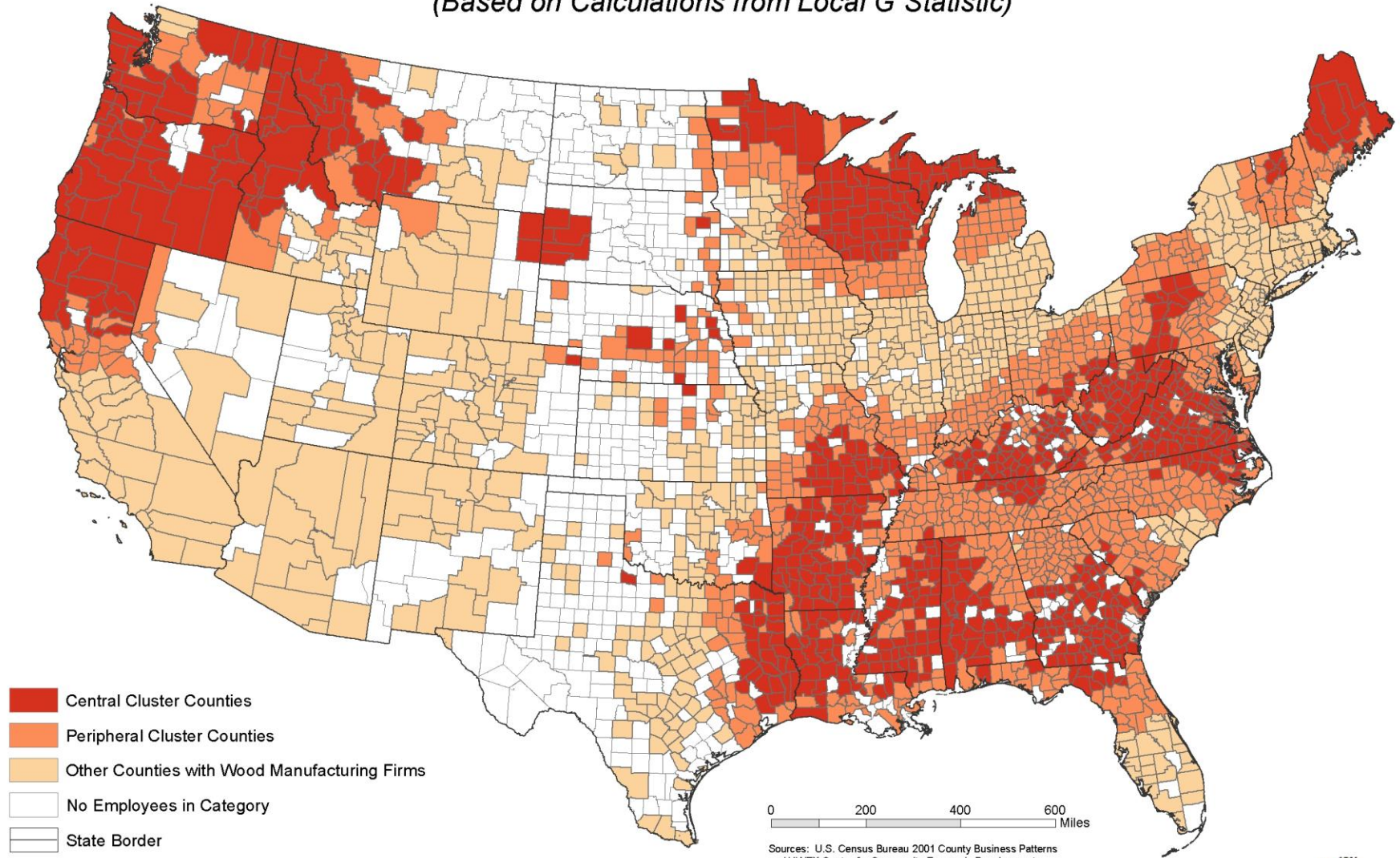
NAICS 322 - Paper Manufacturing Industry Concentrations (County Location Quotients based on 2003 Employment Levels)



*Due to disclosure requirements, some employment values were estimated.

**Maximum Location Quotient is 79.7

Potential Industry Cluster Boundaries - Wood Product Manufacturing (NAICS 321) (Based on Calculations from Local G Statistic)



Sources: U.S. Census Bureau 2001 County Business Patterns
and UWEX Center for Community Economic Development

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Examples of Policies used to Support Clusters

Target Investment to Clusters

- *Invest in cluster R&D and innovation* - further engage universities, industry research centers, and private industry

“In industries dependent on natural resource, it is not enough to simply have the resources present. *Critical skills and knowledge* are needed to use those resources. A cluster that is primarily based on natural resources should increasingly become *knowledge-based*” (Colgan & Baker, 2003).
- *Support cluster-based entrepreneurial activity* – WEN, Agricultural Innovation Center, etc.
- *Market clusters and build cluster markets* - Assists in recruitment and expansion of related firms/suppliers, and builds local markets for goods and services. *Can be used to close gaps and disconnects in the marketplace*

Identifying Gaps and Disconnects in Cluster Service Availability

- A **gap** in service availability occurs when certain services are simply not available within the Northern EDGE region and must be purchased elsewhere.
- A **disconnect** in service availability arises when a given service is available locally, but consumers and businesses choose to purchase that service outside of the primary trade area.

Reasons for a disconnect include:

- a lack of information within the business community
- long standing partnerships between firms
- unfavorable pricing policies
- mistrust
- specialization or expertise of firms in a specific industry

Northern EDGE Industries – Identifying Gaps and Disconnects through Import Substitution Analysis

Goods or Services Imported into the Northern EDGE Region by Wood Product Manufacturers	Amount of Imports	Amount of Exports
Wholesale trade	\$105,908,935	\$149,434,070
Sawmills	\$67,723,260	\$28,934,170
Forest nurseries, forest products, and timber tracts	\$55,247,595	\$48,414,520
Logging	\$44,323,292	\$20,528,590
Cut stock, re-sawing lumber, and planing	\$42,842,271	-
Miscellaneous wood product manufacturing	\$28,277,396	\$54,596,010
Hardware manufacturing	\$24,790,271	\$106,998,500
Reconstituted wood product manufacturing	\$15,926,809	\$72,841,300
Veneer and plywood manufacturing	\$15,282,230	\$200,212,950
Lessors of non-financial intangible assets	\$13,931,846	\$6,785,860
Adhesive manufacturing	\$13,828,883	\$364,590
Power generation and supply	\$12,250,083	\$433,590
Management of companies and enterprises	\$11,593,078	\$29,591,610

Investing in Cluster R & D

Wisconsin Consortium on Bio-based Industry

“By the time a technology is known to the economic development community, it is probably too late for governments to begin investing with the *intent of pulling companies out of an established cluster to re-locate in their jurisdiction.*” (Feldman, Foster 2003)

Bio-economy defined:

The bio-economy is all the economic activity involved in the development, manufacture, sale and use of products made from plant matter or waste streams that include plant matter.

Forest products and residues hold promise for both current and future technologies surrounding energy and chemical production

(<http://bioeconomy.wi.gov/index.asp>)

Examples of Policies used to Support Clusters

Encourage the Development of Local Resources Geared toward Clusters

- *Formalize cluster associations and alliances (i.e. Arizona Optic Industry Association)* – Organizations can help government better assess the needs of the cluster
- *Develop labor-force training geared towards the needs of cluster members* – Engage universities, tech colleges, community colleges, and other intermediaries to articulate career paths and develop standardized industry training
- *Establish Cluster Skills Centers* (i.e. the Printing Applied Technology Center)

For More Information

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