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Cluster-Based Strategies for Innovation and Growth in Micropolitan Areas

Mercedes Delgado
MIT Sloan and MIT Lab for Innovation Science and Policy
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delgadom@mit.edu http://delgadom.com

Industry Clusters are Everywhere

A cluster is a **geographical concentration of related industries and firms** connected through various types of linkages and spillovers and supporting institutions

Automotive in Indianapolis

Medtronic
smiths medical
3M
Boston Scientific

Medical Devices in Minneapolis

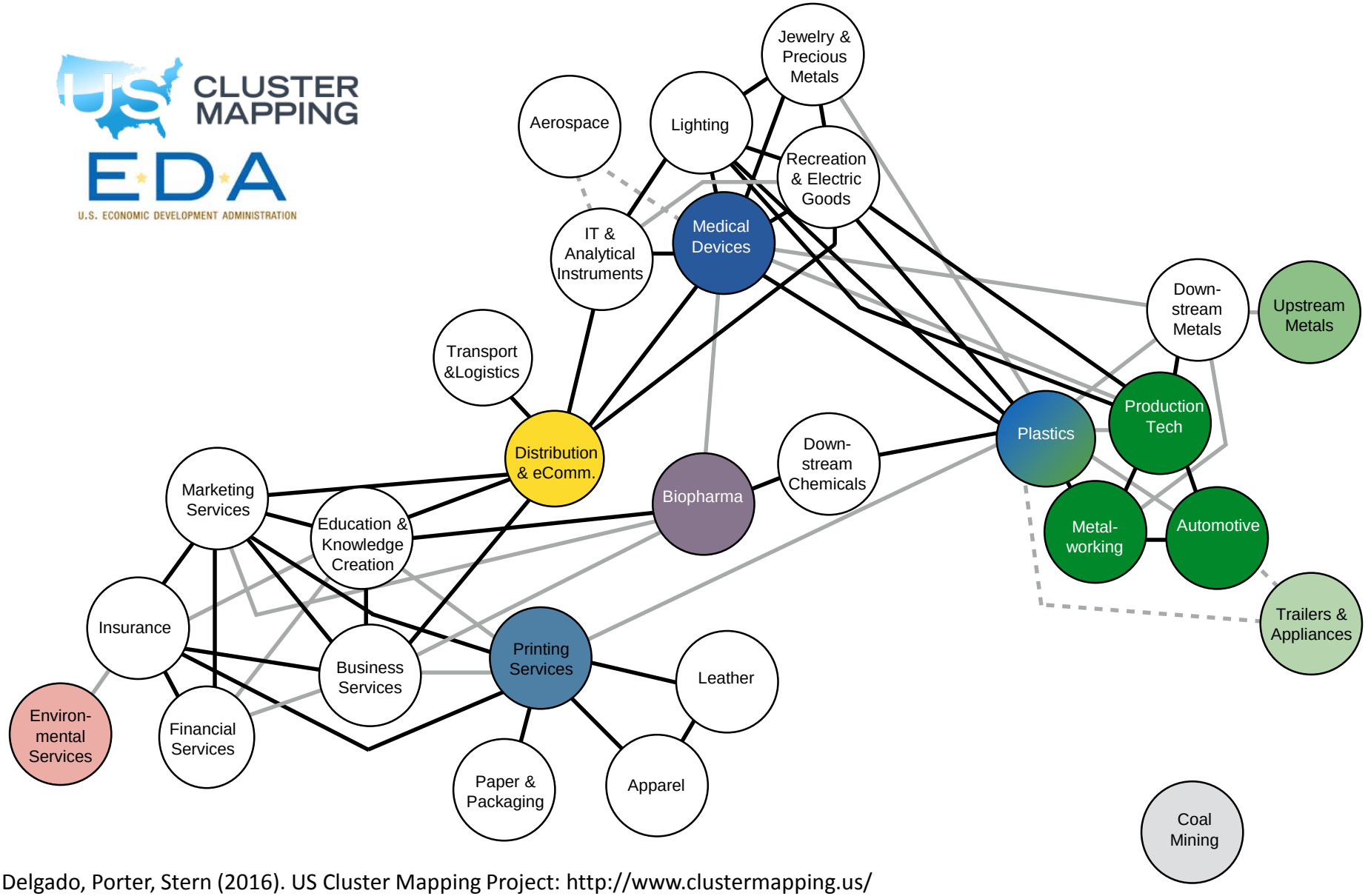
tait communications
IBM
EFFECTUS LIMITED
skilitix
Stickmen Studios IMAGINE THIS

ICT in Christchurch NZ

Wine in South Australia

Regions Have Comparative Advantages Manifested in their Clusters

Cluster Composition of Indianapolis-Anderson-Columbus IN, Economic Area, 2015



Delgado, Porter, Stern (2016). US Cluster Mapping Project: http://www.clustermapping.us/

Indianapolis-Anderson-Columbus, IN EA: Strong clusters colored (~75 percentile employment specialization, LQ) and their connected clusters.

Do Clusters Matter?

Clusters and Economic Performance

Industries that are part of a **strong cluster environment** register higher growth in jobs, startup activity (employment and count of startups), innovation, and job resilience to economic shocks.

Source: Delgado/Porter/Stern (2010, 2014). Delgado/Porter (2017). Delgado (2018).

What Attributes of Clusters Matter for Performance?

Co-location of Innovation and Production

- Economies of **agglomeration of various types** arise in clusters, including input-output, shared skills, and knowledge links (Marshall 1920; Porter 1998).

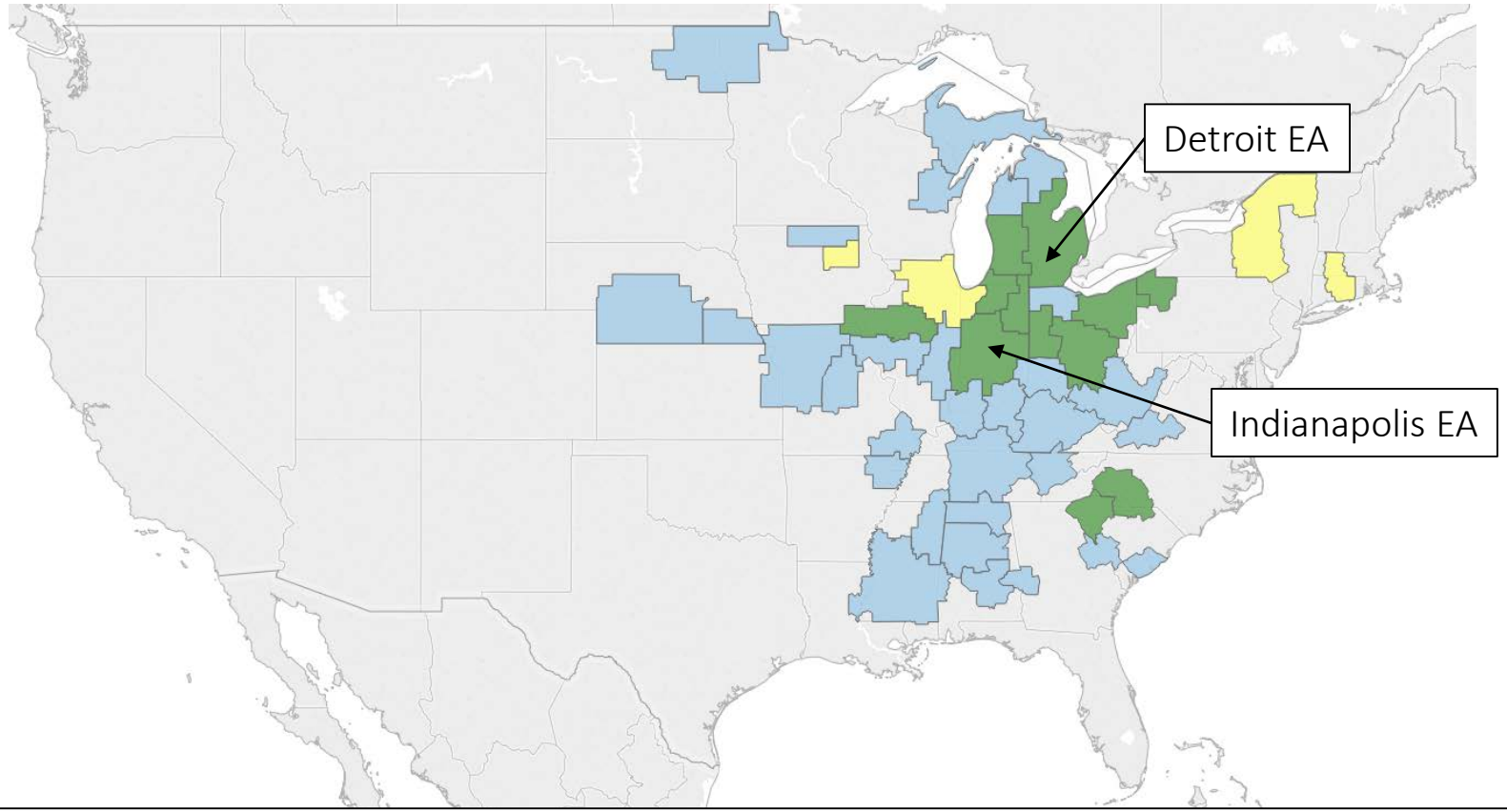
- We find that the **co-location** of innovation & production **matters** for performance:
  - **Clusters with dual strength** in patenting and employment **registered higher growth** in patenting/jobs, and
  - **They were more resilient to the Great Recession**

- Despite internet and globalization, **in the U.S. economy there is meaningful co-location of I&P** for many cluster categories, **especially for those with high knowledge intensity**: e.g., Information Technology; Medical Devices; and Automotive.

Source: Delgado/Porter/Stern (2014). Delgado/Porter (2017). Delgado (2018).

Innovation and Production Co-locate in *Regional* Clusters

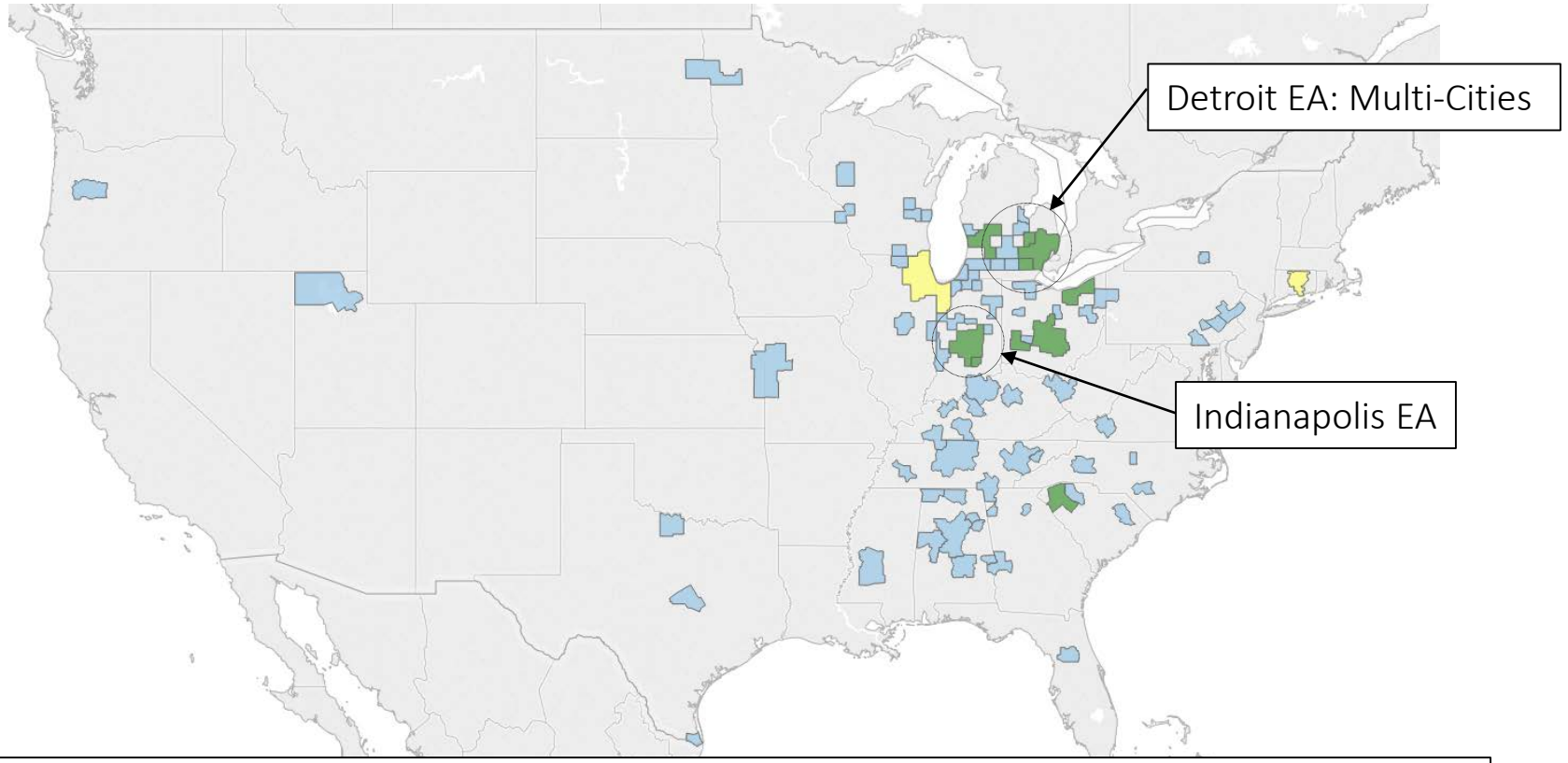
Strong Automotive clusters across Economic Areas, 2015



- **EAs with Dual Specialization have 49% of Auto patents** and 37% of employment
  - Detroit EA has 34% of Auto patents and 12% of employment
- **Nearby regions have similar strong clusters: Opportunity for inter-regional collaboration**

Innovation and Production Co-locate in *City* Clusters

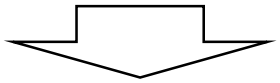
Strong Automotive clusters across Metro Areas, 2015



- **Metro Areas with Dual Specialization have 39% of Auto patents** and 17% of employment
- **Cities are not isolated units: Multiple Metro Areas within an EA are specialized in the cluster**
- **Economic Activity is highly concentrated in Metro Areas, especially patenting:**
  - Metro Areas have 94% of US Auto patents and 73% of employment

Fostering Innovation and Growth in Micropolitan Areas

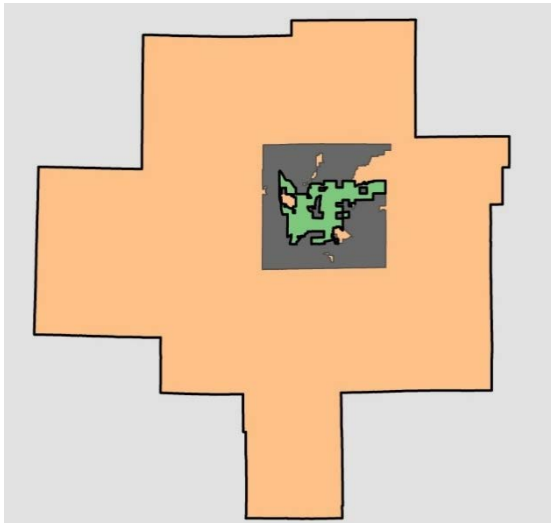
- Micro Areas are small
  - They account for ~10% of U.S. traded employment
- But agglomeration benefits could be fostered in smaller cities if they have meaningful employment density and proximity to Metro Areas



An effective strategy to foster innovation in Micro Areas should be based on the ability to connect to the nearby regional clusters

Benefits of Connecting Distressed Places to the Nearby Clusters

Indianapolis Metro Area and its Inner City



ICIC
Initiative for a Competitive Inner City

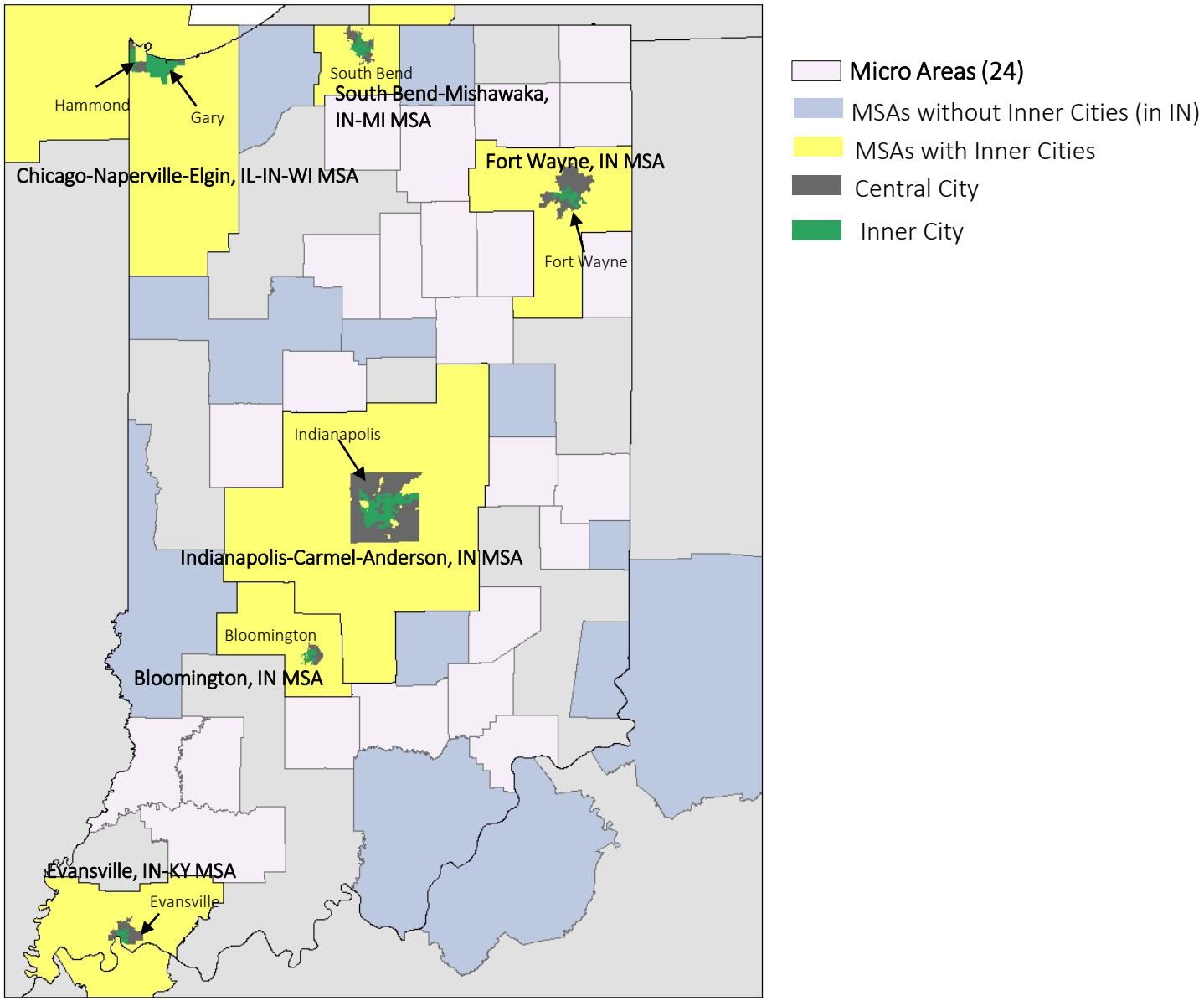
Clusters Matter for Inner Cities:

- **Inner cities** are economically distressed parts of a city (unemployment, poverty)
- Similarly to Micro Areas, inner cities are **small, but close to an urban region**
- We find that **inner cities that specialize in clusters that are strong in the surrounding city** ("connected") **create more jobs**

Delgado/Zeuli (2016). *Economic Development Quarterly*

Cities are not Isolated Units. They are Integrated into Regions

Indiana has *many* cities: large (14 Metro Areas) and small (24 Micro Areas)



Inclusive Prosperity by Connecting Micro Areas to Clusters

Strong Clusters in Indianapolis-Anderson-Columbus, IN EA and in its Micro Areas

	Biopharma	Medical Devices	Auto	Production Tech	Metalworking Tech	Plastics	Upstream Metal Mfg	Environmental Svc	Distribution & eComm.	Printing Svc	Coal Mining
Micro Areas in Indianapolis EA											
Bedford, IN			Connected	Connected	Connected		Connected				
Connersville, IN			Connected	Connected	Connected		Connected				
Crawfordsville, IN		Connected				Connected	Connected			Connected	
Frankfort, IN			Connected	Connected	Connected						
Greensburg, IN			Connected								
Logansport, IN			Connected		Connected		Connected				
New Castle, IN			Connected								
North Vernon, IN			Connected		Connected	Connected					
Peru, IN									Connected	Connected	
Richmond, IN					Connected	Connected		Connected			
Seymour, IN			Connected	Connected					Connected	Connected	
Vincennes, IN											Connected

- This EA contains 12 Micropolitan Areas
- A *connected* Micro Area specializes in clusters that are strong in the nearby EA
- **All Micro Areas are connected** to at least one strong cluster in the surrounding Indianapolis EA
- **Regional clusters vary in their connectivity**: Automotive vs Biopharma

Policy Implications:
How to Integrate the Micro Areas into the Regional Clusters?

What not to do: Generic Policies or 'Best Practices'

- Choosing generic clusters (e.g., 'high-tech' clusters or AI clusters) and
- Policies to attract *any* type of firms may not be effective.

What to do: Tailored policies to economically connect small cities to their regions

- Step 1: Map the cluster composition of the region and its cities (industries, firms, people)
- Step 2: Identify clusters in the region that have some presence in the Micro Area
- Step 3: Develop initiatives to connect the Micro Area to the nearby clusters:
  - STEM Skills needed by the strong regional clusters
  - Supply chain services (Delgado and Mills, 2017): logistical, design, engineering services
  - Capital and social infrastructure that increases the circulation of ideas, people, goods and services.

Thank You!

delgadom@mit.edu

http://delgadom.com

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