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## The Industrial Economy as a Key to Equitable Economic Growth

*By Zachary Nieder and Kathleen O'Shea*

### LESSONS LEARNED FROM DULUTH, MINNESOTA

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# the industrial economy

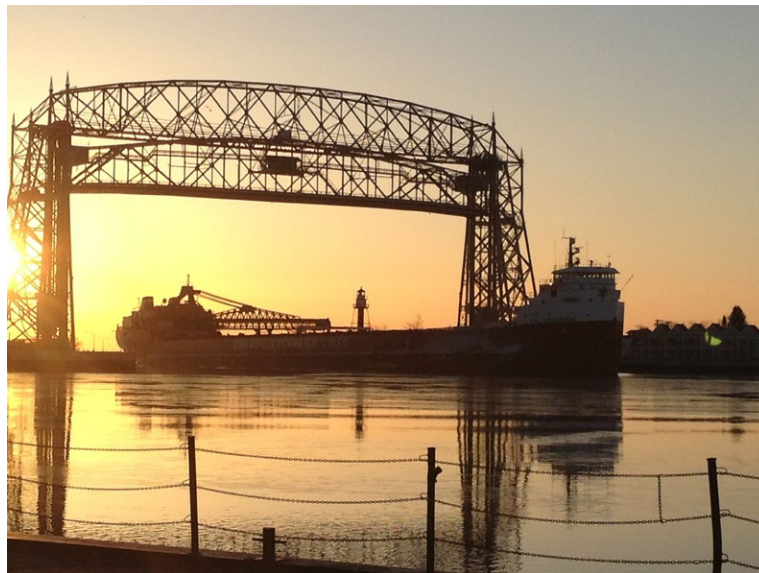
## AS A KEY TO EQUITABLE ECONOMIC GROWTH

By Zachary Nieder and Kathleen O'Shea

Many American “rust belt” cities find themselves at a critical juncture, forging a new vision for future economic growth. Many economic development professionals in these cities feel as though they face a choice between preserving and growing existing industrial assets and supporting a trend toward innovation- and amenities-focused economies. But must these two be mutually exclusive?

In comparison to the public attention garnered by craft businesses, start-ups, and the growth of healthcare and tourism, the economic importance of the industrial sector is less visible to the public, less newsworthy, and seems to be relegated to a city's past rather than its future. The industrial sector includes both traditional and contemporary industrial businesses (e.g., construction, manufacturing, transportation, publishing, telecommunications, data processing, aviation and breweries).<sup>1</sup> Since industry is often blamed for economic downturn in many regions, it is understandable that cities may find it difficult to bet on the sector for revitalization. How can industry be part of the solution if it was part of the problem?

This is the story unfolding in Duluth, Minnesota, a city with a strong industrial legacy that – while experiencing some resurgence – is struggling to keep up with its peer cities. The abundance of natural resources in the region, including iron ore and forests, combined with rail and shipping transportation options, helped Duluth grow into a prosperous industrial city at the turn of the twentieth century. The city's location on Lake Superior and its large port gave it a competitive advantage in transporting goods, and in 1959, the St. Lawrence Sea-



Ship at sunrise under the Aerial Lift Bridge in Duluth. Photo credit: Visit Duluth

way was constructed, becoming the largest inland waterway in the world and opening up new trading opportunities for Duluth. In subsequent decades, the industrial sector declined in Duluth, as it did in other American rust belt cities.

Duluth's resurgence has been profiled in national media and a book (*A 100,000-Mile Journey into the Heart of America* by James and Deborah Fallows) on the rise of small towns, which recognizes the growth of its craft breweries as well as the success of eco-friendly start-ups Loll Designs and Epicurean, and the aircraft maker Cirrus. And yet, Duluth's growth has been modest, with its population increasing by less than one percent between 2010 and 2016 and employment and economic growth falling behind the state overall and regional peer cities.

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### LESSONS LEARNED FROM DULUTH, MINNESOTA

Many American “rust belt” cities find themselves at a critical juncture, forging a new vision for future economic growth. Many in these cities feel as though they face a choice between preserving and growing existing industrial assets and supporting a trend toward innovation- and amenities-focused economies. In Duluth, an assessment by the Initiative for a Competitive Inner City (ICIC) has demonstrated that a contemporary urban industrial sector remains vital to the economic prosperity of the city. ICIC's assessment shows that industrial activity is not only complementary to the broader goals of economic equity and inclusion but is also an important means for achieving them.

Rust belt cities like Duluth continue to struggle with high rates of poverty and economic inequality. In Duluth, 15 percent of residents live below the poverty line. Therefore, it is critical that economic development strategies create equitable growth – not simply expanding the number of jobs, but creating high-quality jobs accessible to the broader community.

### WHY SHOULD CITIES FOCUS ON PRESERVING INDUSTRIAL ASSETS?

In Duluth, an assessment by the Initiative for a Competitive Inner City (ICIC) has demonstrated that a contemporary urban industrial sector remains vital to the economic prosperity of the city, and the solution lies in an “and” not “or” economic development approach that incorporates both industrial and non-industrial sectors. ICIC’s work clearly shows that industrial activity is not only complementary to the broader goals of economic equity and inclusion but is also an important means for achieving them. ICIC is a national, nonprofit research and advisory organization founded in 1994. Its mission is to drive economic prosperity in America’s inner cities through private sector investment.

Duluth has retained major industrial assets as a Great Lakes port and leveraged its competitive assets to support new industrial clusters, such as aviation. The Port of Duluth-Superior is the largest tonnage port on the Great Lakes and continues to rank among the top 25 ports in the U.S., handling an average of 35 million short tons of cargo and hosting nearly 900 vessel visits each year.

Gaining insight into the potential impact of the industrial sector on economic growth in a region can demonstrate the potential return from investing further in industrial growth in a city, including return for the local workforce. Our analysis of Duluth quantifies the impact of the industrial sector on the city, county and region and examines the relative impact of the industrial sector by comparing its performance to that of the rest of the economy in Duluth.

While the rest of the economy is five times larger than the industrial sector in Duluth, on a per job basis, an IMPLAN analysis showed that the industrial sector sup-

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ports a proportionately higher share of jobs and generates more local tax revenue. Each industrial sector job generates almost three times more tax revenue for local government – \$6,388 in tax revenue per job – than a job in the rest of the economy.

The benefits of preserving and growing industrial assets can be both far-reaching and highly sustainable. Its potential entails not only the addition of new jobs but the types of jobs that help cities and regions grow efficiently and equitably. In Duluth, on average, industrial sector jobs, like those found in the healthcare sector, are also quality jobs, offering relatively high wages, benefits, and career advancement opportunities.

Ultimately, strategies to create economic growth should not focus on a single sector in the economy at the expense of others. However, the industrial sector has a disproportionate impact on the economy relative to its size. As our analysis shows, continuing to support and grow the industrial sector in Duluth will drive economic growth in both the city and region.

### THE IMPORTANCE OF LAND USE PATTERNS

Potential constraints to the growth of the industrial sector are limitations on vacant industrial land that restricts the pipeline of “shovel ready” sites, which can hinder future industrial business retention, expansion, and attraction. Even when there is a substantial amount of industrial zoned land not in use in a city, much of it may not be readily developable, as is the case in Duluth. Many vacant industrial zoned parcels have challenges that limit development, including:

- They are not “shovel ready” (e.g., inadequate infrastructure and access);
- They have environmental constraints such as requiring geotechnical corrections, shoring of pier walls or an assessment or remediation of environmental contamination;
- They do not meet the size or location requirements for larger industrial businesses, and in order to create sufficiently large sites, multiple parcels need to be purchased and assembled;
- They are difficult for developers and businesses to find; and
- They are challenging to purchase/lease because of complex or unclear land records, or land banking by current owners.

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Our cluster analysis in Duluth found several strong industrial clusters, including water transportation, aviation, and transportation and logistics, which suggests that industry remains a competitive advantage for Duluth and the region and has the potential to continue to drive economic growth in the future.

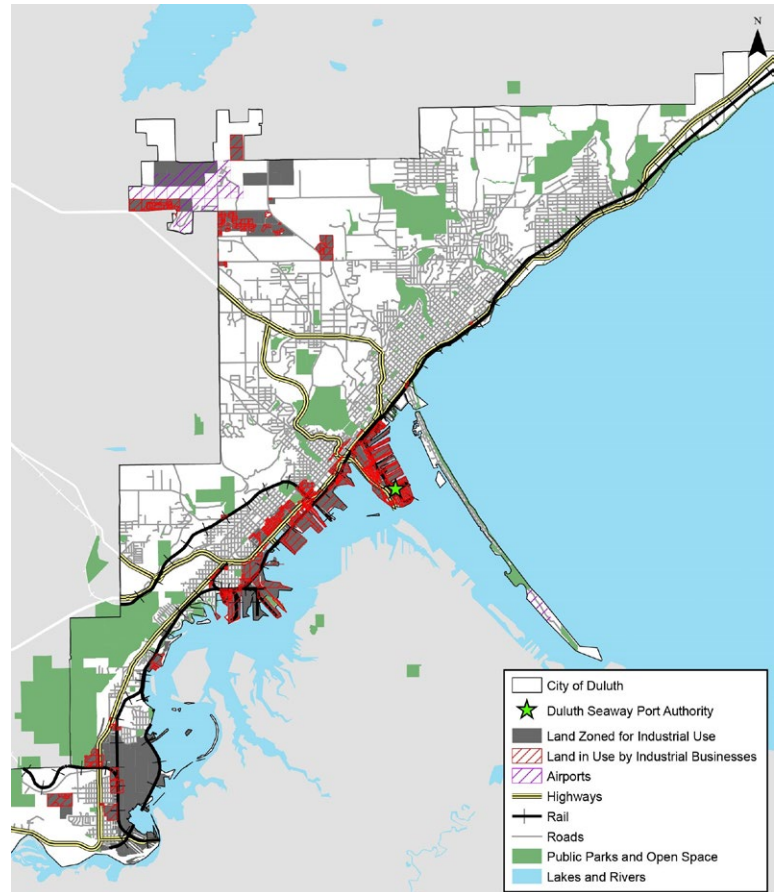
If suitable industrial land is not readily available or is too costly to develop in the city, existing businesses that are expanding may feel forced to move out of the city. Accounting for low-lying land and three large brownfield sites, we estimated that the city of Duluth has just 1,600 acres of vacant industrial zoned land (33 percent of all industrial zoned land) that potentially could be available for new industrial businesses. However, this estimate overstates the amount of readily available land for industrial business as much of it is not development-ready. Map 1 shows the industrial zoned land in Duluth that is currently in use by industrial businesses.

Without sufficient development-ready sites, industrial cities will not be able to compete with other areas in attracting new industrial businesses to the area. Linking a land use analysis to an economic and fiscal impact analysis can help make the case for maintaining industrial usage of land in cities where pressure exists to allow other usages. In Duluth, it becomes clear that maximizing the city's industrial land base by supporting its use for industrial businesses will create comparatively more jobs, output and tax revenue than rezoning it for most other purposes.

### TYING INDUSTRY TO COMPETITIVE ADVANTAGES

The importance of clusters for regional competitiveness and economic performance was first recognized in the 1990s.<sup>2</sup> Clusters include closely related and intercon-

**MAP 1: INDUSTRIAL ZONED LAND CURRENTLY IN USE BY INDUSTRIAL BUSINESSES: DULUTH**

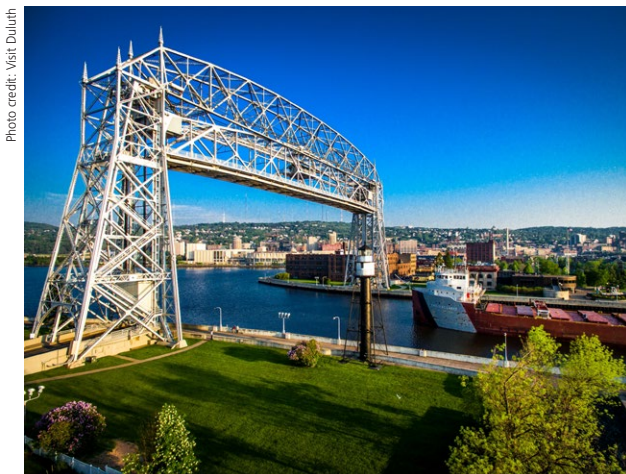


Note: Land zoned for industrial use currently in use by industrial businesses includes all parcels of land in the city of Duluth that are wholly or partially located in the City of Duluth's Industrial-General (I-G), Industrial-Waterfront (I-W), and Mixed Use-Business Park (MU-B) zones and have an industrial business using the land. Industrial businesses were identified using Dun & Bradstreet's Hoovers Database and include all businesses in the industrial sector (defined by ICIC using NAICS codes).

Sources: City of Duluth Zoning (2016), Dun & Bradstreet's Hoovers Database (2017), Saint Louis County Assessor parcels (2017).

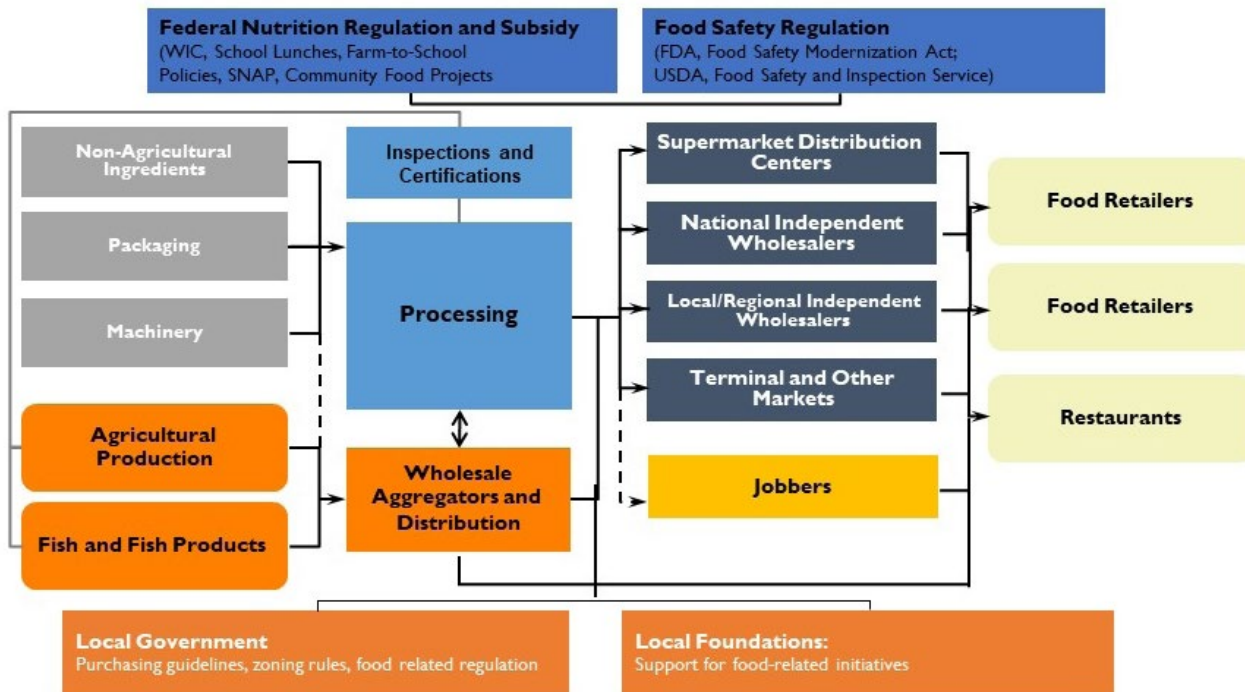
nected businesses operating within a specific geography. Clusters of businesses arise organically and, therefore, reflect the unique assets and core competencies of a given region that create unique competitive advantages for certain business sectors.<sup>3</sup> Well-known examples include the oil and gas production and transportation cluster in Houston or the footwear cluster in Portland, Oregon. The companies operating within a cluster are connected by a shared workforce, supply chains, customers and technologies. Every cluster includes core businesses as well as other businesses that form a mutually beneficial business ecosystem. An illustrative diagram of a food cluster is provided in Figure 1.

Conducting a cluster analysis can have important policy implications. If a city's strong clusters include strong industrial clusters, this can help make the case for greater investment in the sector. The presence of a strong cluster in a given location will improve regional performance.<sup>4</sup> Businesses in strong clusters are characterized by greater employment growth as well as greater growth of new businesses, innovation, and wages.<sup>5</sup> Further, businesses



Ship entering the harbor under the Aerial Lift Bridge which spans the Duluth Ship Canal.

**FIGURE 1. ILLUSTRATIVE CLUSTER DIAGRAM, BOSTON FOOD CLUSTER**



Source: U.S. Cluster Mapping Website, Institute for Strategy and Competitiveness, Harvard Business School. Copyright © 2019 Professor Michael E. Porter.

in clusters that are strong in both the city and region will grow faster than the same businesses in a cluster that is “disconnected” (i.e., only strong in one of the areas).<sup>6</sup>

Our cluster analysis in Duluth found several strong industrial clusters, including water transportation, aviation, and transportation and logistics, which suggests that industry remains a competitive advantage for Duluth and the region and has the potential to continue to drive economic growth in the future. Businesses in these strong industrial clusters should experience higher employment growth, higher wages, and more innovation than in clusters that are not strong. For example, industrial clusters typically pay higher wages than non-industrial clusters in Minnesota.<sup>7</sup> The average annual wage for industrial clusters in Minnesota in 2015 was \$57,382 compared to \$45,599 for non-industrial clusters.<sup>8</sup> The average annual wage for all industries in Minnesota in 2015 was \$50,948.<sup>9</sup>

We also find several emerging competitive industrial clusters that represent potential future growth opportunities for the city and region. These findings imply that future economic development plans for the city should recognize the strategic advantage of investing in industry. Although clusters emerge organically, strengthening clusters to maximize growth requires strong public-private partnerships.

Industrial clusters also support the growth of other related clusters through shared employment, supply chains, and output.<sup>10</sup> A formal cluster analysis identifies four other clusters directly linked to industrial clusters: business services, education and knowledge creation, insurance services, marketing, design, and publishing.

A specific example of the interconnectedness of the industrial sector to other parts of Duluth’s economy is its relationship to the healthcare sector – a key driver in Duluth’s economy. Healthcare providers rely on private insurance to sustain their operational model, as they are reimbursed at higher rates for gross charges to private insurance than for Medicare and Medicaid. In Duluth,

### THE ROLE OF A PORT AUTHORITY IN DRIVING INDUSTRIAL GROWTH

The role of lead industrial organizations, including port authorities like the Duluth Seaway Port Authority, is vital for strengthening industrial economies. Port authorities often advocate for the broader industrial economy and are a voice for industrial firms, ensuring that the concerns of the private sector are addressed and opportunities for the city to attract and retain industrial firms are fully exploited. Fully leveraging the important influence of port authorities can not only help to promote business retention but will allow for the development and implementation of an industrial growth agenda.

The Duluth Seaway Port Authority has been a leading advocate for industry in the Twin Ports and Northeast Minnesota since its founding in 1955. It is a public agency (a subdivision of the state of Minnesota) with four primary objectives: (1) bring business to the port; (2) support economic development in Duluth and the surrounding region; (3) increase domestic and international trade; and (4) advocate for the maritime and transportation sectors on a local, state, and national level.

the private insurance market consists largely of the city's main employers, including both large and small industrial businesses.

## STRATEGIES TO SUSTAIN INDUSTRIAL GROWTH IN RUST BELT CITIES

We offer key insights into the four priorities required for industrial sector growth and highlight issues and opportunities that need to be addressed to catalyze industrial sector growth in rust belt cities. The priorities feature examples of how cities are addressing these issues and opportunities.

### 1. A Balanced Economic Development Strategy that Recognizes the Importance of Industry Along with Other Sectors

Recognition of the industrial sector's impact requires a stronger narrative and communication push. Misperceptions about the importance of the industrial sector to cities like Duluth's current and future economies pose the greatest challenge to this priority. Part of the issue is the perception that industry is a shrinking sector that is part of many cities past, rather than their future. When the breadth and importance of the industrial sector is misunderstood, the imperative to include industry in economic development plans is weakened.

Another challenge is the "us versus them" mentality that pits industry against other sectors in economic development planning. As ICIC's assessment in Duluth showed, most economic sectors are interdependent and the growth of industry supports the growth of other sectors. A stronger narrative and communication push around the important role that industrial jobs can play in driving not only economic growth, but equitable growth, is needed to help develop balanced economic development plans for the city that incorporate industrial sector growth.

As part of broader efforts to market the impact of the industrial economy in Baton Rouge, Louisiana, the higher-than-average wages associated with the industry, particularly in the energy sector, have been highlighted.



Photo credit: Duluth Seaway Port Authority

Aerial photo of Superior Bay, Duluth.

A recent study by Grow Louisiana Coalition, a nonprofit coalition with a mission to support the oil and gas industry in Louisiana, found that in both East Baton Rouge Parish (the parish which encompasses Baton Rouge) and neighboring West Baton Rouge Parish, the average annual income associated with an energy industry job was more than double the median income in each of the parishes, respectively.<sup>11</sup>

### 2. Invest in "High-Return" Industrial Assets

Targeted investment in key industrial assets could yield high returns for the industrial sector and spur additional growth. In Duluth, the Duluth Intermodal Terminal may be a leading candidate. The terminal is a core asset that makes Duluth more competitive as a transportation and logistics hub for the broader region, providing an opportunity for many industrial businesses in Duluth to reach a broader market.

In Fargo, North Dakota, business leaders have identified a need for increased rail container services and inland barge transport and have begun to explore the potential for intermodal facilities that could help expand Fargo-Moorhead's capacity to serve additional markets, including Duluth.<sup>12</sup> Continued investment in public infrastructure can also help catalyze growth in the industrial economy. In Fargo, the role of the Bank of North Dakota is significant. A unique institution – the only state-owned bank in the U.S. – the bank is a critical source of funding for both industrial and non-industrial enterprises. As part of its 2018-2020 strategic plan, the bank has added initiatives to strengthen its ability to finance large development projects, as well as expand its role in financing municipal infrastructure projects.

### 3. Target Economic Development to Address Industrial Cluster Gaps

While clusters occur organically and reflect the unique assets and competitive advantages of a region, their growth can be accelerated and their impact maximized through strategic interventions to address cluster weak-

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nesses.<sup>13</sup> Focusing on clusters also provides a framework for organizing disparate local and regional public policies and investments directed at economic development. Cluster initiatives can help coordinate the work of the various economic development organizations in a city.

The business composition of clusters can vary depending on the cluster and the region. Effective cluster interventions need to be developed in response to gaps within clusters, which can be identified through a comprehensive cluster diagnostic. The diagnostic should include analyzing components such as the following:

- Business types within the cluster;
- Firm composition (size and age) within the cluster;
- Workforce requirements within the cluster;
- Existing workforce within the city;
- Sources and incentives for innovation within the cluster and the city;
- Source of capital within the city;
- Land use patterns in the city; and
- Local, state, and federal policies and regulations that impact the cluster.

In Toledo, Ohio, both the public and private sectors in the surrounding region have prioritized the diversification of its manufacturing sector. For example, given the city's roots in glass manufacturing, there has been a sustained focus on developing a photovoltaic sector in Toledo. A recent \$400 million investment in a new manufacturing facility by First Solar, one of the nation's largest manufacturers of solar panels, is indicative of the success of this strategy.<sup>14</sup> The photovoltaic sector has also benefited from a close partnership with local higher educational institutions. The University of Toledo plays an important role in supporting the city and region's photovoltaic business sector. The university has established the Clean and Alternative Energy Incubator as well as the Nitschke Technology Commercialization Complex, which opened in 2010 and is focused on scaling clean energy manufacturers.

#### **4. Develop Policies That Create a More Supportive Business Environment for Industry**

Our research provides some insights into local policies that are particularly relevant for industrial business growth and maximize competitiveness to attract, retain and expand industrial businesses. Land use policies that preserve existing industrial zoned land may be the most significant. In Duluth, the city has successfully prevented

other types of land use from encroaching on industrial zoned land. Continued commitment by the city to preserve industrial zoning is an important incentive to spur industrial investment and development.

Workforce attraction, particularly the ability to recruit experienced talent, is critical for economic growth in the Fargo-Moorhead region. A 2015 regional workforce study, released by the Greater Fargo Moorhead Economic Development Corporation (GFMEDC) and the United Way of Cass-Clay, focused on strategies to attract and retain workforce, with a focus on the manufacturing sector. This included expanding the use of "Manufacturing Days" at local high schools and colleges to provide opportunities for career exploration and direct connections to regional employers, as well as the development of a train-to-hire program to better align training with employment opportunities.

The study also highlighted the importance and impact of the Manufacturing Committee, which is convened by GFMEDC and is comprised of representatives from the business community, higher education, K-12 education, and workforce development organizations. The committee is one of several sector-specific committees (two others are information technology and healthcare) formed by GFMEDC to strengthen interactions between industry and education.<sup>15</sup>

In cities across the country, particularly in rust belt cities, investing in industry is increasingly unpopular as attention is focused on the "innovation" sectors. ICIC's work has demonstrated that the solution lies in a dual approach that includes the industrial sector as a catalyst of greater economic growth and opportunity. The goal of such efforts should be to shift the focus of discussion and policy towards how to capitalize on industry moving forward.

#### **KEY TAKEAWAYS**

In cities across the country, particularly in rust belt cities, investing in industry is increasingly unpopular as attention is focused on the "innovation" sectors. ICIC's work has demonstrated that the solution lies in a dual approach that includes the industrial sector as a catalyst of greater economic growth and opportunity. The goal of such efforts should be to shift the focus of discussion and policy towards how to capitalize on industry moving forward.

Leveraging industrial assets to drive economic growth in any city will require a broad base of support, a comprehensive plan that prioritizes industry, strategic investments in industrial assets, targeted economic development, and a supportive business environment. However, a partnership among all stakeholders that recognizes the shared interests and opportunities that exist may represent the most important ingredient for realizing the many benefits and opportunities. ☎

## ENDNOTES

- <sup>1</sup> For the purposes of ICIC's assessment in Duluth, the aggregate industrial sector was defined using 2-digit to 6-digit NAICS codes. NAICS code descriptions are available from the U.S. Census Bureau website: <https://www.census.gov/eos/www/naics/>.
- <sup>2</sup> M. E. Porter, "Clusters and the New Economics of Competition," *Harvard Business Review* 76, no. 6 (1998): 77–90.
- <sup>3</sup> Mercedes Delgado, Michael E. Porter, and Scott Stern, "Defining Clusters of Related Industries" (U.S. Cluster Mapping, 2014).
- <sup>4</sup> Mercedes Delgado, Michael E. Porter, and Scott Stern, "Defining Clusters of Related Industries" (U.S. Cluster Mapping, 2014).
- <sup>5</sup> Mercedes Delgado, Michael Porter, and Scott Stern, "Clusters, Convergence, and Economic Performance" (NBER Working Paper No. 18250, National Bureau of Economic Research, 2012), <http://www.nber.org/papers/w18250.pdf>; Mercedes Delgado, Michael Porter, and Scott Stern, "Clusters and Entrepreneurship," *Journal of Economic Geography* 10, no. 4 (2010): 495–518; Adrian T.H. Kuah, "Cluster Theory and Practice: Advantages for the Small Business Locating in a Vibrant Cluster," *Journal of Research in Marketing and Entrepreneurship* 4, no. 3 (2002): 206–28.
- <sup>6</sup> Delgado, M. and Zeuli, K., "Clusters and Regional Performance: Implications for Inner Cities," *Economic Development Quarterly* 30, no. 2 (2016): 117–36.
- <sup>7</sup> Cluster wage data are not available for Duluth or St. Louis County
- <sup>8</sup> Cluster wage data are from the U.S. Cluster Mapping website, which uses U.S. Census Bureau County Business Patterns 2015 annual payroll and employment data (the most recent as of the time of analysis).
- <sup>9</sup> Average annual wage for Minnesota is the overall annual average wage (all industries) and uses U.S. Census Bureau County Business Patterns 2015 annual payroll and employment data.
- <sup>10</sup> Cluster relatedness is measured by the U.S. Cluster Mapping website and measured for traded clusters, but not local clusters. The listed clusters include only those that have a minimum level of employment (the maximum of 20 employees or the number of employees that ranks as the 25th percentile across all cities with population greater than 75,000) and are related to one or more traded non-industrial cluster.
- <sup>11</sup> "The Energy Sector: Still a Giant Economic Engine for the Louisiana Economy--An Update." (Grow Louisiana Coalition, 2018).
- <sup>12</sup> R. Johnson, "Fargo's Business Ties to Winnipeg Strengthen with Announcement of New Freight Corridor," *Inforum*, December 5, 2017, <http://www.inforum.com/business/transportation/4369832-fargos-business-ties-winnipeg-strengthen-announcement-new-freight>.
- <sup>13</sup> Kim Zeuli, Austin Nijhuis, and Kathleen O'Shea, "Building Strong Clusters for Strong Urban Economies" (Initiative for a Competitive Inner City, 2017).
- <sup>14</sup> "First Solar Announces Plans to Build New Manufacturing Plant in Northwest Ohio," accessed March 22, 2019, <https://www.13abc.com/content/news/First-Solar-announces-New-US-Manufacturing-Plant-480983861.html>.
- <sup>15</sup> "Regional Workforce Study Greater Fargo/Moorhead Region" (United Way of Cass-Clay, 2015).

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