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## Center for Population Dynamics Quarterly Brief January 2017: Transportation's Role in the Economic Restructuring of Cleveland

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# Transportation's Role in the Economic Restructuring of Cleveland

BY RICHEY PIIPARINEN AND JIM RUSSELL, THE CENTER FOR POPULATION DYNAMICS AT THE MAXINE GOODMAN LEVIN COLLEGE OF URBAN AFFAIRS



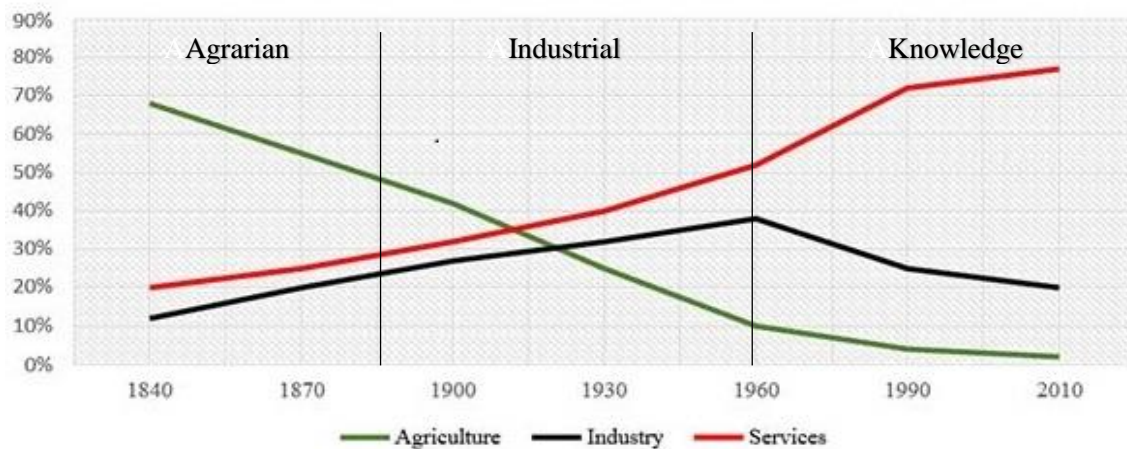
## Conceptual Framework

Transportation is the vessel for the movement of people. Migration is the actual movement of people. Both transportation and migration are dictated by the economic eras of which they are a part. These economic eras are most simply illustrated by showing the type of work people did across our nation's history.

Nearly 70% of the nation was employed in agriculture in the 1840s (See Figure 1). Fast forward to 1930 and employment in mining, manufacturing, and construction—categorized as “industry” employment—surpassed farm work, with industrial jobs peaking in 1960. Then, the era transitioned into a knowledge economy dominated by the proliferation of ideas and the activities that commercialize them. Today, about 8 out of 10 Americans are currently employed in service work, ranging from high-end professional work (technology, “eds and meds”, research, engineering, etc.) to lower-skilled activities like retail and leisure and hospitality.

Figure 1

**Percent of United States Labor Force in Agriculture, Industry, and Services.**  
Source: National Bureau of Economic Research, Bureau of Economic Analysis.



Importantly, each economic era is associated with a particular migration and mode of transportation. Without an understanding of these eras and their associated flows of goods and people, it is hard for a region to develop forward-thinking transportation policies. The point of this review is to do just that.

In his 1925 essay entitled the “Fourth Migration,” Lewis Mumford charts the most prevalent migrations and types of transport across time, all the while tying both to their respective economic eras<sup>1</sup>. From 1790 to 1890, for instance, America’s “first migration” was about the clearing of the continent for farming purposes (i.e., the agrarian economy), and the transport was the covered wagon. By the mid-19<sup>th</sup> century, however, a “second migration” was underway from the countryside into factory towns with the advent of steam power. Here, according to Mumford, “the covered wagon gives way to the iron horse”.

After long, select well-connected factory towns like Cleveland began gaining global relevance as metropolitan centers during the era of industry. These areas went beyond specializing in the production of goods, but in the financing of production as well. This, then, coincided with a “third migration” that led to “a steady drain of goods and people...from the industrial towns and villages of the earlier migrations”

<sup>1</sup> Mumford, L. 1925. “The Fourth Migration”. *The Survey*.



into the metropolises that are largely still with us today. The mode of transport that eventually defined this third migration was the streetcar, or the evolution of rail from interregional to intraregional.

While the remainder of this analysis will take a detailed look at the migration and transportation modes of the more recent “fourth migration”, or the suburbanization of the metropolis, and the “fifth migration”, or the reurbanization of the urban core, it’s important to note that economic eras and their respective migration and transportation patterns leave lasting imprints on cities. Explains Mumford:

*“There are...things that should be noticed about the first three migrations. The first is that the movement of population is not from farm-village, to industrial town, to financial metropolis: the migrations rather come as successive waves, and while one wave recedes as the next comes foaming in, the first nevertheless persists and mingles with the second as an undertow.”*

In other words, the echoes of a previous era exist in a current era. When those echoes are prominent, they tend to direct a policy landscape to the extent a city can get “stuck” in the past, thus inhibiting its ability to transition into the future. The questions for the remainder of the analysis, then, are:

- To what extent is Northeast Ohio being directed by a lagging mindset when it comes to transportation policy?
- What role does Northeast Ohio’s transportation policies and level of investment play in the enabling or inhibition of Cleveland’s transition into the modern economic era?

## **Transportation and the Fourth Migration**

America’s “fourth migration” is about the decentralization of the nation’s cities into what Brookings’ Bruce Katz has called the “exit ramp economy”, in which “office, commercial and retail facilities [are] increasingly located along suburban freeways.”<sup>2</sup> It goes without saying that the method of transport associated with the “fourth migration” is the automobile.

It’s commonly believed that the creation of the national interstate system led to America’s “fourth migration”, but while the interstate facilitated the process of decentralization, highway infrastructure in and of itself did not cause investment patterns to transition from the city to the suburbs. It was also a matter of federal defense.

“National defense”, explains a memo to President Truman in 1945, “was offered by [coordinated] dispersion of population and of essential industries.”<sup>3</sup>

Consequently, the 1940s and 50s became a time in which manufacturing was subsidized out of the city, if only due to fears that nuclear attacks could more easily wipe out America’s industrial infrastructure if it remained clustered in large cities. Greenfields, then, became the new economic geography, and not just in the suburbs of the Cleveland’s or Detroit’s, but in the Sun Belt. Consequently, with the dispersal of the jobs came the suburbanization of the workers that made up the manufacturing workforce, along with the outmigration of retail and “white-collar” services that served these suburban workers’ needs.

Now, one way to examine the extent a region in the Northeast or Midwest is operating (within) and strategizing (from) a “fourth migration” mindset is to gauge where they are on the continuum of economic restructuring. That is, is a region closer to the industrial era or the knowledge era? If a region is more

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<sup>2</sup> Katz, B. 2007. “Remaking Transportation and Housing Policy for the New Century” Congressional testimony presented before Appropriations Subcommittee on Transportation, Housing and Urban Development, and Related Agencies

<sup>3</sup> O’Mara, M. 2005. *Cities of Knowledge*. Princeton University Press: Princeton.



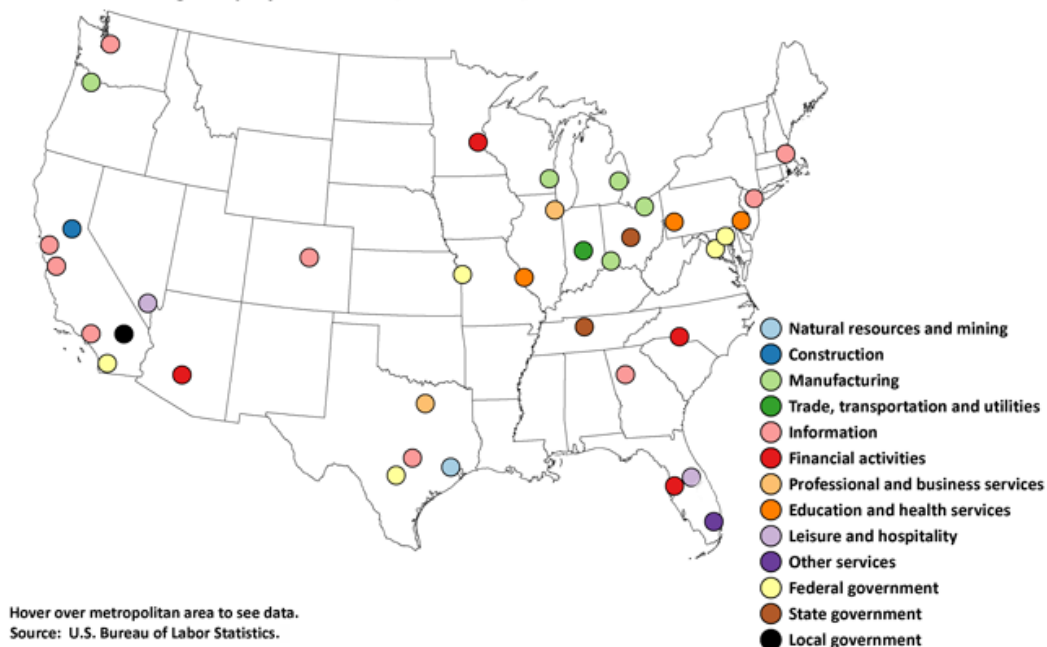
industrial, then insight can be had in regard to its migration, transportation, and investment patterns, particularly if they are consistent with the “fourth migration”.

For example, analysis from the Federal Reserve Bank of Chicago examined how certain industries are shifting to the city from the suburbs or vice versa. “Not surprisingly,” the authors explain, “there have been significant industrial shifts occurring within inner cities as they continue to transition away from goods-producing sectors and toward relatively place-bound service-sector industries.”<sup>4</sup> To that end, they found the largest “job sprawl” away from inner-cities was found in the manufacturing sector.

Map 1 details the type of industry that is most heavily concentrated in the nation’s largest metropolitan areas. The Cleveland metro was the third most manufacturing-intensive large metro in 2013, behind Milwaukee and Detroit<sup>5</sup>. Relatedly, a host of literature shows Greater Cleveland has been deconcentrating employment at faster rates than other urbanized areas. A Brookings report showed that the Cleveland metro experienced the largest drop (-27%) in the number of jobs near the average resident from 2000 to 2012 among the largest areas in the nation, just ahead of Detroit (-26%)<sup>6</sup>.

Map 1. Source: United States Census Bureau

Industries with the highest relative concentration (location quotient) among metropolitan areas with annual average employment of 750,000 or more, 2013



<sup>4</sup> Harley, D., Kaza, N., and Lester, T. 2016. “Are America’s Inner Cities Competitive? Evidence From the 2000s”. *Economic Development Quarterly*, 1–22.

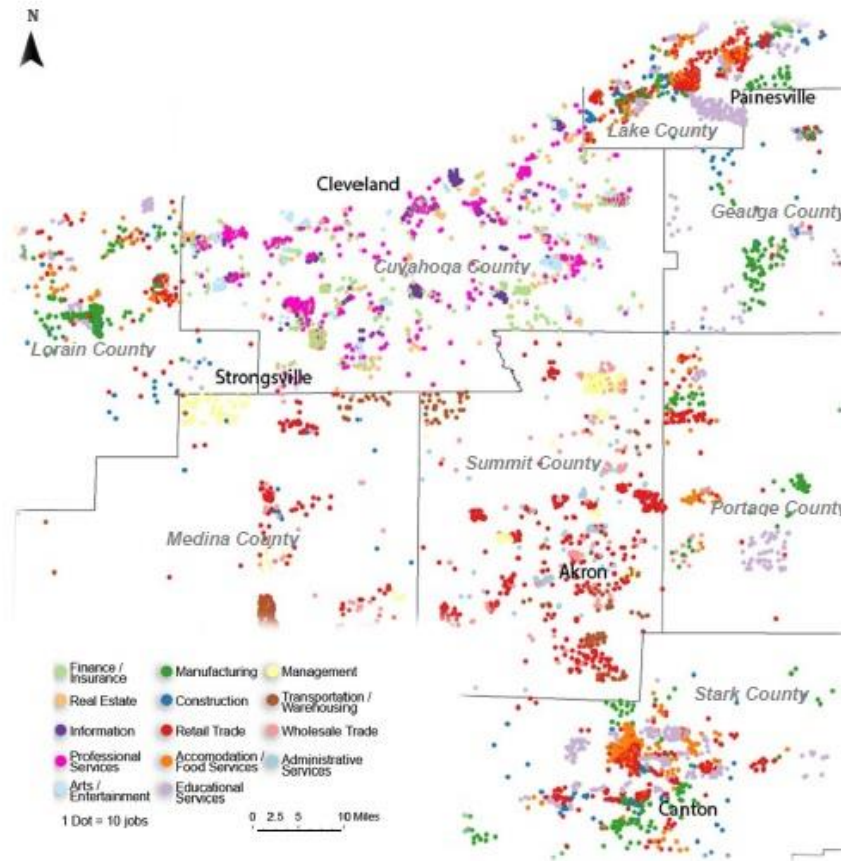
<sup>5</sup> Source: Bureau of Labor Statistics, 2013.

<sup>6</sup> Kneebone, E. and Holmes, N. 2015. “The growing distance between people and jobs in metropolitan America,” Brookings, Washington D.C.



Manufacturing employment in particular has become less proximate for Cleveland-area residents, according to a recent Cleveland Fed analysis “A Long Ride to Work: Job Access and Public Transportation in Northeast Ohio”<sup>7</sup>. In it, the authors show how manufacturing has decentralized by mapping the most prevalent industry by each county in the Cleveland metro (See Map 2), with manufacturing employment found to be one of the least accessible in the region by public transit. This is not surprising, as a main driver for manufacturing firms in deciding where to locate is easy access to the interstate to facilitate shipping and receiving.

Map 2. Source: The Federal Reserve Bank of Cleveland.



Source: LEHD Origin Destination Employment Statistics, 2013

These corresponding realities—i.e., the remaining manufacturing intensity in the Cleveland metro and the sprawling of manufacturing firms and associated back office operations as part of the “exit ramp” economy<sup>7</sup>—has led to what has been described as a “spatial mismatch” between jobs and people. This mismatch affects both employees and employers.

Specifically, the Cleveland Fed found that lower-skilled residents in the region’s most populous county, Cuyahoga, have the least job access to the jobs they are qualified for (e.g., manufacturing, retail), as these jobs exist in the peripheries of the metropolitan area<sup>8</sup>. The Fed also found that half of Northeast Ohio’s top employment centers—including Downtown Canton, Mentor/Willoughby, Elyria, Solon, and

<sup>7</sup> Barkely, B. and Gomes-Pereira, A. 2015. A Long Ride to Work: Job Access and Public Transportation in Northeast Ohio. *A Look Behind the Numbers*, Vol. 6, issue 1. The Federal Reserve Bank of Cleveland.

<sup>8</sup> Ibid.



Medina—have “the unfortunate combination of high concentrations of low-skill jobs and limited access by public transit”. In all, the Fed found these job centers only have access to 12% of the regional labor force.

This issue of needing to bring jobs-to-people or people-to-jobs is not new. In fact, the 1968 Kerner Commission report showed how U.S. metropolitan areas were increasingly divided between poor central-city cores and more prosperous suburbs. Like the report of its predecessor, the McCone Commission, the Kerner report identified a primary cause: the shift of employment opportunities to the suburbs and the absence of federal policies to tie urban residents to these jobs.

Historically, the solutions to solving the spatial mismatch were threefold: suburbanizing residential patterns to be closer to the jobs, or the “dispersal strategy”; attracting new jobs to urban areas, or the “development strategy”; and connecting people with jobs more effectively via transportation policies, or the “mobility strategy”<sup>9</sup>. The primary focus of this paper is with the third strategy, or the issue of mobility.

Ultimately, the question regarding the mobility strategy becomes: is the solution simply one of increasing transportation routes so urban-area residents can get to more distant employment centers? Stated more provocatively—is this a forward-thinking approach, or a reactive approach operating from a decentralization mindset?

Answering this question means disentangling transportation-based solutions two ways. The first way is tactical, or examining the efficacy of moving people from denser urban areas to less dense areas as a solution to the spatial mismatch. The second way is structural, or examining what manufacturing and other low-skilled forms of work will look like in the coming decades as a way to chart proactive policy.

First, it’s important to examine the literature on mobility strategies as a means to link people to jobs. Owning a car typically improves job accessibility, regardless of whether jobs are nearby or not<sup>10</sup>. Most public funding, however, to link urban-area residents to jobs has supported reverse commuting via transit, rather than auto ownership programs. Historically, such programs—particularly Jobs Access and Reverse the Commute program—have had limited success<sup>11</sup>.

For example, an evaluation study on the national Bridges to Work program—which provided transportation and employment services to help low-income urban resident’s access jobs in five suburban areas—found that the program was not effective<sup>12</sup>. Importantly, the efficacy of the program wasn’t about logistics, but incentive, as the workers would not take on long reverse commutes for low-skill, low-wage work. Simply, time is money, and the wages of a job in the suburbs must be significant enough to offset the time spent commuting.

Another evaluation study entitled “A Driving Factor in Mobility? Transportation's Role in Connecting Subsidized Housing and Employment Outcomes in the Moving to Opportunity (MTO) Program” examined both the mobility and dispersal strategy’s effect on employability. The authors found moving

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<sup>9</sup> Chapple, K. 2006. Overcoming Mismatch: Beyond Dispersal, Mobility, and Development Strategies. *Journal of the American Planning Association*, 72:3, 322-336.

<sup>10</sup> Ibid

<sup>11</sup> Ibid.

<sup>12</sup> Blumenberg, E. 2014. A Driving Factor in Mobility? Transportation's Role in Connecting Subsidized Housing and Employment Outcomes in the Moving to Opportunity (MTO) Program. *Journal of the American Planning Association*, 80, 52-66.

inner-city residents into suburbs has no influence on employability, particularly because the areas they moved to did not have good access to public transit.

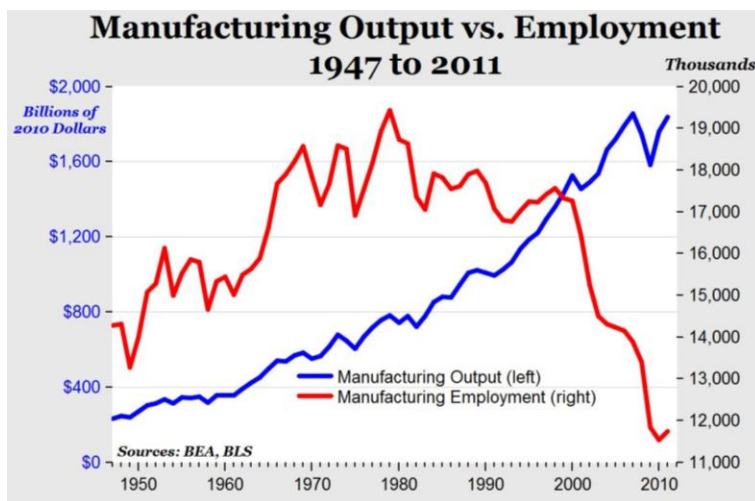
“With respect to public transit,” the authors conclude, “moving to neighborhoods with better transit is positively related to the likelihood of being employed in both time periods; however, it is not associated with employment gains. Our findings indicate therefore that job search and transitions to employment may be most effectively facilitated by access to a car.”

Summing, moving urban-area residents to more distant jobs via residential relocation or transportation programs has not proved to solve the spatial mismatch, while initiatives at increasing car ownership have more promise<sup>13</sup>.

Figure 2



Figure 3. Source: Carpe Diem.



Switching from a tactical to a structural lens, manufacturing as a share of the total U.S. labor force is at an all-time low (8.69%)<sup>14</sup>. In Cleveland, it's 11.7%, down from 17.1% in 2000. Figure 2 shows declines in national manufacturing employment have been most pronounced since 2000, reflecting the extent automation has advanced to replace lower-skilled labor. This is further illustrated in Figure 3 which shows manufacturing output is near all-time highs, despite the job contraction. That is, America still makes things, just with less labor. The industrial era, then, is echoing the agricultural economy before it, as we still eat, yet with far fewer farmers on the payroll.

These macroeconomic realities regarding the future of work should give pause to policy makers when examining the role of transportation policy in fixing the spatial mismatch in Cleveland. Specifically, it may not prudent to advocate for limited transportation funding in the creation of transit connections to disparate areas governed by maturing labor markets. Put simply, will bringing a bus to the likes of Solon fix what is largely structural? Probably not. In fact, one can argue Cleveland's spatial mismatch—or “job sprawl”—problem is a “symptom” of the larger issue of where Cleveland is at in terms of its evolution from industrial- to knowledge-based economy. Writes the author of “Overcoming Mismatch: Beyond Dispersal, Mobility, and Development Strategies”:

<sup>13</sup> Ibid.

<sup>14</sup> Source: Bureau of Labor Statistics, 2015.





*The nature of economic restructuring also differs between regions, affecting the impact of mismatch. In some regions, minority residents are overrepresented in suburbanizing industries, while this is not true elsewhere. For instance, in New York City, relatively few African Americans were employed in manufacturing, so they were not disproportionately affected when manufacturing jobs suburbanized (Fainstein, 1986). Finally, when the regional labor market is tight and aggregate demand for labor is high, mismatch is less extensive (Holloway, 1996; Kain, 1992), suggesting a need to focus on regional growth and competitiveness rather than spatial fixes.*

Taken together, the issue of the “long drive to work” is largely macroeconomic. Consequently, the solution becomes less about connecting people to contracting industries and more about connecting people as a means to birth industries. The last section details the extent transportation policy and investment has helped facilitate regions on their path of economic restructuring, thus providing a milieu to erode the spatial mismatch as opposed to fix it.

### **Transportation and the Fifth Migration**

*“When we think about how we’re planning cities, we should be looking at these trends going forward and not be so nostalgic about how we planned 50 years ago. Our transportation business models, our funding models, are nostalgic.”—Department of Transportation Secretary Anthony Foxx*

Greater Cleveland is undergoing a fairly rapid transformation from an industrial- to knowledge-based economy. A new study from the Cleveland Fed, for instance, found that Providence, Cleveland, Milwaukee, Pittsburgh, Indianapolis, and Philadelphia “had the most pronounced transition from manufacturing to degree-intensive industries” from 1980 to 2014<sup>15</sup>.

This pivot from industry to knowledge has also corresponded with a nascent shift in the region of where the jobs are located. In a 2016 study co-authored by the Federal Reserve Bank of Chicago, the authors chart the extent the nation’s inner cities are growing jobs at faster rates than suburban areas within a given metro<sup>16</sup>. The study found Cleveland was one of 144 cities to increase its share of regional employment from 2000 to 2011, going from 14.6% to 17.1%. Importantly, Cleveland’s most distressed neighborhoods also increased its employment share from having 9.9% of the region’s jobs to 12.6%. Here, Cleveland was one of only 85 cities to do so. (See Map 3 below. Areas shaded in red had increased share in both the inner city at-large and in a city’s most distressed neighborhoods.)

What’s behind the results? The authors explain by differentiating patterns of investment between the economic eras of industry and knowledge. “The inner-city resurgence has been led by the so-called ‘Eds and Meds’ of Health Care and Educational Services,” the authors explain, “at the same time, losses in manufacturing and construction jobs continue in the inner city, reflecting the twin trends of globalization and suburbanization of manufacturing.”

These twin trends of the “suburbanization of manufacturing” and “globalization” correspond with the “fourth” and “fifth migration”, respectively. Globalization, or the “fifth migration”, refers to the infilling

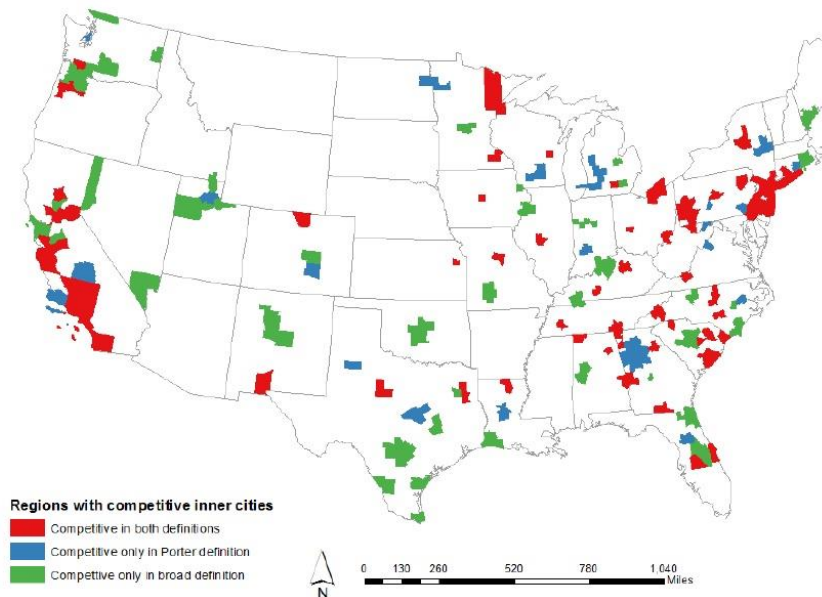
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<sup>15</sup> Whitaker, S. 2016. Manufacturing or Degree-Intensive Labor Markets: Where Do the Children of Non-College Graduates Earn More Degrees? *Economic Commentary*, No. 2016-12. The Federal Reserve Bank of Cleveland.

<sup>16</sup> Harley, D., Kaza, N., and Lester, T. 2016. “Are America’s Inner Cities Competitive? Evidence From the 2000s”. *Economic Development Quarterly*, 1–22.

of migration and investment patterns into urbanized areas<sup>17</sup>. Generally speaking, the more advanced a region is in terms of economic restructuring, the more mature the migration pattern.

**Map 3. Source: The Federal Reserve Bank of Cleveland.**



The final issue of the current analysis, then, examines whether or not transportation policies can enable the economic evolution of a region and concomitant patterns of urban infill.

A 2013 paper called “The Role of Transit in Support of High Growth Business Clusters in the U.S.” lends insight<sup>18</sup>. The analysis noted that the American workplace is changing, with new economy businesses tending to cluster together in large U.S. metros. This clustering maximizes the ability for workers to interact, share ideas, and innovate. Eventually, as clusters grow there is an increase in travel demand to the areas that constrain resources, leading to limitations of production related to congestion.

“[P]ublic transportation investment can potentially enable high growth industry clusters to continue growing, and thus avoid the undesirable consequences of constrained growth,” the authors conclude. “In that context, public transportation can enable economic growth that otherwise would not occur.”

But what about cities like Cleveland that lack congestion? After all, the region continually grades as one of the least traffic-congested metros in the nation, ranking 7<sup>th</sup> out of 174 metro areas worldwide when it comes to least time spent stuck in traffic, according to the annual TomTom Traffic Index<sup>19</sup>. Put simply, if Cleveland has yet to experience the congestion effects of an advanced knowledge economy like, say, Boston, then what economic role does public transit play outside of getting transit-dependent residents to jobs?

<sup>17</sup> Piiparinen, R. Russell, J., and Post, C. 2016. *The Fifth Migration: A Study of Cleveland Millennials*. The Cleveland Foundation.

<sup>18</sup> American Public Transportation Association. 2013. *The Role of Transit in Support of High Growth Business Clusters in the U.S*

<sup>19</sup> See: [http://www.tomtom.com/en\\_gb/trafficindex/](http://www.tomtom.com/en_gb/trafficindex/)



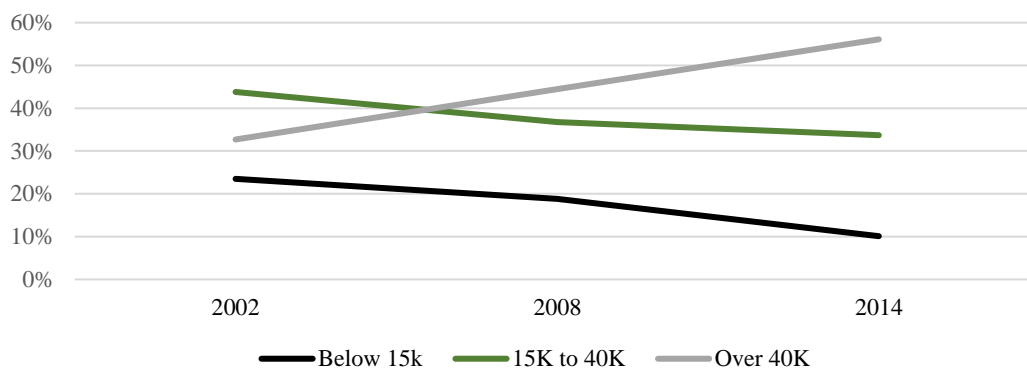
Transportation's role is substantial outside of congestion relief, according to the study "Transit service, physical agglomeration, and productivity in US metropolitan areas"<sup>20</sup>. The analysis, by the University of California at Berkeley's Daniel Chatman, modeled the causes of agglomeration, or clustering of economic activity, in over 300 U.S. metros and found that doubling transit service levels is predictive of large increases in central city employment density and wage increases, with the latter ranging between \$7 million and \$12 billion yearly based on the size of the city.

Why? "You're going to have a different kind of urban form that springs up due to transit than due to the auto," Chapman explains in the article "Public Transit Is Worth Way More to a City Than You Might Think"<sup>21</sup>. This kind of development is "consistent with a narrative in which increases in transit capacity redistribute development from the outlying parts of urbanized areas to the nuclei of polycentric metropolitan areas," concludes Chapman<sup>22</sup>.

An analysis of job and wage trends along Cleveland's Health Tech Corridor provides a local example wherein public transit investment corresponded with increased job density and wage growth. In 2002, for instance, the number of jobs in the Health Tech Corridor was approximately 41,246, with one-third of those jobs paying more than 40K annually<sup>23</sup>. By 2008, the year the bus rapid transit the HealthLine opened connecting the city's University Circle to downtown Cleveland, the number of jobs decreased to 36,850. By 2014, however, the Health Tech Corridor was home to 72,080 jobs, of which 56% pay more than 40k annually (See Figure 4). The lion's share of the job growth was in health care, which increased by approximately 30,000 jobs.

Figure 4

### Employment Share by Salary along Health Tech Corridor. Source: LEHD



Consider the HealthLine a case study wherein the region didn't wait for agglomeration to occur for transit investment, rather incurred agglomeration through transit investment. Such is a leading-edge "fifth migration" mindset that "grooves" paths of connectivity inward, all the while facilitating the region's ongoing economic restructuring.

<sup>20</sup> Chatman, D. 2013. Transit service, physical agglomeration, and productivity in US metropolitan areas. *Urban Studies*, 22-33.

<sup>21</sup> Jaffee, E. 2013. "Public Transit Is Worth Way More to a City Than You Might Think". *City Lab*.

<sup>22</sup> Chatman, D. 2013. Transit service, physical agglomeration, and productivity in US metropolitan areas. *Urban Studies*, 22-33.

<sup>23</sup> Source: Longitudinal Employer-Household Dynamics.



It is important to note, however, that the supposition is not that public transit causes regional economic restructuring, only that the presence of high-growth industries in regions “are evolving so that bus and rail solutions are...enablers of their continuing and future growth”<sup>24</sup>. Here, then, “fifth migration” transit policies need to go hand-in-hand “fifth migration” economic development policies that are primarily knowledge-intensive.

Put another way, while transit can inform agglomeration benefits, the educational attainment of the regional workforce acts as a mitigating factor. A Federal Reserve Bank of New York report finds that above average college degree rates are associated with higher productivity given significantly higher density<sup>25</sup>. However, metros with below average college degree rates demonstrate no density dividend effect. Thus, a knowledge-intensive approach to economic development will help the region get more bang for its transit funding dollars<sup>26</sup>.

This is all to say that there is a future and there is a past. But past can be prologue, particularly if regional policies—be it in transportation, economic development, or community development—are dictated by lagging needs that can be camouflaged as future requirements, like the fixing of the spatial mismatch. It is a problem of yesterday that carries into today. It is more prudent to focus investment on the solutions of tomorrow. The current analysis provides a framework so that reactive versus proactive transportation policies can be more clearly ascertained.

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<sup>24</sup> Weisbred, G., and Duncan, C. 2014. The Evolving Connection of Transit, Agglomeration and Growth of High Tech Business Clusters. Economic Development Research Group, Inc.

<sup>25</sup> Abel, J., Dey, I., and Gabe, T. 2010. Productivity and the Density of Human Capital. Staff Report no. 440. The Federal Reserve Bank of New York.