Finding the Next Nashville

The Benefits of Nearby Cities

by Luis Quintero and Mac McComas
21st Century Cities Initiative, Johns Hopkins University

Introduction

The story of the economic success of cities is commonly portrayed as a competition for people and jobs, where some cities benefit at the expense of others. Such a story might read that if a person or a job moves from New York City to Philadelphia instead of Newark, Philadelphia is the clear winner while Newark sees no benefit and New York is the loser. While this may be true to a certain extent, the growth of cities is not a zero-sum game and cities can benefit their urban neighbors.

In our first report in this series, we explored a variety of reasons why Nashville achieved such rapid growth in recent decades. One of the things we noticed was that Nashville was within 200 miles of 22 other metropolitan areas, ranking it among the top places for having a high number of neighboring cities within close proximity. In this report, we will explore the reasons why urban neighbors might provide benefits and see whether urban growth was associated with such proximity.

Cities complement each other with industrial specializations that enable trade. When cities are close enough to form a common housing and labor market in the form of a metropolitan area they are in the territory of agglomeration economies and they reap the benefits of density. When they are distant enough to be independent cities, they can still get benefits from proximity through trade. Similar to how people and companies benefit from close interaction inside cities, cities can mutually benefit when they trade goods and services with neighboring cities. This increases their market access and allows them to use their comparative advantages. This report will focus on proximity between cities that are still independent and have their own housing and labor markets and how that proximity could be associated with urban growth.

Proximity facilitates trade as it reduces travel times and associated expenses such as fuel. Proximity can also improve labor markets, household choices, and social connections. One could live in Baltimore City, enjoying lower housing costs, and commute to work in Washington, D.C., enjoying higher salaries and job availability. This report will explore the benefits of urban neighbors and attempt to measure these urban networks and their association with economic growth between 2010 and 2019 by posing a series of questions. Which cities have a high number of neighboring cities? Which cities have the best trade networks? Did cities with better trade networks in 2010 experience higher population or GDP growth rates by 2019? What cities have very close urban neighbors? Did cities with close neighbors experience higher growth in the last decade?

Measuring Urban Networks

Distance is a primary barrier to trade as it increases both time and cost. All else equal, it is logistically easier, faster, and cheaper to conduct trade between Philadelphia and Baltimore than between Philadelphia and San Diego. As such, a city with more trading partners close by would theoretically be better positioned to trade than a city with fewer and more distant trading partners. Market size is also a primary factor in trade. Boston stands more to gain trading with New York City than Albany because New York City's population is around 80 times the size of Albany's, despite the two cities being somewhat similar distances from Boston. The more people you can sell products to, the more attractive the market.

A simple and straightforward way of measuring urban trade networks and market access is to measure the travel time between a home city to all other cities and divide the population of all neighboring cities by those travel times.[1] This type of model is known as a gravity equation in economics, where trade volumes are explained by a city's own market size and by its market access; the latter implies that trade is positively associated with market size and negatively associated with travel time or distance.[2] We can use this type of model to determine which cities in the U.S. have the best market access and then investigate whether increased market access was associated with higher rates of population and job growth from 2010 to 2019.

First, which cities had the greatest market access in 2010? We looked at the network of 109 U.S. municipalities with populations greater than 200,000 in 2010 and measured the distance between each pair of cities. For each city, we divided the population of every other city by the distance to every other city and summed the result. Table 1 highlights the results for the 10 cities with the highest market access and the 10 cities with the lowest market access.

Table 1: Market Access in 2010

	Top 10			Bottom 10	
Rank	**City**	**Market Access**	**Rank**	**City**	**Market Access**
1	Jersey City, NJ	1,277,569	100	Albuquerque, NM	76,535
2	Newark, NJ	757,095	101	Orlando, FL	72,487
3	Glendale, AZ	296,988	102	El Paso, TX	72,418
4	Santa Ana, CA	293,428	103	Jacksonville, FL	70,207
5	Anaheim, CA	288,877	104	Boise, ID	58,607
6	Santa Clarita, CA	285,664	105	Portland, OR	50,178
7	Long Beach, CA	284,119	106	Spokane, WA	49,791
8	Irvine, CA	269,080	107	Seattle, WA	46,604
9	Irving, TX	260,155	108	Anchorage, AK	22,239
10	Garland, TX	250,078	109	Honolulu, HI	17,018

The cities with the highest market access are all located in the four large metropolitan areas of New York, Dallas, Los Angeles, and Phoenix. The top 18 cities for market access are also located in these four metro areas. Most of the bottom 10 on the list are in remote locations such as Boise, Portland, and Anchorage, or on the Florida peninsula, where the ocean limits the possibility of neighbors. Nashville ranks 74th, making it close to the bottom quarter of cities for market access. While Nashville has 22 other metropolitan areas within 200 miles of its city center, most of them are not close neighbors, reducing the city's market access.

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Population growth between 2010 and 2019 was positively correlated with market access,[3] but it was not statistically significant. This indicates that having greater market access does not serve as a significant draw for attracting residents. However, the data also reveals that once the share of jobs that were in manufacturing in a city in 2010 is accounted for, market access comes close to statistical significance. This could be because companies that specialize in manufacturing are drawn to cities near their suppliers and manufacturing partners in order to lower transportation costs between them. As these companies cluster in proximate markets, they attract workers specializing in manufacturing. This leads to slightly more population growth among this class of workers, and a stronger correlation between market access and population growth in regions with a larger manufacturing presence. This is illustrated in Figures 1a and 1b, which graph the relationship between population growth and market access in cities with shares of jobs in manufacturing that are below the median (Figure 1a) and those with shares above the median (Figure 1b).

Figure 1a: Population Growth, Market Access, and Manufacturing
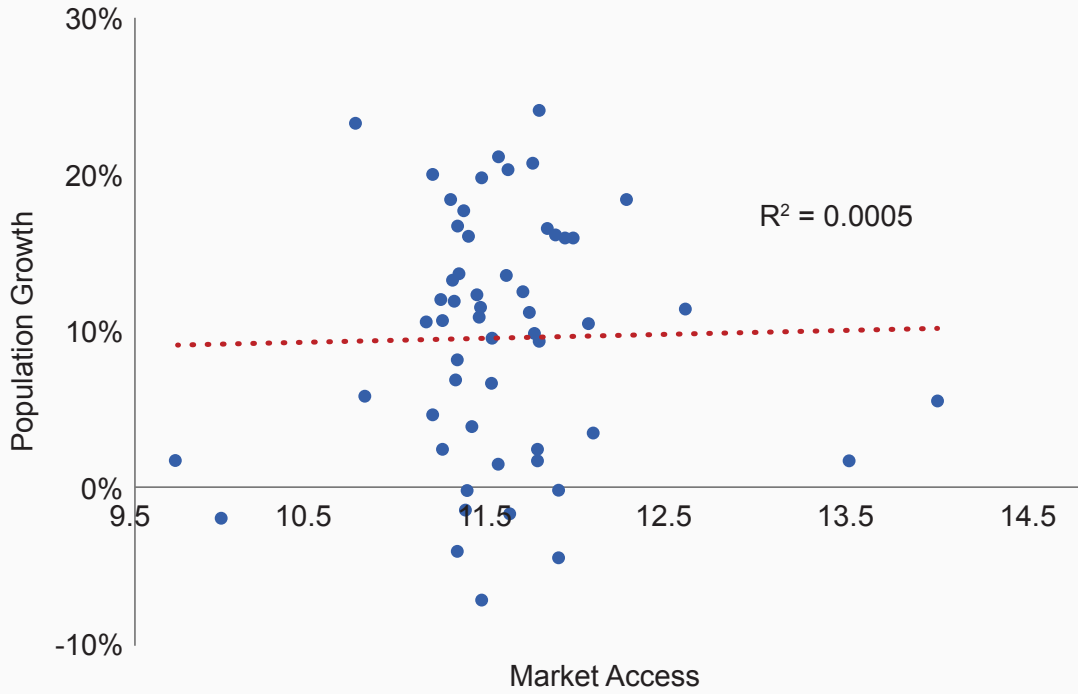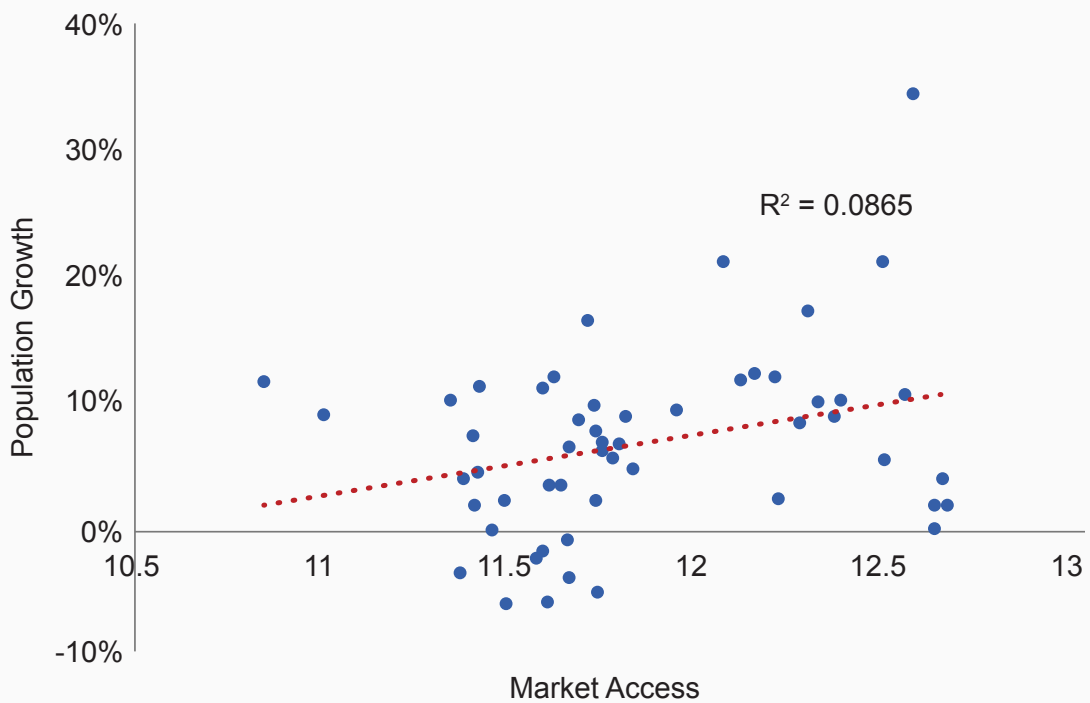*Cities with shares of jobs in manufacturing below the median.*

$R^2 = 0.0005$

Figure 1b: Population Growth, Market Access, and Manufacturing
Cities with shares of jobs in manufacturing above the median.

$R^2 = 0.0865$

For cities with shares of jobs in manufacturing below the median (left graph), the relationship between market access and population growth is basically non-existent, with an R^2 near zero.[4] For cities with shares of jobs in manufacturing above the median, there is a clear, positive relationship. The relationship becomes even stronger when you look at the 20 cities with the highest shares of manufacturing jobs, with the R^2 more than doubling to 0.2187. This means that market access will matter less in a city such as Orlando where just five percent of jobs were in manufacturing – the Florida city had the ninth lowest market access in 2010, but the ninth highest population growth. Market access will matter more in cities with high shares of jobs in manufacturing, such as Irvine, California where 17 percent of jobs were in manufacturing – the city had the ninth highest market access and the highest level of population growth by 2019. Among the top 20 cities for population growth between 2010 and 2019, 14 either had high market access and high shares of jobs in manufacturing or low market access and low shares of jobs in manufacturing. Further, among those same top 20 growth cities, all that had high shares of jobs in manufacturing also had high market access. In Nashville, around eight percent of jobs were in manufacturing, below the median of 9.5 percent, meaning that market access may have played a smaller role in that city's growth as it related to trade in manufacturing goods.

Job growth from 2010 to 2019 was positively correlated with market access in 2010 and the correlation was statistically significant. Indeed, 17 of the top 20 cities for job growth all had market access that was above the median city in 2010. Cities with high levels of job growth such as Plano, Texas;

Figure 2: Job Growth (2010 – 2019) and market access (2010)
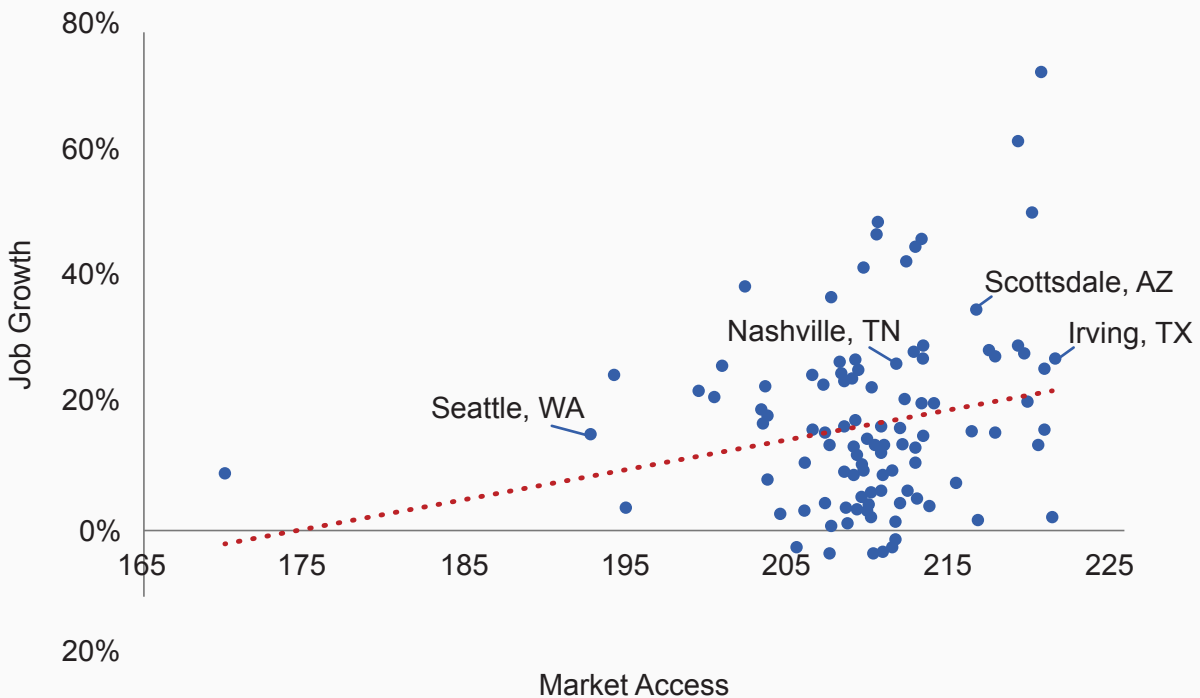
Gilbert, Arizona; and Irvine, California are all suburbs of large metropolitan areas with high market access in 2010, following a long trend of the suburbanization of jobs and people.[5] Nashville was among the top 25 cities for job growth and had market access that was above the median. Among the bottom 20 cities for job growth, 12 had market access that was below the median. Cities such as Corpus Christi, Texas; Rochester, New York; and Albuquerque, New Mexico all had relatively low job growth from 2010 to 2019 and low market access in 2010.

Job growth's stronger correlation with market access relative to population growth's correlation with market access seems to indicate that employers in cities with greater market access hired a greater share of people already living in the city than those who live outside the city and relocated to it. If this occurred, it would result in greater job growth relative to population growth. One way this could happen is if employers from outside the subject city (e.g. Nashville) moved to the city in order to draw on a larger candidate pool and ultimately hired a larger share of people from the subject city than outside the city. In Nashville's case, employers from outside the region could be motivated to move to Nashville because of its sizable young and educated population, and its lower labor costs relative to cities such as Washington, D.C., San Francisco, and New York. After moving to Nashville, these newly relocated employers could then draw on the city's young and educated population instead of candidates from outside the city, resulting in greater job growth relative to population growth.

While many factors contribute to sustained economic growth, market access data appears to indicate that proximity to other urban areas can provide benefits that result in population growth for cities with shares of jobs in manufacturing above the median, and in job growth for cities irrespective of the shares of jobs they have in manufacturing. When cities are close enough, they can potentially reap the benefits of agglomeration economies with shared labor and housing markets.

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Conclusion

In this report, we explored the relationship between population and job growth and the benefits of nearby cities. We found that market access in 2010 was positively associated with population growth by 2019 among large U.S. cities with more than 200,000 people, that the correlation was stronger for cities with shares of jobs in manufacturing above the median, and that market access was also positively associated with job growth, regardless of the shares of jobs a city had in manufacturing. In addition to providing greater access to markets and jobs, nearby cities facilitate social networking and can make household choices easier. While this may have been true in the past, how will the continued shift to professional service-based and "idea intensive" industries and growing work from home and remote work impact the benefits of proximity both within cities and within proximate networks of cities?

Since the 1990s, there have been concerns that the rapid pace of improvements in communications technology would mean the "death of distance" and the disappearance or reduction of benefits to urban density and physical proximity.[6] Instead, a paradox emerged where the "death of distance" explained both the decline of cities such as Detroit and the rise of cities such as New York. In Detroit, manufacturing businesses and their jobs moved to cheaper land in the suburbs and cheaper states and countries as the executive office no longer needed to be near the factory floor. At the same time, "idea intensive" industries thrived in dense urban cores where highly educated workers interacted with each other in high amenity office buildings.[7] While transportation and transaction costs have declined, they have been persistent, and so has spatial proximity.[8] For cities such as Nashville with a relatively low share of jobs in manufacturing, other factors such as local quality of life and having a large population of young and educated workers may have played a more important role in fostering urban growth.

In March, 2020, another threat to proximity emerged as COVID spread across the U.S. and a significant portion of the workforce began to work from home (WFH). The unplanned experiment in new work arrangements proved popular for many workers who did not want to return to the office full-time after the pandemic. Some estimates suggest that WFH will increase from five percent of full workdays prior to the pandemic to 20 percent of full workdays after the pandemic.[9] This has brought renewed concerns that cities such as New York would lose their superiority as the most productive places of work, with workers moving to distant, cheaper locales with high amenities.

While the implications for cities are hard to predict, there are some early signs of what may be to come. There is wide variation in the preferences of both workers and companies in the desire to work from home. Some companies such as JP Morgan Chase, and recently Twitter, have been adamant that their workers need to return to the office to become fully productive, while others such as Meta (Facebook) have fully embraced a WFH future. Surveys also show a wide variety of individual preference for WFH with many wanting full WFH and others wanting zero WFH. An optimal WFH amount has been estimated at two days a week.[10] For metropolitan areas and their real estate, there is evidence of a "Donut Effect" where demand has shifted from dense urban centers to outer suburbs. This demand shift has occurred within metropolitan areas, not across metros.[11] As such, while it is unlikely that we will see a mass exodus from cities to rural areas, we will likely see an increased shift to suburbs and an increase in common housing and labor markets. However, as most workers will be required to come into the office at least part of the time, dense networks of cities will likely remain important, even if they are diminished.

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Endnotes

1   Simply put, the model would be: Market access in City A = Neighbor1 (population/travel time) + Neighbor2 (population/travel time) + Neighbor 3 (population/travel time) …

2   Anderson, J.E. The Gravity Model. Annual Review of Economics. September, 2011, 3: 133-160.

3   We used a logarithm of market access to reduce the skewed impact of large outliers, such as New York City.

4   R2 is a measure of how much variation of a dependent variable (population growth) is explained by the independent variable (market access).

5   Glaeser, E.D., Kahn, M.E. Decentralized Employment and the Transformation of the American City. Brookings-Wharton Papers on Urban Affairs, 2001: 1-63.

6   Cairncross, F. The Death of Distance: How the Communications Revolution Is Changing Our Lives. Harvard Business School Press, 2001.

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9   Barrero, J.M., Bloom, N., Davis, S.J. Why Working from Home Will Stick. April, 2021. NBER Working Paper No. 28731.

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21st Century Cities

The 21st Century Cities Initiative at Johns Hopkins University was established in 2014 to strengthen and support understanding of urban issues regarding growth, governance, and public policy.

Dr. Luis Quintero
Luis Quintero is an Assistant Professor at Johns Hopkins' Carey Business School, a research fellow at Johns Hopkins' 21st Century Cities Initiative (21CC), and a faculty member at the Johns Hopkins' Business of Health Initiative. Dr. Quintero's research focuses on urban dynamics, especially related to housing markets, agglomeration economies and policy-related issues like housing affordability. He also conducts research on determinants of growth and decline in cities in developed and developing economies. He is the current co-director of the Latin American and Caribbean Economic Association (LACEA). Dr. Quintero received his PhD in Economics and Public Policy and MS in Public Policy from Carnegie Mellon University.
leq@jhu.edu

Mac McComas
Mac is the Senior Program Manager of JHU's 21st Century Cities Initiative. His research focuses on access to capital for small businesses and minority entrepreneurs and neighborhood quality of life. He received his MA in Scottish History from the University of Edinburgh and his MLitt in Scottish Historical Studies from the University of St Andrews. He is the co-author (joint with Matthew Kahn) of Unlocking the Potential of Post-Industrial Cities (JHU Press 2021).
macmccomas@jhu.edu

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Debo Ayeni
Director of Research and Data Analytics
debo.ayeni@abrcapital.com

Thomas Burton
Senior Managing Director/Chief Investment Officer
tom.burton@abrcapital.com

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For additional information

Debo Ayeni
Director of Research and Data Analytics
ABR Capital Partners, LLC
debo.ayeni@abrcapital.com | 410.547.3032

ABR Capital Partners, LLC
300 East Lombard Street, Suite 1200
Baltimore, MD 21202
abrcapital.com | 410.727.4083

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