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Is Bigger Always Better? The Effect of a State's Urban Makeup on its Economy

By: Jesse Boockvar-Klein, Manav Bhandary, and Benjamin Kramer

Understanding the effect of a decentralized urban population, the movement of people and businesses from an established city to an urban fringe, is important in learning how certain cities respond to economic downturns, as well as the effect of urban policies on various regions. Researching decentralized urban populations compared to centralized urban populations can help people learn more about the economic characteristics of different cities, revealing the strengths and weaknesses of these cities. Furthermore, learning about the economic stability of different populations can lead to more informed policy responses. If decentralized cities demonstrate greater resilience, then policymakers may invest in more economic development programs to advocate for decentralization. In addition, it can help prepare for future challenges such as aging populations, digital inclusion, and economic diversification.

This research is significant because it can address the problem of social inequities in different cities. Some economic downturns may be worse for more vulnerable populations, and our research could prove that, helping social justice advocates to be more informed and fight for better outcomes for everyone. For Ohio specifically, is the seventh largest state in the country, yet doesn't have one massive city that a lot of states typically have. Instead, its main urban population is made up of the three smaller cities: Cleveland, Columbus, and Cincinnati. Is this beneficial to Ohio, or do states with one larger city perform better during economic downturns? This research aims to look at that question and see if there are any trends associated with the difference in Ohio's urban makeup compared to other states.

The first article we looked at was by the Macheras & Stanley (2017) from the Federal Reserve Bank of Richmond and researched the effect of population size on diversification and specialization. Regarding specialization, the article states that urban areas can grow because of agglomeration. Agglomeration is when companies locate themselves near other companies in the same industry to reap benefits that include a higher-skilled workforce, lower production costs, and knowledge spillovers. A higher-skilled workforce consists of highly trained and more educated workers who can complete complex tasks, and lower production costs are when it costs less to produce goods. Knowledge spillovers occur when employees can learn from other employees near them, leading to more innovations in different industries. The authors found a positive correlation between population size and industry diversity in urban areas, meaning that cities with more people tend to have a wider array of industries. Conversely, this means that smaller urban areas tend to be more specialized or less diverse.

The second article, Clifford et al. (2023) is a paper that investigates the relationship between city size, decentralization, and economic growth. It first details the trend of cities toward a more decentralized government, arguing that decentralization leads to higher economic growth and enhanced government effectiveness because citizens help the government make more informed decisions. The authors further address this relationship of whether better decision-making ability contributes to higher economic growth. The paper then views the effect of decentralization on growth in larger and smaller cities. The authors found that countries with more decentralization and larger city sizes had lower growth.

The third article, Frick (2017), studies how high population densities affect certain aspects of living such as wages, public services, and transportation. The authors first summarize existing evidence from around 180 studies. Then, they fill in gaps where estimates are inconsistent by utilizing data from the Organisation for Economic Co-operation and Development (OECD). Afterward, they categorize the evidence into 15 different categories. Finally, they assign monetary values to different categories to calculate the economic effect. The article analyzes the advantages and disadvantages of high population densities, stating that higher density is associated with higher wages and rents.

The data we are analyzing comes from two different places. The first is for each state bordering Ohio, including Ohio, so West Virginia, Michigan, Indiana, Illinois, Pennsylvania, and Kentucky, we used Statista to collect the data on each state's GDP from 2000 to 2022. The other data we used is we found the GDP of each MSA (Metropolitan Statistical Area) in those states from 2017 to 2022, downloaded from the St. Louis FRED website.

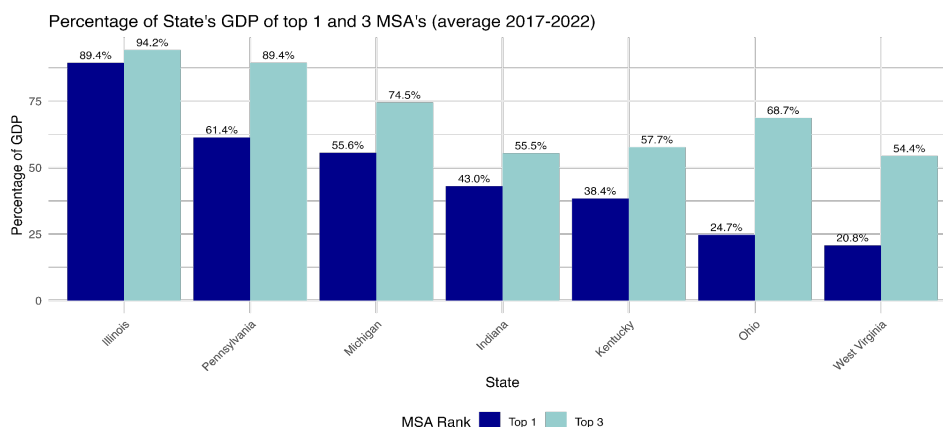
Figure 1. The percentage of state GDP of the largest MSA in the state, as well as the three largest MSAs.

Figure 1, displaying the percentage of GDP of the largest MSAs relative to the percentage of the three largest MSAs denotes which states rely on a metropolis for their economic well-being. In particular, the Chicago-Naperville-Elgin MSA makes up 89.4% of Illinois' GDP, and the Philadelphia-Camden-Wilmington MSA 61.4% of Pennsylvania GDP. Contrary to this, the GDP of Ohio depends 24.7% on the Cincinnati MSA, which is relatively similar to the Columbus and Cleveland-Elyria MSAs, while West Virginia depends most on the Huntington-Ashland MSA 20.8%, which is relatively similar to the Charleston and Hagerstown-Martinsburg MSAs. This means that these states do not depend significantly on one metropolis, as the largest MSAs form less than 25% of the total state GDP. Thus, in order to determine whether our hypothesis that diversification of GDP growth from decentralization of cities throughout a state protects recession due to industry diversification, the growth rates of these four areas will be compared.

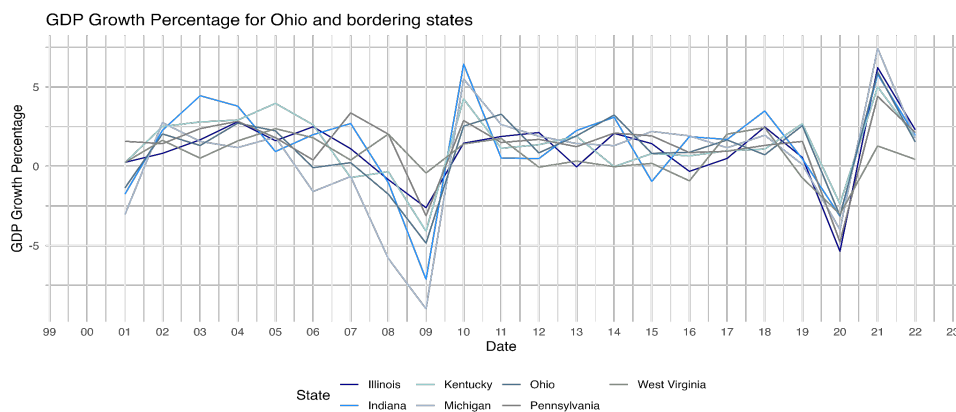
Figure 2. The GDP Growth Percentage for Ohio and its closest states, superimposed to display fluctuations.

Figure 2 displays the GDP growth percentage for Ohio and its surrounding states from 2001-2022. Through the 2007-2008 financial crisis, the state least affected was West Virginia, which has decentralized cities in the state. However, the recession in Ohio was relatively similar to that of Illinois and Pennsylvania in size. As our hypothesis was also based on the diversification of industries, it is unable to determine what manufacturing industries, which are important to the Midwest area, were affected by the banking crisis. As all of these states besides West Virginia were affected similarly, our data is inconclusive based on this event. However, during the Covid-19 pandemic, Ohio and West Virginia found a minimum at ~-2.6%, contrary to the significant ~-5% in Illinois and Pennsylvania. This may be attributed to the diversification of industry in Ohio and West Virginia in different cities. This may be in particular due to certain restrictions on workers, due to a different political climate in Ohio and West Virginia, who may have been able to work more. Also, the manufacturing focus in Ohio is more widespread through different cities. This also led to the largest growth rate in Ohio relative to the other states, however West Virginia had the lowest, which may be due to general size.

Figure 3. The growth percentages for metropolitan statistical area's GPAs by state.

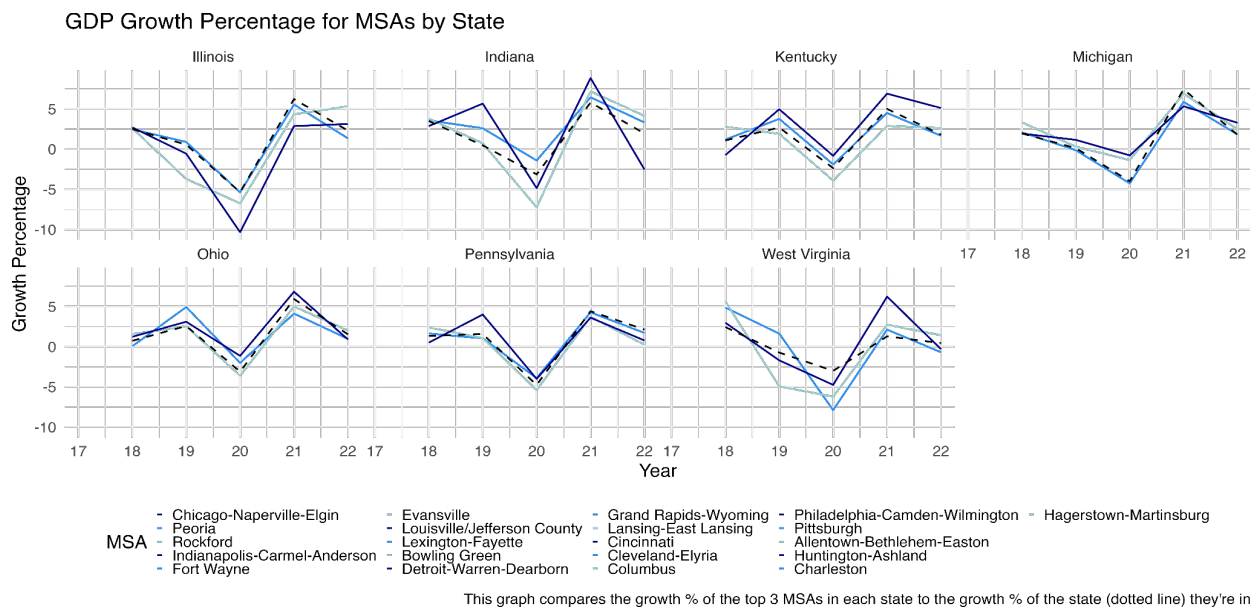


Figure 3 may be related to Figure 2 in that it shows the weights of the MSAs which may affect state economies. While all of Ohio's MSA's depicted are relatively similar in their movement, Illinois were similar besides their largest, the Chicago-Naperville-Elgin MSA. As this makes up a significant portion of the state economy, this less diverse buildup caused significant recessions specifically during the Covid-19 pandemic. As Ohio had multiple MSAs which contributed to its economy, any one of them could not have significantly affected GDP growth percent. However, this is not the case for Pennsylvania, whose different MSAs had a similar effect on the overall GDP growth rate.

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