How the Gem City Lost Its Luster and How It Can Get It Back: A Case Study of Dayton, Ohio

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ABSTRACT

This study examines the economic, demographic, and fiscal history of Dayton, Ohio, from the turn of the 20th century to the present. The purpose of this study is to place Dayton in the context of a declining manufacturing city that must overcome substantial challenges if it is going to succeed as a 21st-century city. In many ways Dayton is the archetype of the declining Rust Belt city. Until the 1960s, Dayton was a thriving midwestern manufacturing hub, initially built around waterways and later railroads and surrounded by fertile farmland. In the mid-20th century, southerners migrated northward to take advantage of the job opportunities and higher wages in places like Dayton. Southern racial discrimination and segregation limited educational opportunities for many southern blacks, and this legacy of institutionalized discrimination inhibited the educational attainment of many blacks and contributed to the city's inability to adapt to changing economic conditions. Highway construction and the nationwide decline in manufacturing also harmed Dayton, and since the 1960s, Dayton and other midwestern cities have experienced declines in population, wages, and home values. The nationwide shift to a service economy has reduced reliance on natural resources, and this, combined with the long-term decline in transportation costs, means that government policies and climate will increasingly decide the economic fate of cities. Dayton cannot change its physical location, so local officials must compete using policy if Dayton is to have a chance at revitalization.

JEL codes: R11, R51, R58, O18, N9

Keywords: cities, urban development, municipal finance, regional development, urban history, history of cities

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And our city, shall we fail her?
Or desert her gracious cause?
Nay—with loyalty we hail her
And revere her righteous laws.
She shall ever claim our duty,
For she shines—the brightest gem
That has ever decked with beauty
Dear Ohio's diadem.

—Dayton native Paul Laurence Dunbar, "A Toast to Dayton"

Thousands of abandoned factories and homes, miles of underused roads, empty lots, and crumbling infrastructure can be found in nearly every city in the Rust Belt—an area that stretches from Missouri to Wisconsin to New York. While many of these problems are common to all cities, their pervasiveness in Rust Belt cities is what gives the region its name. Since the mid-20th century, the US population has been migrating from the Rust Belt to the Southeast and to the area referred to as the Sun Belt. Researchers have put forth a variety of reasons for this shift: people's preference for milder winters, more sun, cheaper housing, and market-friendly economic policies are the most common.

The Rust Belt itself has been heavily analyzed by scholars from a variety of disciplines, but relatively few works focus on a single Rust Belt city or try to place a particular city in the broader context of regional economic decline. There are thousands of cities within the states that encompass the Rust Belt, and each of them, despite sharing many similarities with its neighbors, has its own history. The details of these histories offer insight into other cities and the region as a whole.

This study focuses on Dayton, Ohio, and explains some of the largest factors that contributed to its decline over the course of the 20th century. In a complex world people should not expect the decline of a city to be caused by a single, identifiable factor. Instead, urban decline is a multifaceted process taking place

over many decades and caused by both outside forces and internal public policies.

On the surface, Dayton appears to be a typical midwestern, Rust Belt city, but an analysis of its past reveals its exceptionalism. Though today it is not as famous as some of its larger Rust Belt brethren such as Cleveland or Detroit, in the early 20th century it was a well-known hub of innovation. In 1900 it had more patents per capita than any other large US city, and a few years later, Dayton natives Orville and Wilbur Wright—inventors of the first heavier-than-air flying machine—became two of the most popular people in the world.

"On the surface, Dayton appears to be a typical midwestern, Rust Belt city, but an analysis of its past reveals its exceptionalism."

Yet despite this early promise, the history of this exceptional city provides the quintessential example of a Rust Belt city's life cycle: early rapid population growth, relative decline as people migrated to the suburbs, absolute decline as people left the area and jobs disappeared, and finally, a period of relative stagnation that has left city officials and residents wondering what's next as they try to reclaim previous prosperity.

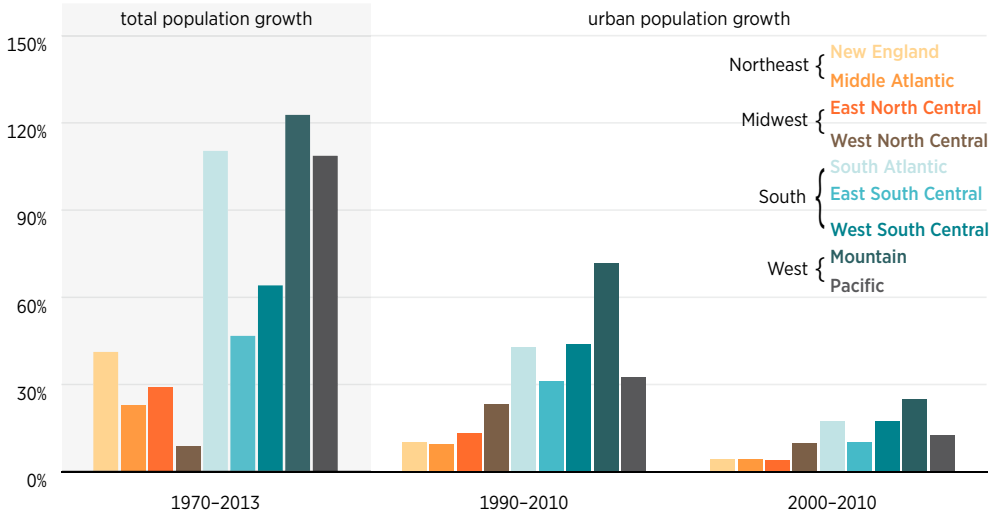
An important driver of this trend is people's desire to live in warmer, sunnier climates. Since Dayton cannot compete based on climate or geographic amenities, its future success depends on changing its economic environment to promote innovation and entrepreneurship.

The slower population growth rate in the Midwest and Northeast regions is evident at the metropolitan statistical area (MSA) level and overall. Figure 1 uses county-level data to show the population growth of the nine census divisions from 1970 to 2013, as well as MSA data to show urban growth from 1990 to 2010 and from 2000 to 2010.

Ohio is located in the East North Central division (the third bar from the left). This division had the third-lowest population growth from 1970 to 2013. County-level growth was only 29 percent, just ahead of the Middle Atlantic division's 23 percent growth.

An examination of the two more recent time periods, which include only large MSAs in order to focus on urban

FIGURE 1. US POPULATION GROWTH BY CENSUS DIVISION



Note: Total population growth was calculated using county data. Urban population growth was calculated using the 184 metropolitan statistical areas that had more than 250,000 people in 2010.

Sources: County data are from Bureau of Economic Analysis Interactive Data (table CA1; accessed September 19, 2017), https://www.bea.gov/itable/. Metropolitan statistical area data are from the US Census Bureau, *Statistical Abstract of the United States: 2012*, table 20.

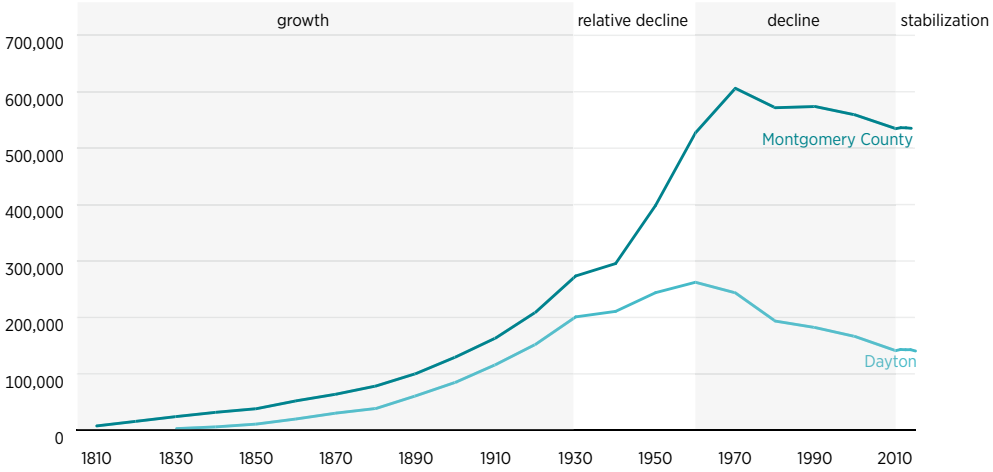
growth, shows that the East North Central region again fared poorly. From 1990 to 2010, large MSAs in this region grew slightly faster than those in the Northeast and Mid-Atlantic regions, but in the most recent period, growth slowed down: from 2000 to 2010 the large MSAs in the East North Central region grew by only 4.1 percent, which was the smallest growth of the nine divisions and well short of the Mountain division's 25 percent growth.

The US population shift that is apparent in figure 1 shows little sign of abating. Research shows that the demand for sunny, temperate weather increases with income, which means that as per capita incomes rise, migration to the Sun Belt is likely to continue.[1] Dayton cannot compete with cities in Arizona or in coastal areas such as Florida or Southern California when it comes to weather and other place-specific amenities.

But while climate and geography are important factors when it comes to the distribution of people across space, they are not the only things that matter.

1. Jordan Rappaport, "Moving to Nice Weather," *Regional Science and Urban Economics* 37, no. 3 (2007): 375–98.

FIGURE 2. POPULATION OF DAYTON AND OF MONTGOMERY COUNTY, 1810–2014



Source: US Census Bureau, "Population and Housing Unit Estimates," *Census.gov.*

Policies that cultivate economic growth and allow markets to operate are also important, and it is along this dimension that cold-weather cities can differentiate themselves. In order to attract people and firms, Dayton officials will have to compensate for their relatively poor climate and geographic amenities by offering prospective residents a better business and fiscal environment.

In order to understand Dayton today, it is necessary to know something about its past. This study profiles the Dayton area during three periods: from the turn of the 20th century to 1930; from 1930 to 1960; and from 1960 to the early years of the 21st century. Finally, the political city of Dayton is examined in detail from the beginning of the 21st century to 2015. The purpose of the first three sections is to set the scene for the final section. This is not a complete history of Dayton, and many details are left out. The study does, however, provide enough historical detail for the reader to appreciate the magnitude of Dayton's decline—and to shed light on some of the underlying causes of this decline. I believe that the causes analyzed in this study apply to similar municipalities, and I hope that readers can use this information to better understand their own cities.

Figure 2 visualizes the four periods of Dayton's history in terms of population. From its founding in 1796 until 1930, Dayton experienced substantial population growth, particularly from 1880 to 1930. Throughout this period it was the focal point of its region: its share of the county population increased from 5 percent in 1810 to 73 percent in 1930. From 1930 to 1960, Dayton's

population continued to increase but at a slower rate, especially compared with the rest of the county. During this period, Dayton's share of Montgomery County's population declined by 23 percentage points, to 50 percent. This was a period of relative regional decline for Dayton. Migration to the suburban areas began during this period, and nearby communities such as Fairborn, Kettering, and Vandalia grew rapidly.

The next period, from 1960 until 2010, was one of absolute decline for both Dayton and Montgomery County, though the county's decline lagged behind Dayton's. During this time period, northern manufacturing declined rapidly, and people began migrating to the South and West in larger numbers. Dayton lost nearly half of its population and was one of many midwestern manufacturing cities to experience a large net outflow of residents.

Finally, the most recent period, from 2010 onward, has been one of relative stability. Dayton's population has hovered around 140,000 people during the current decade, but non-decennial-census estimates are imprecise. It remains to be seen whether Dayton's population is still declining, has stabilized, or has started to grow again, though recent estimates hint at further decline.

A city that is consistently losing population over a long period of time faces a variety of problems such as increased crime, declining housing values, higher costs in the provision of public services, and a decline in the quality of those services. There is also a psychological cost to residents and city officials—the association of population loss with failure. The Tiebout theory of population sorting argues that a utility-maximizing, mobile consumer chooses to reside in the location that best matches his or her preferences for public goods and services and externality mitigation.[2] Thus, according to this theory, a city that is losing its middle class, its upper middle class, and its affluent population is failing, as it is unable to provide the public goods, services, amenities, and level of externality mitigation preferred by members of these groups.

But we also know that exogenous, place-specific factors matter as well. This means that any analysis of a city's decline needs to take into account endogenous factors such as political institutions, fiscal policy, and regulatory policy, as well as exogenous factors outside of the city's control, such as people's preference for a pleasant climate and path-dependent agglomeration economies.

In the next three sections I describe Dayton during the three aforementioned time periods. I analyze both the endogenous and exogenous reasons for

2. Charles M. Tiebout, "A Pure Theory of Local Expenditures," *Journal of Political Economy* 64, no. 5 (1956): 416–24.

Dayton's decline in order to provide the reader with a comprehensive understanding of how Dayton arrived at its present position. In the last section I examine Dayton's fiscal and economic situation since 2000 and provide some recommendations for improving Dayton's economy.

1. THE DAYTON AREA FROM THE TURN OF THE 20th CENTURY TO 1930: A PERIOD OF OPTIMISM

Dayton is located in the southwest quadrant of Ohio in the Miami Valley region, about 54 miles north of Cincinnati and the Ohio River by car. The city is named after Jonathan Dayton, a captain in the US military during the American Revolution and a signer of the US Constitution. The first group of European settlers arrived in Dayton in 1796,[3] and by 1800 a sawmill and a gristmill were operating. Ohio was granted statehood in 1803, and Dayton was chosen as the county seat of the newly formed Montgomery County.

To get a sense of the size of the area's economy in those early years, total tax receipts for Montgomery County amounted to $373.96 in 1804, equivalent to approximately $6,263 in 2017. In 1810, tax receipts for Montgomery County had increased to $1,644, equivalent to approximately $26,361 in 2017. The population of Dayton in 1810 was 323, while nearby Cincinnati had a population of 2,320.

By 1870, Dayton's population had grown to 30,000. Forty years later, its population had almost quadrupled, having risen to 116,000. It was during this period of robust growth at the turn of the 20th century that Dayton showed an ability to adapt to widespread technological change. In the late 1800s, Dayton was home to factories that produced iron plows, hay rakes, pails, wagons, and wooden boxes. In 1880, the Barney and Smith car company was one of the five largest producers of wooden rail cars in the country, and it employed 20 percent of all the industrial workers in Dayton. But by 1910, many of the companies producing farm and rail equipment were out of business. Even Barney and Smith was in receivership by 1913.[4] New factories producing cash registers, gasoline engines, and electric generators—products for a new modern age—had taken their place.

Dayton's robust, diverse, and innovative economy during this period was largely driven by native entrepreneurs. John H. Patterson, born in Dayton in 1844, founded National Cash Register (NCR) with his brother in 1884. NCR, then simply

3. "Early Dayton Chronological Record," Dayton History Books Online, accessed September 18, 2017, http://www.daytonhistorybooks.com/page/page/4353215.htm.
4. Judith Sealander, *Great Plans: Business Progressivism and Social Change in Ohio's Miami Valley, 1890–1829* (Lexington: University of Kentucky Press, 1988).

referred to as "The Cash," became Dayton's largest employer by the early 1900s, and Patterson was perhaps the most influential man in Dayton until his death in 1922. He was the creator of several sales techniques still employed today, including the designated sales territory. He was a proponent of progressive work policies and was also a demanding boss who routinely fired his employees only to rehire them. Patterson's influence over Dayton in the early 1900s was substantial, and his figure dominates the historical accounts of the city. His name appears often in the pages that follow.

One of Patterson's employees at NCR, Charles Kettering, would become a prominent inventor and entrepreneur in his own right. Kettering and another former NCR employee, Edward Deeds, left NCR and partnered to create Dayton Engineering Laboratories Company (Delco). Kettering became head of research and development for General Motors (GM) in 1920 after Delco was acquired by GM, a position he held until his retirement in 1947. During his career, Kettering developed an electric self-starter for automobiles, nontoxic coolants for refrigerators, leaded gasoline, and high-compression engines, among many other things.[5] By the time of his death, Kettering had organized and operated five research laboratories in the Dayton area.[6]

In 1903, Dayton natives Orville and Wilbur Wright brought Dayton national attention with the first successful flight in a heavier-than-air flying machine. By 1926, preparation was underway to build Wright Field, which was to be the largest aviation research plant in the world. Today, Wright Field is part of Wright-Patterson Air Force Base, the largest employer in the Dayton area.

Entrepreneurs such as Patterson, Kettering, and the Wright brothers made Dayton an innovative city. A broader indication of Dayton's high level of innovation in the beginning of the 20th century can be found in patent data from the time period. In 1900, Dayton generated nearly 12 patents

"Dayton natives Orville and Wilbur Wright brought Dayton national attention with the first successful flight in a heavier-than-air flying machine."

5. Ibid.
6. T. A. Boyd, "The Charles F. Kettering Archives," *Technology and Culture* 5, no. 3 (1964): 412–15.

per 10,000 people, a rate that placed it first in a sample of 35 large US cities that included Boston, New York, Philadelphia, Detroit, Cincinnati, and Cleveland.[7] In 1910, Dayton generated a similar number of patents per 10,000 people and was ranked second on the same list, behind only Lynn, Massachusetts.[8]

The importance of innovation and entrepreneurship for economic growth has long been known. Economist Joseph Schumpeter used the term "creative destruction" to describe how entrepreneurs generate new and better products and technologies that supplant or "destroy" old ones, increasing output and living standards in the process.[9] Urbanist Jane Jacobs described cities as places where new work is created out of old work.[10] The large number of people in cities enables more specialization and exchange, not only of goods and services but of knowledge as well. The proximity of people in cities increases opportunities for human interaction, which quickens the transmission of ideas and information. This aggregation of specialized knowledge along with the rapid dissemination of information fosters further innovation as entrepreneurs identify and act on unexploited profit opportunities. It has become clear that a city's success is proportional to its ability to innovate and generate new ideas. Cities devoid of innovative entrepreneurs will stagnate and decay.

The 1920s was a time of great optimism for the people of Dayton. Only years earlier, in 1913, Dayton had experienced a 100-year flood that caused over $1.5 billion in damage and killed 361 people.[11] Major portions of the city had been under as much as 20 feet of water. The response to this flood was the Miami Conservancy District, the nation's first regional, coordinated effort to achieve flood control. The elaborate plan reshaped the region's topography with the construction of five dry basins designed to store water during periods of heavy rain. The Miami Conservancy District was not only a feat of engineering but also a successful experiment in the provision of public goods.[12] Since construction was completed in 1921, the region has been flood free.

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7. Irwin Feller, "The Urban Location of United States Invention, 1860–1910," *Explorations in Economic History* 8, no. 3 (1971): 285–303.
8. Ibid. Lynn, Massachusetts, was the home of Thomson-Houston Electric Company, a precursor to General Electric.
9. Joseph A. Schumpeter, *Capitalism, Socialism, and Democracy* (Abingdon-on-Thames: Routledge, 2013).
10. Jane Jacobs, *The Economy of Cities* (New York: Random House, 1970).
11. Arthur E. Morgan, *The Miami Valley and the 1913 Flood: Technical Reports, Part I* (Dayton, OH: Miami Conservancy District, 1917). Damage amount is in 2015 dollars using the Consumer Price Index. The amount of damage in 1913 dollars was $67 million.
12. See J. Fred Giertz, "An Experiment in Public Choice: The Miami Conservancy District, 1913–1922," *Public Choice* 19, no. 1 (1974): 63–75.

The Dayton of the 1920s prided itself on not being a one-industry city. According to the Dayton Chamber of Commerce, in 1926 Dayton was the US manufacturing leader in more than 50 different commodities, including cash registers, automobile lighting and ignition systems, electric refrigeration equipment, golf clubs, water softeners, and ice cream cones.[13] The manufacturing diversity of Dayton along with its rising per capita productivity, growing population, and relatively good government gave city officials and residents many reasons to think that Dayton's best days were ahead.

In contrast to today, Dayton's geographic location was an asset in the early part of the 20th century. As stated in the 1926 records of the Dayton Chamber of Commerce, "If one were able to select the best location in the United States for an industrial city of Dayton's type, the point selected would not be far from where Dayton is now. Dayton lies 34 miles from the center of urban population of the United States, 43 miles from the median point of total population, and 56 miles from the national center of manufacturers."[14]

Dayton had several waterways that could be used for shipping, most notably the Great Miami River, which connects to the Ohio River and enabled trade down the Mississippi River and beyond. The Miami and Erie Canal opened in 1829 and further increased Dayton's ability to both export and import goods. By the middle of the 19th century, railroads were the low-cost mode of transport, and the importance of navigable waterways declined. However, in terms of railroads, Dayton had "four trunk line railroads, many trains to all major points, and . . . an excellence of train service which would not be expected by one who had not made an examination of the railroad maps and schedules." The Dayton Chamber of Commerce concluded that "Dayton has most favorable rail connections in all directions."[15]

Owing to the city's location and robust rail network, Dayton officials viewed the city as the "hub of the wheel" with spokes connected by railroad to Chicago, Detroit, New York, Cleveland, Buffalo, and Pittsburgh.[16] Each of these cities was also thriving during the early 20th century, and Dayton's strategic position made it a national distribution center. In 1923, Dayton produced $250 million in manufactured goods, and approximately 90 percent of those goods

13. The 1926 Dayton Chamber of Commerce, "Dayton as an Industrial City," *Dayton History Books Online*, accessed September 7, 2017.
14. Ibid.
15. The 1926 Dayton Chamber of Commerce and Dayton Industrial Association, "Facts About Dayton: Dayton's Institutions," *Dayton History Books Online*, accessed September 7, 2017.
16. Ibid.

were exported out of the city. International exports from the city totaled 4.5 percent of output, which was above the state average.[17]

Dayton's business environment in this period was described as favorable. As late as 1926, Ohio had no income tax, and the chamber of commerce described the state franchise tax levied on corporations as "not heavy."[18] State license taxes and other local miscellaneous taxes were deemed fair as well. The one complaint was that both real and personal property were taxed at the same rate by the state; but since the tax was rarely enforced, this was not a large issue in effect. Other than that, Ohio's tax practices were described as "reasonable and normal."[19]

During the Progressive Era of the early 20th century, many city reformers sought to alter their city's government in order to reduce the influence of political machines and bosses. Dayton became a pioneer in municipal government in 1913 when—despite intense opposition from Democrats and the local socialist party—the citizens of Dayton adopted a charter that replaced the mayor-council government with a city manager.[20] The charter was approved by a two-to-one margin and went into effect on January 1, 1914.[21]

The city manager form of government was introduced in Staunton, Virginia, in 1908.[22] Staunton was much smaller than Dayton at the time; its population of 10,000 was less than one-tenth of the population of Dayton. In fact, when Dayton adopted the city manager form of government in 1913, it was the largest city to have done so. The adoption of the city manager plan in Dayton was enabled by a 1912 Ohio state constitutional amendment that extended a large measure of home rule to Ohio's municipalities. The amendment grants cities the privilege to adopt and enforce within their limits regulations concerning police, fire protection, and public health, so long as the regulations are not in conflict with the general laws of the state.[23]

John H. Patterson of the National Cash Register Co. and other members of Dayton's business community seized this opportunity to reform what they thought was an inefficient and corrupt government. Dayton's transition to a city manager government brought it national attention. The plan was commonly

17. Ibid.
18. Ibid.
19. Ibid.
20. Chester Edward Rightor, Walter Matschek, and Don Conger Sowers, *City Manager in Dayton: Four Years of Commission-Manager Government, 1914–1917; and Comparisons with Four Preceding Years under the Mayor-Council Plan, 1910–1913* (New York: Macmillan, 1919).
21. Ibid.
22. James E. Rauch, "Bureaucracy, Infrastructure, and Economic Growth: Evidence from US Cities during the Progressive Era," *American Economic Review* 85, no. 4 (1995): 968–79.
23. Rightor, Matschek, and Sowers, *City Manager in Dayton.*

referred to as the "Dayton Plan," and by 1919, more than 130 cities around the country had adopted variants of it.[24]

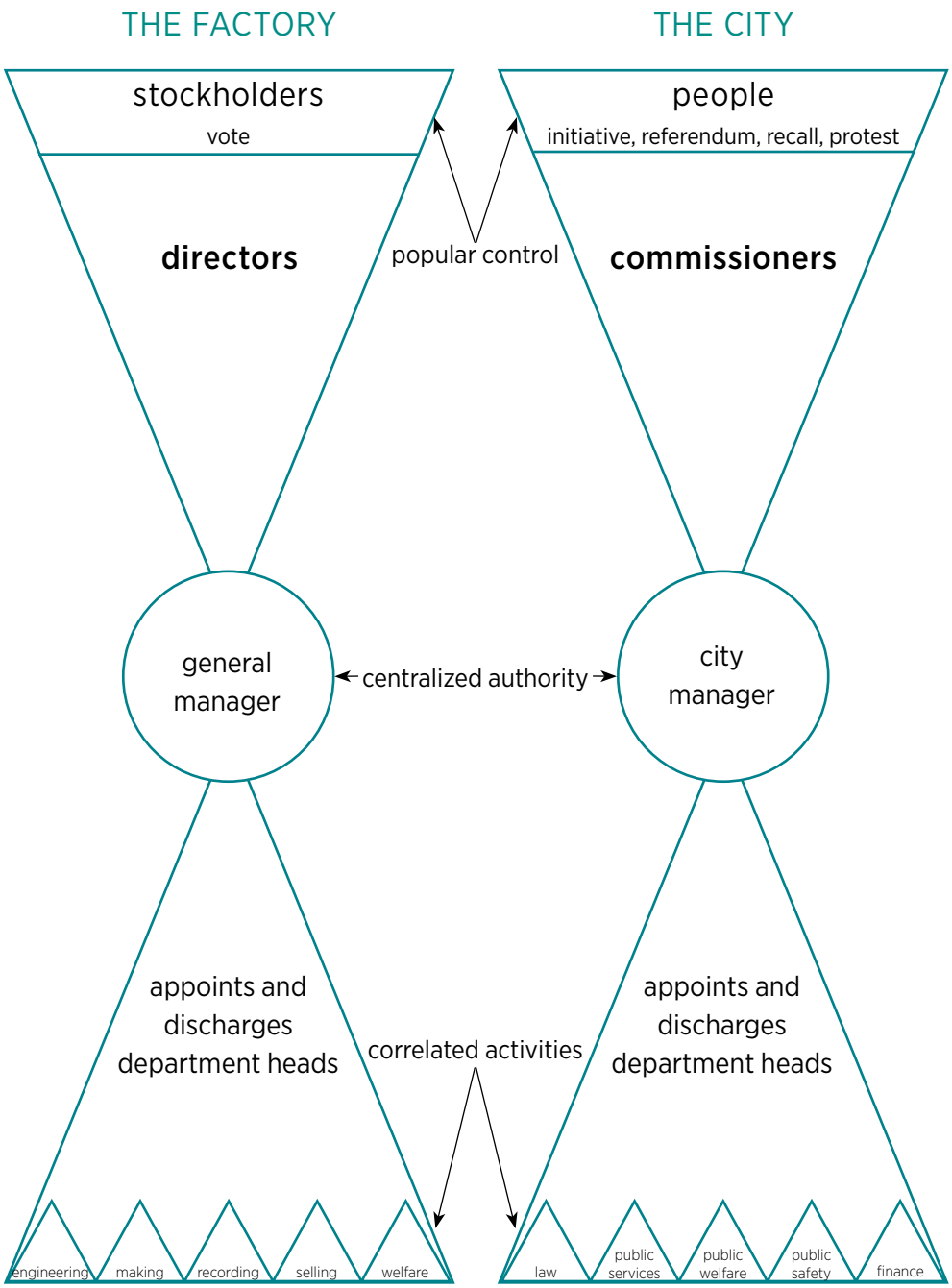
Many local business owners supported the city manager government, but no one was as supportive as Patterson. To Mr. Patterson, a city was "a great business enterprise whose stockholders are the people."[25] Patterson stated that a city should be directed "not by partisans, either Republican or Democratic, but by men who are skilled in business management and social science; who would treat our money as a trust fund, to be expended wisely and economically, without waste, and for the benefit of all citizens."[26] This was a commonly held view, particularly among businessmen of the time, and it makes sense in light of the advances being made in industrial organization during the period. Like other successful businessmen in the Progressive Era, Patterson was in charge of a firm that contained several departments and employed thousands of workers, all united toward a common goal. Firms of such size and complexity had become more prevalent than in the past, and it was natural for businessmen to conclude that the processes they had created to successfully operate large, complex firms could also be used to operate large, complex cities.

The structure of the city manager government in Dayton consists of five commissioners elected in nonpartisan, citywide elections, who then appoint a city manager to execute the policies authorized by the commissioners. In short, the commission is responsible for policy while the city manager is responsible for performance. Figure 3 depicts the structure of the city manager form of government and compares it to the operational structure of a factory. This figure is based on a figure from Chester E. Rightor's 1919 study, and it exemplifies the commonly held view among contemporaneous supporters of city manager government that cities are analogous to factories and firms.[27]

As shown in figure 3, both factory and city get their authority from the owners of the enterprise. In the case of the factory or firm, the owners are shareholders who actually own the firm in proportion to their investment. In the case of the city, the owners are residents; though they do not individually own any of the city's property or assets, they are owners in the sense that they are taxpayers. Both of these groups have ways of expressing their satisfaction or displeasure with management: shareholders can vote or divest their financial interest, while

24. James Weinstein, "Organized Business and the City Commission and Manager Movements," *Journal of Southern History* 28 (1962): 166–82.
25. Ibid.
26. Ibid.
27. Rightor, Matschek, and Sowers, *City Manager in Dayton*.

FIGURE 3. FACTORY STRUCTURE COMPARED TO CITY MANAGER GOVERNMENT



Source: Based on a diagram by Detroit Bureau of Governmental Research Inc., featured in Chester E. Rightor, Walter Matschek, and Don Conger Sowers, *City Manager in Dayton: Four Years of Commission-Manager Government, 1914–1917; and Comparisons with Four Preceding Years under the Mayor-Council Plan, 1910–1913* (New York: Macmillan, 1919), 19.

residents can vote, protest, or initiate referendums, recalls, and initiatives. They can also move away.

Both shareholders and residents delegate some authority to a governing body—the board of directors or the commissioners—which then chooses an executive to run the day-to-day operations. The general manager and city manager are responsible for achieving the objectives authorized by the board of directors and the city commissioners respectively, and they have the authority to appoint and discharge their subordinates in pursuit of these objectives. The city manager, like the general manager, does not require any formal approval from the commission in regard to managing the city's workforce. And, finally, both the general manager and the city manager can be dismissed by their respective governing body, which can in turn be dismissed by shareholders or residents.

City manager governments also tended to strengthen—and in some cases introduce—the institution of civil service in an effort to ensure that only the most capable people were hired for city government positions as exemplified by their performance on a civil service exam. In Dayton's case, the city manager charter reformed and strengthened the corrupt civil service system that was already in place. Before the reforms, the commission that oversaw municipal hiring used an elaborate series of written symbols to indicate the applicant's political party, race, and probability of voting.[28] Applicants in the wrong party or of the wrong race could be denied employment. Also, applicants who were deemed unlikely to vote for the party were less likely to get a city job—party membership alone was not enough. This system allowed the party in power to maintain political patronage despite rules against it.

One explanation for why business owners in particular were supportive of the city manager plan in the early 20th century was the increasing importance of government-provided goods and services as inputs in production. In other words, the benefits of public and quasi-public goods had increased.[29] The automobile was becoming more widespread as a means of both travel and shipping, and this meant roads needed to be paved and maintained. Increasing urbanization caused by the rapid economic growth in cities also put pressure on other urban infrastructure such as water systems, sewage disposal, electricity generation and street lighting, railways, and fire stations and equipment. Business owners who lost productive workers to water-borne illnesses and unsanitary living conditions—a cost of ineffective government provision—lost a valuable

28. Ibid.
29. Weinstein, "Organized Business."

input as well. John Patterson in particular often stated that he supported public health projects because it paid to do so in the form of increased profits.[30] Business owners saw how these services were being provided—or not provided—and concluded that the established institutional arrangements were preventing necessary improvements in the provision of government goods and services.

"There is evidence from Dayton and throughout the United States that the institutional reforms of the early 20th century did lower the cost and improve the quality of government goods and services."

There is evidence from Dayton and throughout the United States that the institutional reforms of the early 20th century did lower the cost and improve the quality of government goods and services. In his 1994 study, James Rauch finds that during the Progressive Era the institution of civil service had a positive effect on the share of city expenditures allocated to road and sewer infrastructure. He also finds that investments in road, sewer, and water infrastructure increased manufacturing employment growth between 1904 and 1929.[31] Thus there is indirect evidence that the government reforms undertaken in Dayton—particularly the reforms to the civil service system—positively contributed to Dayton's economy.

There is also Dayton-specific evidence that the reforms were successful. One study notes that after five years of city manager government in Dayton, "municipal garbage collection had been instituted, a municipal asphalt plant built, new sewers, based on the projected needs of 1950, constructed, parks improved, new bridges erected, trees planted, and a department of public welfare established."[32]

Chester Rightor also makes a compelling case on behalf of the reforms. His study compares Dayton's government in the four years preceding reform to the four years after reform along several dimensions.[33] Table 1 provides some of the statistics from his study.

30. Sealander, *Great Plans*.
31. James E. Rauch, "Bureaucracy, Infrastructure, and Economic Growth: Evidence from US Cities during the Progressive Era" (NBER Working Paper No. w4973, National Bureau of Economic Research, Cambridge, MA, December 1994).
32. Weinstein, "Organized Business."
33. Rightor, Matschek, and Sowers, *City Manager in Dayton*.

TABLE 1. SELECTED COSTS BEFORE AND AFTER CHANGE IN DAYTON'S GOVERNMENT

Government	Year	Infant death rate (deaths/1,000 births)	Food inspection (cost/inspection)	Garbage collection (cost/ton)	Street cleaning (total)	City tax rate (mills)
Mayor council	1910				$63,400	
	1911	124.6	$0.93	$2.84	$69,300	6.8
	1912	114.3	$1.65	$2.61	$69,400	6.725
	1913	124	$1.95	$2.51		7.255
City manager	1914	95.8	$0.44	$2.07	$69,800	7.101
	1915	87.6	$0.44	$1.60	$58,300	6.232
	1916	98.4	$0.51	$1.55	$55,600	7.3
	1917	97.6				6.9

Source: Chester E. Rightor, Walter Matschek, and Don Conger Sowers, *City Manager in Dayton: Four Years of Commission-Manager Government, 1914–1917; and Comparisons with Four Preceding Years under the Mayor-Council Plan, 1910–1913* (New York: Macmillan, 1919). Missing data are missing in original source.

It is possible that cost reductions occurred in several other activities as well, such as ash and rubbish collection and road paving; but in these and other instances, no records of costs were kept before the implementation of the city manager government. This is evidence that consistent and accurate record keeping should also be viewed as a success of the city manager government.

In addition to what is shown in table 1, Dayton was able to increase the number of food and sanitation inspections, increase the pressure and availability of water, reduce street repair costs, consolidate and lower the cost of city purchases, decrease municipal debt, improve sanitation and lower the cost of meals in the city's prison facilities, and provide new services such as city nurses and legal aid, all with only a slight increase in the property tax rate (see last column in table 1).[34] Also, as shown, the infant mortality rate declined substantially—a result that Rightor attributes to improved city milk inspections.[35]

It seems reasonable to conclude that the city manager form of government improved the production and delivery of government-provided goods and services in Dayton in the early 20th century. The infrastructure improvements

34. Dayton itself had very little control over the local tax rate. Ohio state law limited the property taxes levied for state, county, school, township, and city purposes to 15 mills (one mill is equal to $1 of tax for every $1,000 in assessed value). A county budget commission was empowered to adjust tax rates to ensure that they complied with the law, and cities had no representation on the commission, which often meant they received what was left over after the other entities had set their rates. See Rightor, Matschek, and Sowers, *City Manager in Dayton*, 173.

35. I mention all of these outcomes merely to demonstrate the differences between pre- and post-reform government, not as an argument for or against the government's provision of these goods and services.

undertaken because of the reforms also positively impacted subsequent growth in manufacturing. Additionally, Alan DiGaetano shows that Dayton's transition to the city manager form of government broke the political machines of Republican Joseph E. Lowes and Democrat Edward Hanley and also stymied the local socialist party.[36] Since governments run by political machines tend to be inefficient and corrupt, and since socialism has largely failed everywhere it has been tried, thwarting all three parties likely helped Dayton's economy at the time.

However, modern evidence in favor of city managers versus other forms of local government is less clear. Citing data from the 1980s, Kathy Hayes and Semoon Chang show that city managers are no more efficient than mayor-council forms of government.[37] Kevin Deno and Stephen Mehay published similar findings in 1987.[38] On the other hand, using data from 1995 to 2010, John Dove finds that city manager governments are associated with higher municipal bond ratings and thus face a lower cost of borrowing.[39]

One possible reason for these contrasting findings across time is that the city manager form of government has evolved over time. Hayes and Chang note that the differences between the two forms of government were much smaller in practice than in theory in the latter half of the 20th century. In city manager governments today, mayors actively promote policy and use their figurehead role to promote their views during official city functions. Even Dayton has a mayor who is separately elected today, a change that was implemented in 1969. Previously, mayors were not elected—the mayor was simply the chairperson of the five-member commission and had no additional authority. Today the mayor of Dayton has a more active role in governing the city.

Dayton also moved away from nonpartisan elections. The race for mayor is still labeled nonpartisan, but the candidates are regularly described in the media as members of political parties and are regularly endorsed by local political parties.[40] Dayton's government reforms in the early 1900s were successful partly because a nonpartisan city manager and actual nonpartisan elections reduced the role of politics. But these features are no longer a part of the city manager

36. Alan DiGaetano, "Urban Political Reform: Did It Kill the Machine?," *Journal of Urban History* 18, no. 1 (1991): 37.
37. Kathy Hayes and Semoon Chang, "The Relative Efficiency of City Manager and Mayor-Council Forms of Government," *Southern Economic Journal* 57 (1990): 167–77.
38. Kevin T. Deno and Stephen L. Mehay, "Municipal Management Structure and Fiscal Performance: Do City Managers Make a Difference?," *Southern Economic Journal* 53 (1987): 627–42.
39. John Dove, "Local Government Type and Municipal Bond Ratings: What's the Relationship?," *Applied Economics* 49, no. 24 (2017): 2339–51.
40. For a modern example, see Doug Page, "Whaley Entry in Race for Dayton Mayor Triggers Primary," *Dayton Daily News*, December 3, 2012.

government in Dayton, and that shift may have reduced the city manager government's effectiveness relative to other forms of government.

Moreover, early members of Dayton's commission were businessmen first and politicians second. There was so much low-hanging fruit in terms of efficiency gains in the early years of reform that businessmen—regardless of the party they identified with—largely agreed on what needed to be done. By the 1980s, many of the good practices of municipal government—little patronage, centralized purchasing, accurate record keeping—had spread across the country, which made any differences in the efficiency of various forms of government relatively small. Additionally, the most overt forms of political corruption had been eliminated in most cities by the latter half of the 20th century, and this limited the opportunities for the city manager form of government to improve city functions relative to the mayor-council governments that had once fostered many of the political machines.

The increasing role of the federal and state governments in the economy over the last 100 years has also reduced the role of city governments. As an example, Dayton's welfare department in the early 1900s conducted milk and food inspections, a task that today is done by the US Department of Agriculture. Other tasks have also been taken out of the hands of local officials and allocated to the federal and state governments, thus limiting the opportunities for city governments to differentiate themselves. So while Dayton's reforms may have helped the city initially, there is less evidence that they gave the city a significant long-term advantage.

2. THE DAYTON AREA 1930–1960: RELATIVE DECLINE

The early 20th century was a period of innovation, institutional reform, and economic growth for Dayton. By 1930, however, things began to change, though the changes are more apparent to the modern onlooker than they were to the people of the day.

Even into the 1950s, Dayton's strategic location was lauded. In 1959, the northeast quarter of the United States—of which Dayton is a part—contained 46 percent of the national population, 52 percent of its income, and 65 percent of its manufacturing activity. The center of consumer markets was approximately 250 miles west of Dayton, and the center of industrial markets was approximately 150 miles to the northeast of the city. In 1959, the authors of *Metropolitan Challenge* concluded that "clearly, Metropolitan Dayton is in a very good general location."[41]

41. Metropolitan Community Studies, *Metropolitan Challenge* (Dayton, OH: Metropolitan Community Studies Inc., 1959), 171.

Despite the optimism of these authors, one familiar with Dayton's history could already see the population trends working against it. In 1926, the center of the country's urban population was 34 miles from Dayton, and the median point of the total population was 43 miles away. Yet by 1959, the center of the consumer population was approximately 250 miles west. Even though these numbers are not measuring the exact same thing, in regard to proximity to the consumer base, it is clear that the locational advantage of Dayton was diminishing.

Dayton's population continued to increase up through the 1950s, though at a slower pace. But contrary to the optimistic projections of the 1920s, it never hit 400,000, or even 300,000. By the 1960s, Dayton's population was declining from its peak of 262,332 people, and many other midwestern and northeastern cities were following the same path.

Though it might seem shocking today, the problems that occupied the minds of many local politicians and city planners in the 1950s were related to growth rather than decline. Referring to the 180 metropolitan regions in the United States in 1959, the authors of *Metropolitan Challenge* write, "Most of them are experiencing the pains of rapid development; few have escaped the difficulties that accompany growth. . . . A large number of the same questions are heard, whether one is in New York, Denver, or Metropolitan Dayton."[42]

According to the authors, "the difficulties that accompany growth" include congestion, urban blight, and "haphazard" growth, which they define as growth that does not proceed according to some sort of regional plan. Local populations and their political leaders appear to have always preferred stable populations to growing or shrinking ones. In a survey conducted by the same authors, 50 percent of Dayton area residents in the 1950s thought that their population was "about right" and an additional 20 percent thought it was already too large. Only 30 percent wanted the population to continue growing.

It is understandable that many people preferred stability. Stability is relatively easy to manage in the present and easy to plan for—it is certain and safe. Growth brings change, not all of which is beneficial to all people, and the uncertainty as to whether one will benefit from growth or be harmed by it makes many opposed to it.

Unfortunately, the labor market equilibrium required for urban populations to stabilize in the long run does not exist. Technological change and the entrepreneurial process are constantly altering relative wages and the value of place-specific amenities. These changes induce people at the margin to migrate

42. Ibid., 87.

to new locations, which leads to further migration, and so on. Even if a temporary equilibrium is reached, it is only a matter of time before some aspiring entrepreneur invents something that starts the process all over again. With this process in mind, it is clear that cities are faced with the alternatives of growing or shrinking.

Contrary to the 1950s residents' fear of further growth, the city of Dayton began to decline in regional importance during this period. In 1930, 73 percent of Montgomery County's population resided in Dayton, Ohio. By 1940 it had declined slightly to 71 percent. However, after 1940, the decline accelerated dramatically: in 1950 only 61 percent of the county's population lived in Dayton, and by 1958 the proportion had further declined to only 53 percent.[43] This relative population decline occurred despite a 43 percent increase in the geographic size of the city of Dayton from 1930 to 1958, due largely to annexation. The total land area of Dayton in 1930 was 18.1 square miles,[44] and it increased to 23.7 square miles[45] in 1940 and 33.6 square miles in 1960.[46]

The migration of young parents with children from the city to the suburbs was obvious by 1958. In that year, 69 percent of the suburban zone residents of Montgomery County were less than 35 years old, compared with only 55 percent in the city of Dayton and 60 percent in the rural, outer zone.[47] Of the three areas, the suburban area also had the highest proportion of professional workers, proprietors, and managers—what labor economists today would label high-skill workers. Thirty-two percent of employed suburban residents were employed in the high-skill occupations,

"Contrary to the 1950s residents' fear of further growth, the city of Dayton began to decline in regional importance."

43. Ibid., 171.
44. US Census Bureau, "Population of the 100 Largest Urban Places: 1930," *Census.gov*, June 15, 1998.
45. US Census Bureau, "Population of the 100 Largest Urban Places: 1940," *Census.gov*, June 15, 1998.
46. Ibid.
47. The suburban zone in 1958 consisted of the local government units located in the urban area bordering the city of Dayton. It included Harrison Twp., Mad River Twp., Madison Twp., Oakwood, Riverside, Trotwood, Kettering, Moraine, and Van Buren Twp. Metropolitan Community Studies, *Metropolitan Challenge*, 9.

TABLE 2. DAYTON AREA EDUCATIONAL ATTAINMENT, 1958

Level of education	Dayton	Suburban	Outer	Overall
8th grade or less	23%	21%	18%	21%
Some high school	26%	15%	25%	23%
High school graduate	35%	39%	43%	39%
Some college	7%	7%	11%	8%
College graduate	8%	17%	3%	10%

Source: Metropolitan Community Studies, *Metropolitan Challenge* (Dayton, OH: Metropolitan Community Studies Inc., 1959), 20.

compared with 23 percent in Dayton. Service workers and laborers were more concentrated in the city—14 percent versus only 8 percent in the suburban zone.

The out-migration of educated residents from the city had also become evident by 1958. In Dayton, only 8 percent of adults were college graduates, compared with 17 percent in the suburban zone. Table 2 shows the breakdown of educational attainment by area in 1958.

The educational attainment of an area's labor force at a given time is a strong predictor of subsequent population growth. Dayton's relatively uneducated labor force in 1958 was certainly a factor in its decline in the latter part of the 20th century. Section 3 describes Dayton's population decline and discusses the relationship between education and city growth.

In hindsight, Dayton's annexation of neighboring communities was likely a mistake. More land area has costs as well as benefits. In this period of regional prosperity, Dayton officials likely believed that annexing nearby communities would allow them to capture the tax revenue of the more affluent suburban areas that were forming as people migrated out of the city center. But after 1960, when even these suburban neighborhoods began to lose population, this additional land became relatively costly since city infrastructure had to be maintained over a wider, less dense area. From 1930 to 1960, Dayton's population density declined from over 11,000 people per square mile to approximately 7,800 people per square mile. By the year 2000, the city's population density had fallen below 3,000 people per square mile.

There is evidence that per capita infrastructure expenditures on highways and sewer systems decline as population density increases in cities under 500,000 people, implying that the decline in Dayton's population density over time raised such expenditures.[48] Yet on average there appears to be little effect

48. Randall G. Holcombe and DeEdgra W. Williams, "The Impact of Population Density on Municipal Government Expenditures," *Public Finance Review* 36, no. 3 (2008): 359–73.

on total per capita expenditures due to the countervailing effect density has on the cost of police and fire services. However, section 3 will show that government costs per capita in Dayton increased during the latter half of the 20th century as population density was declining.

A. Manufacturing Already in Decline

The decline of manufacturing employment in America is often viewed as a cause of the Midwest's economic decline. Many midwestern cities, including Dayton, were manufacturing hubs, and the composition of the local economies reflected that. From 1945 to 1958, manufacturing employment in Dayton increased by only 14 percent, compared with 23 percent for employment in general. As a result, manufacturing fell from 55 percent of Dayton's total employment to 46 percent of total employment over this time period. Even then, experts recognized that the decline of manufacturing employment was a long-term trend that was unlikely to end.[49] Increases in the use of capital had already automated many tasks formerly completed manually, and the keen observer could see that this would continue.

Of course, this trend was not unique to Dayton and Montgomery County. Similar declines in the proportion of manufacturing employment from 1947 to 1957 occurred in other Ohio counties, including Summit County (67.6 percent to 58.3 percent), Stark County (67.6 percent to 62.3 percent), Cuyahoga County (55 percent to 50.7 percent), and Lucas County (56.4 percent to 47.2 percent), as well as Ohio as a whole (57.1 percent to 52.8 percent).[50] Alternatively, Hamilton County (51.3 percent to 50.5 percent) and Franklin County (40.6 percent to 40.5 percent) were less affected.[51]

Manufacturing employment had begun its move to lower-cost regions of the country by the 1950s, as shown in table 3. This table displays the proportion of total payrolls in manufacturing by region in 1947, 1954, and 1957. The proportion of payrolls in manufacturing rose in the Southwest, Plains, Rocky Mountain, and Far West regions from 1947 to 1957, while it declined in the New England and Great Lakes regions as well as in the United States overall.

Despite this relative decline, manufacturing was still the primary sector of the Dayton area economy throughout the decade. In 1957, manufacturing workers earned $600 million in total income, and the sector still employed nearly half

49. Metropolitan Community Studies, *Metropolitan Challenge*, 28.
50. These counties are the homes of major Ohio cities Akron, Canton, Cleveland, and Toledo, respectively.
51. These counties are the homes of major Ohio cities Cincinnati and Columbus.

TABLE 3. PROPORTION OF PAYROLLS IN MANUFACTURING BY US REGION

Region	1947	1954	1957
United States	35.0	34.2	34.2
New England	46.9	42.6	41.9
Mid-East	37.3	36.3	36.0
Southeast	27.8	26.7	27.0
Plains	25.8	27.5	27.7
Southwest	16.0	18.0	19.1
Rocky Mountains	14.7	15.1	16.1
Far West	22.8	26.6	28.5
Great Lakes	47.4	46.0	45.7

Source: Metropolitan Community Studies, *Metropolitan Challenge* (Dayton, OH: Metropolitan Community Studies Inc., 1959).

of the labor force. Capital investments had increased the productivity of workers, so incomes were rising even though the level of employment stayed relatively constant. As a comparison, the small but growing finance, insurance, and real estate sector only paid $30 million in total income in the same year.

From 1945 to 1958, total real income in the Dayton area as measured by payrolls increased by 50 percent and average real total earnings increased by 20 percent.[52] On a per capita basis, the region was performing well relative to the state—in Montgomery County, per capita income in 1957 was $2,600 compared with $2,255 in the state of Ohio and $2,027 in the nation as a whole.[53] As section 4 will show, the increase in earnings during this period contrasts with the steady fall of relative average wages that the Dayton area experienced after 1969.

B. Segregation in Dayton in the 1950s

Dayton was a highly segregated city in the mid-20th century. A 1988 study found that the housing patterns in Dayton and its suburbs in 1980 were the third most racially segregated out of the 50 largest US MSAs, behind only Chicago and Cleveland.[54] This situation was largely the byproduct of federal

52. Metropolitan Community Studies, *Metropolitan Challenge.*
53. Ibid.
54. Douglas S. Massey and Nancy A. Denton, "Suburbanization and Segregation in US Metropolitan Areas," *American Journal of Sociology* 94, no. 3 (1988): 592–626.

policies and black rural-to-urban migration that began in the 1910s and continued until the 1970s.

In 1910 only 3 percent of Dayton's population was black.[55] Fifty years later, in 1960, over 20 percent of the population was black, and nearly all of Dayton's 60,000 black residents lived on the west side of the city. The Great Miami River runs north-south through Dayton and served as the de facto boundary between the white and black portions of the city.

Interestingly, the federal government via the Federal Housing Authority (FHA) was partly responsible for this outcome. Until 1950, Dayton lenders were required to put restrictive covenants in their deeds forbidding the sale of the home to a black person if they wanted the FHA to insure the mortgages against losses e to defaults.[56] The FHA did this to protect itself from a decline in home values that may have resulted from racially integrated neighborhoods. The only homes that did not have covenants were located on the west side of the Great Miami River.[57] Thus, blacks migrating from the South were more or less forced to find housing on the west side of the city.

The segregation caused by the FHA policy was reinforced over time as additional black migrants arrived in the west side, as explained by William J. Carrington and his coauthors' 1996 analysis of the Great Migration. They argue that the costs of northward migration declined as the stock of similar migrants in the destination area increased.[58] Carrington and his coauthors state that one mechanism driving this result could be that previous migrants relayed valuable information about the destination's labor market to friends and family back in the South. There are also benefits to moving to areas where social networks have already been established, as this provides migrants with a stock of social capital upon arrival that can ease the adjustment process. Thus, the restrictive covenants created a self-perpetuating mechanism that resulted in a large amount of intracity racial segregation by the mid-20th century.

The racial segregation reinforced by the FHA policy would impact Dayton in ways that were unanticipated in the early 20th century when the policy was in place. Section 3 contains further discussion of these consequences and an analysis of Dayton's population decline from the 1960s onward.

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55. 1910 Decennial Census data accessed via IPUMS.
56. Joseph Watras, "The Racial Desegregation of Dayton, Ohio, Public Schools, 1966–2008," *Ohio History* 117, no. 1 (2010): 93–107.
57. Ibid.
58. William J. Carrington, Enrica Detragiache, and Tara Vishwanath, "Migration with Endogenous Moving Costs," *American Economic Review* 86, no. 4 (1996): 909–30.

"The racial segregation reinforced by the FHA policy would impact Dayton in ways that were unanticipated in the early 20th century when the policy was in place."

C. Signaling Dissatisfaction with Local Government: Vote or Leave?

It is difficult to measure the quality of government goods and services since they are not sold in a market and thus lack accurate price signals and profit and loss signals. That being said, one way to gauge the quality of government goods and services is by using surveys of residents. Surveys are not perfect since what people say about a particular service can deviate from how much they actually value it relative to the available alternatives, but surveys still provide some relevant information.

In the late 1950s, the authors of *Metropolitan Challenge* conducted surveys on resident dissatisfaction with local government services in Dayton and the surrounding area. The survey responses provide some information about Dayton residents' satisfaction with government compared with other area residents' satisfaction with their governments.[59] The results of the surveys are reproduced in tables 4 and 5.

According to these surveys, Dayton residents were less dissatisfied with their government than other residents in most of the surrounding areas. Oakwood residents expressed the lowest rates of dissatisfaction (85 percent were dissatisfied with zero services), but Dayton residents expressed less dissatisfaction than Kettering residents and those of other towns and municipalities in both the suburban zone and outer zone on average.

However, the proportion of people who felt like complaining about local government services—and thus ostensibly were dissatisfied—but didn't actually complain was higher in Dayton than in many of the surrounding areas (table 5, row 2), while the proportion of people who actually complained was generally the same or lower (table 5, row 3), especially when compared with other jurisdictions within the suburban zone.

Additionally, of the proportion of residents who felt like complaining (table 5, row 4), the proportion who

59. Metropolitan Community Studies, *Metropolitan Challenge*, 284.

TABLE 4. DISSATISFACTION WITH LOCAL GOVERNMENT SERVICES IN DAYTON AND ITS SUBURBS

	Suburban zone					Outer zone		
	Dayton	Kettering	Oakwood	Townships	Overall*	Municipalities	Townships	Overall
No services	45%	18%	85%	11%	20%	39%	26%	32%
1 service	26%	24%	12%	28%	24%	22%	18%	20%
2 services	16%	23%	3%	26%	26%	32%	26%	29%
3+ services	13%	34%	0%	35%	33%	5%	21%	14%

* "Overall" includes other municipalities as well as Kettering, Oakwood, and townships.

Source: Metropolitan Community Studies, *Metropolitan Challenge* (Dayton, OH: Metropolitan Community Studies Inc., 1959), appendix A-9.

TABLE 5. COMPLAINTS ABOUT GOVERNMENT SERVICES IN DAYTON AND ITS SUBURBS

	Suburban zone					Outer zone		
	Dayton	Kettering	Oakwood	Townships	Overall*	Municipalities	Townships	Overall
Never felt like complaining	52%	53%	71%	53%	53%	59%	64%	62%
Felt like complaining but didn't	32%	32%	15%	25%	25%	25%	26%	26%
Complained to public agency, official	15%	15%	15%	23%	22%	15%	10%	12%
Proportion who felt like complaining that registered complaint	32%	32%	50%	48%	47%	38%	28%	32%

* "Overall" includes other municipalities as well as Kettering, Oakwood, and townships.

Source: Metropolitan Community Studies, *Metropolitan Challenge* (Dayton, OH: Metropolitan Community Studies Inc., 1959), appendix A-10.

actually did was lower in Dayton than in other jurisdictions as a whole in the suburban zone (32 percent versus 47 percent) and lower than other municipalities in the outer zone (32 percent versus 38 percent).

Voter turnout in Dayton and surrounding cities was also low. The average percentage of registered voters that participated in local elections in Dayton from 1950 to 1958 was 42 percent. For state and national elections, voter turnout increased to 75 percent. This pattern held for the other cities in Montgomery County as well, though the differences were not as large as Dayton's. In the following cities, voter turnout in state and national elections was substantially higher than turnout for local elections: Kettering (76 percent and 49 percent), Miamisburg (79 percent and 53 percent), Oakwood (79 percent and 55 percent), and Vandalia (78 percent and 61 percent).

There are three options available for a voter who wants government services to improve: (1) vote in an election to express dissatisfaction with the current local government, knowing that any one vote is unlikely to change the outcome; (2) complain or protest for change; or (3) migrate to a community that better matches one's preferences for local government services. The costs are usually highest for option three, but so are the benefits, since the person will receive a direct increase in utility from moving to the preferred location.

On the other hand, if a voter's preferred election outcome does not materialize, he or she receives no benefit from voting. Moreover, there is the real possibility that one's preferred outcome is not even one of the choices. The efficacy of protesting is also uncertain since it depends on the credibility of the threat provided by the protest.

It is the difference between the costs and benefits of the options, or the net benefits, that determines whether one votes at the ballot box, complains, or simply moves away. Since even in local elections the probability of any one vote swinging an election is small, individuals who are dissatisfied with their local government will often conclude that voting with their feet is a more effective way to get the government they want than voting at the ballot box. The benefits of moving to a preferred location are obvious, and the costs of intrastate or intra-MSA migration are relatively small compared with international migration. So while voting with one's feet is more costly than traditional voting or complaining, it is also more effective.

According to the surveys presented here and the voter turnout data, Dayton residents in the 1950s often chose not to vote or complain relative to the residents of other areas. However, though seemingly less dissatisfied than other nearby residents, by the 1960s they began to signal their discontent with Dayton in large numbers via out-migration.

3. THE DAYTON AREA FROM 1960 TO 2010: A PERIOD OF DECLINE

As mentioned previously, Dayton was a fairly racially segregated city. It also has a somewhat turbulent racial history. In 1966, a riot erupted in Dayton after a group of white men murdered Lester Mitchell, a black man who was sweeping the sidewalk in front of his apartment. Ohio Governor James Rhodes eventually sent 1,000 national guardsmen to Dayton to help control the situation.[60] One person was killed and 130 people were arrested during the riot.[61]

Later, in 1979, the US Supreme Court approved a citywide school busing plan meant to desegregate Dayton's public schools.[62] The case was initiated in 1972, but the busing did not start until 1976 and was kept in place during the appeals process from 1976 until its ultimate approval in 1979. The system remained in place until 2002, at which time a federal judge dissolved the order.[63]

A. Southern Migration and Highway Construction

The oft-heard explanation for the decline of central cities in the mid-20th century is "white flight." In her 2010 article in the *Quarterly Journal of Economics*, Leah Boustan presents evidence supporting the traditional story of post–World War II "white flight" from the central cities to the suburbs.[64] Boustan estimates that each black arrival in a northern city between 1940 and 1970 led to 2.7 white departures on average. However, because poverty and race are highly correlated, she is unable to distinguish whether the outflow of whites was due to an aversion for black neighbors or an aversion for the lower incomes of southern arrivals.

White flight owing to either a distaste for black neighbors or to lower incomes is in part due to the institution of slavery. Slavery's role in any racial motivation for white flight is fairly obvious, but slavery also contributed to lower incomes in the South for both blacks and less educated whites. The desire to maintain slavery and its associated agricultural economy contributed to the lack of industrialization in the South relative to the North, and less industrialization resulted in lower average

60. Walter C. Rucker and James N. Upton, eds. *Encyclopedia of American Race Riots*, vol. 2 (Westport, CT: Greenwood Press, 2007).
61. Ibid.
62. Thomas Flygare, "Dayton II: School Desegregation on a Roller Coaster," *Phi Delta Kappan* 61, no. 2 (1979): 124–25.
63. James Hannah, "Judge Ends Racial Busing in Dayton," *Cincinnati Enquirer*, April 16, 2002.
64. Leah P. Boustan, "Was Postwar Suburbanization 'White Flight'? Evidence from the Black Migration," *Quarterly Journal of Economics* 125, no. 1 (2010): 417–43.

wages.[65] The wage gap between North and South is what attracted so many low-skilled southern laborers to industrialized northern cities like Dayton.[66]

In contrast to Boustan's work, William Frey examines MSA data from 1965 to 1970 and finds little evidence that traditional racial factors affected the decision of whites to move. But he does find evidence that the percentage of blacks in the city affected the location choice of whites once they decided to move: a higher proportion of blacks in the central city had a positive effect on whites choosing a suburban location. He does not find any effect from school desegregation or riots.[67] White migration to the suburbs, Frey finds, is largely attributable to the relocation of employment opportunities and deteriorating economic conditions within the city.

However, in another paper Boustan adds to Frey's earlier work. She uses data from the 1970s and finds that school desegregation resulted in a decrease in demand for central city housing in affected MSAs as people left cities.[68] The demand decrease caused housing prices to fall and eroded the city's tax base. Boustan attributes the aversion to school integration to changes in the racial composition of schools and the forced reassignment of children to schools outside their neighborhood, such as what occurred in Dayton until 2002.

Though the evidence for the traditional story of "white flight" due to racism is still inconclusive, there is a preponderance of evidence that southern migration, whether because of racial factors or income factors, affected the propensity of northern whites to migrate to the suburbs. Consequently the influx of poorer southern blacks in the mid-20th century likely explains some of the subsequent decline in Dayton's population of whites along with its overall population. This change in Dayton's population thus has its roots in the history of chattel slavery and racial discrimination in America.

Dayton's black population increased dramatically from 1940 to 1970, as shown in figure 4. During that period, nearly 54,000 black people migrated to Dayton, and approximately 32,000 white residents left Dayton.

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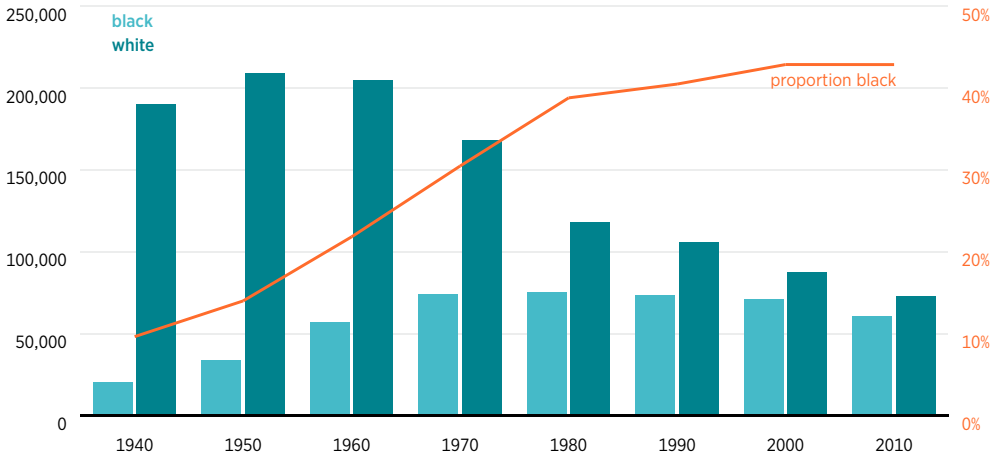
65. David R. Meyer, "The Industrial Retardation of Southern Cities, 1860–1880," *Explorations in Economic History* 25.4 (1988): 366–86.

66. Leah Platt Boustan, *Competition in the Promised Land: Black Migrants in Northern Cities and Labor Markets* (Princeton, NJ: Princeton University Press, 2016).

67. William H. Frey, "Central City White Flight: Racial and Nonracial Causes," *American Sociological Review* 44, no. 3 (1979): 425–48. Frey's school desegregation data only include desegregation actions that occurred before 1970, which does not include Dayton's event. He acknowledges that the desegregation actions likely to elicit the largest effect did not occur until 1971 and beyond; thus this result should be interpreted with caution when applied to Dayton.

68. Leah Platt Boustan, "School Desegregation and Urban Change: Evidence from City Boundaries," *American Economic Journal: Applied Economics* 4, no. 1 (2012): 85–108.

FIGURE 4. DAYTON'S POPULATION BY RACE, 1940–2010



Note: The bar indicating the 1940 black population would more accurately be labeled "nonwhite population"; however, only 122 people were identified as nonwhite and nonblack in 1950, so the number was likely trivial in 1940 as well. Also, in 1980, the white population was tallied by taking the total population minus the black population; while not an exact number, it is probably fairly accurate.

Source: Steven R. Howe et al., "The Shrinking Central City amidst Growing Suburbs: Case Studies of Ohio's Elastic Cities," *Urban Geography* 19, no. 8 (1998): 714–34.

As seen in figure 4, nearly all Dayton's population decline from 1960 to 1990 was due to the decline in the white population, which syncs with Boustan's findings. As a result, the percentage of the population that was black steadily increased, from 10 percent in 1940 to 30 percent in 1970. By 1990 it had increased to over 40 percent before leveling off.

The evolution of US transportation infrastructure in the 1950s also contributed to Dayton's population decline. Using MSA-level data from around the United States, Nathaniel Baum-Snow estimates that on average the construction of one interstate highway through a central city caused an 18 percent drop in that city's population between 1950 and 1990.[69] The economic explanation is that the highway decreased the time-cost of commuting for a given distance, which allowed people to live farther away from the city. Furthermore, if space is a normal good, the decrease in the relative price of commuting will increase the demand for space via an income effect. This increased demand for space also leads to more suburbanization and a decline in population density as people consume more land.

69. Nathaniel Baum-Snow, "Did Highways Cause Suburbanization?," *Quarterly Journal of Economics* 122, no. 2 (2007): 775–805.

Kettering, Vandalia, Moraine, and Huber Heights all lie along Interstate 75, and each grew rapidly during the construction of I-75 in the 1950s and early 1960s and after its completion in 1966, as shown in table 6. Unlike the others, Kettering was already large enough to be incorporated as a city—which occurred in 1955—by the time the interstate highway system was being built. I-75 facilitates access to the portions of Kettering furthest to the southwest and contributed to its growth from the late 1960s until 1970, at which point its population began to decline. The large population increases in Kettering, Vandalia, Moraine, and Huber Heights from 1960 to 1970 support Baum-Snow's analysis.

Taken together, white flight and the construction of the interstate highways, along with the regional decline of manufacturing, explain much of Dayton's population decline in the late 20th century. A look at the data in figure 4 and table 6 shows that Dayton's white population was declining and its suburbs were growing before the completion of I-75 in the mid-1960s and I-675 in the mid-1980s. This supports Boustan's finding that white flight due to racism or aversion to low-income newcomers was a contributing factor in the city's population decline. The highways likely facilitated such out-migration by making it cheaper to move away from the city and still commute to the city's downtown to work. Furthermore, as jobs left the central city for the suburbs during the 1970s and onward, the city's tax base eroded and suburban residents no longer had to commute to Dayton for work. These developments added to the city's economic troubles.

B. Population Growth in Ohio

Dayton is not the only Ohio city to experience population decline during this period. Figure 5 shows the populations of Ohio's six largest cities from 1980 to 2010 and the population of Ohio over the same period (measured on the right vertical axis).

Columbus is the only major city in Ohio that has gained population since 1980, even though the state's population grew by 6.9 percent from 1980 to 2010. The other five cities—Cleveland, Cincinnati, Toledo, Akron, and Dayton—experienced steady population declines over this time period. Unsurprisingly, during the latter half of the 20th century all these cities had large manufacturing sectors, experienced extensive southern in-migration, and were bisected by interstate highways.

The population numbers slightly improve at the MSA level, as shown in figure 6. Both the Columbus and Cincinnati MSAs grew from 1980 to 2010, while the populations in the other four MSAs—including Dayton—declined only

TABLE 6. POPULATIONS OF DAYTON'S SUBURBS, 1940–2000

Year	Fairborn	Beavercreek	Kettering	Vandalia	Centerville	Oakwood	Bellbrook	Moraine	Huber Heights
1940				378	561	7,652	410		
1950	7,847	55[a]	38,118[b]	927	827	9,691	425		1,921[c]
1960	19,453	10,315[a]	54,462	6,342	3,490	10,493	941	2,262	12,022[c]
1970	32,267	26,555	69,599	10,796	10,333	10,095	1,268	4,898	18,943
1980	29,747	31,589	61,223	13,161	18,886	9,372	5,174	5,325	34,642
1990	31,300	33,626	60,569	13,882	21,082	8,957	6,511	5,985	38,696
2000	32,052	37,984	57,502	14,603	23,024	9,215	7,009	6,897	38,212

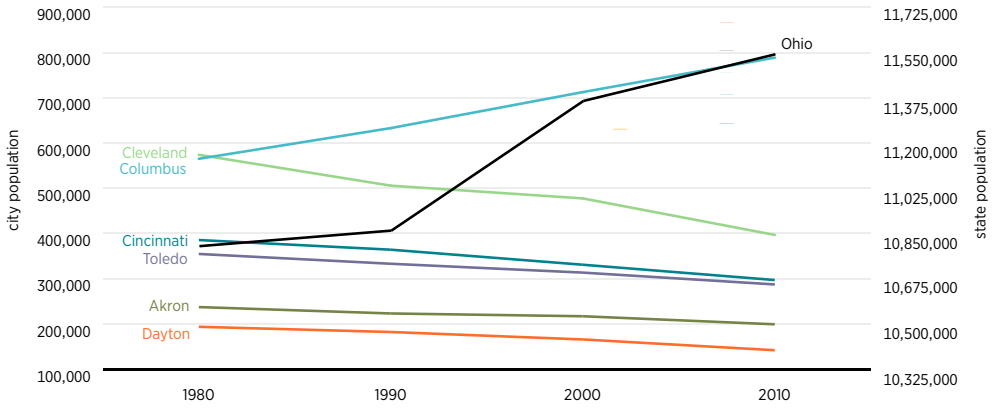
[a] Population data are for Beavercreek township before the formation of Beavercreek the city.

[b] This was Kettering's population at its time of incorporation in 1955.

[c] This was the population of Wayne Township before it incorporated as Huber Heights.

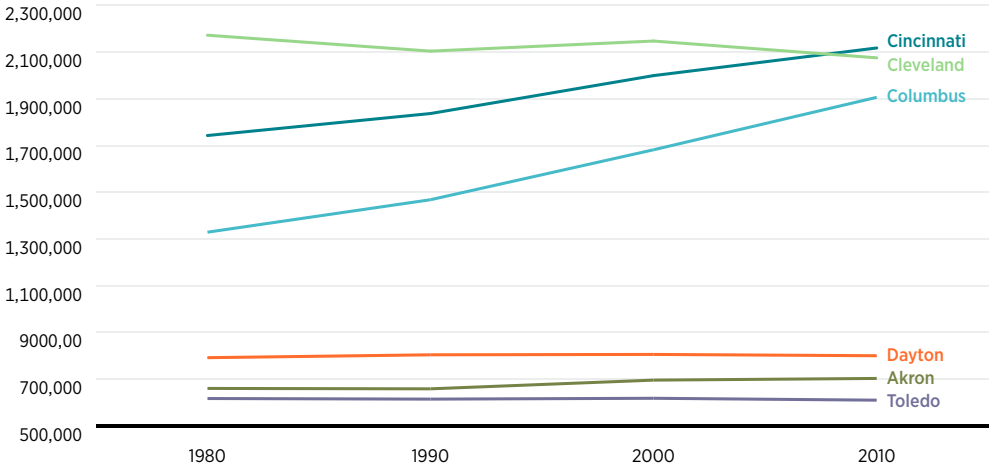
Sources: Thomas Brinkhoff, ed., "USA: Ohio," City Population, last modified May 27, 2017, https://www.citypopulation.de/USA-Ohio.html; Wayne Township population data from "History of Huber Heights," Huber Heights Chamber of Commerce, accessed September 18, 2017, http://huberheightschamber.com/community/history/; US Census Bureau, *Census of Population: 1950*, vol. 1, *Number of Inhabitants* (Washington, DC: US Government Printing Office, 1952), 35-16; US Census Bureau, *Census of Population: 1960*, vol. 1, *Characteristics of the Population* (Washington, DC: US Government Printing Office, 1961), 37-35.

FIGURE 5. OHIO CITY POPULATIONS AND STATE POPULATION, 1980–2010



Source: Thomas Brinkhoff, ed., "USA: Ohio," *City Population*, last modified May 27, 2017, https://www.citypopulation.de/USA-Ohio.html.

FIGURE 6. OHIO METROPOLITAN STATISTICAL AREA POPULATIONS, 1980–2010



Source: Bureau of Economic Analysis Interactive Data (table CA30; accessed September 19, 2017), https://www.bea.gov/itable/.

slightly or were relatively constant. Interestingly, the Dayton MSA is the fourth largest in Ohio, despite having the smallest central city of the group.

In the declining-cities group, the Cincinnati area is still attracting people, even if they do not end up in the city limits of Cincinnati itself. This can still help Cincinnati if it is able to attract the suburban residents to the downtown area to consume. One of the strategies of modern urban revitalization is turning downtowns into places where people go to eat, shop, socialize over coffee or alcohol, enjoy live performances, attend festivals, and so on. Cities that are no longer places of production because many jobs have left the central city may become places of consumption, referred to as consumer cities.[70] A growing MSA provides a large customer base for a central consumer city, which is a strategy that may work in Cincinnati.

However, government efforts to artificially create consumer-driven downtowns often fail to produce lasting results, despite costing taxpayers millions of dollars. There is little evidence that economic incentive programs designed to increase employment or generate economic development succeed more broadly. Several studies find no effect on actual investment or employment growth, while some even find a negative effect.[71] Even in studies that find a positive effect, it is usually quite small.[72]

In regard to Ohio in particular, Benjamin Clark concludes that there is little evidence that tax expenditure programs in Ohio have resulted in any meaningful economic development.[73] In an overview of the state tax incentives literature, Terry Buss notes that many studies yield conflicting results and thus provide little guidance to policymakers about what programs or incentives, if any, actually work.[74]

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70. Edward L. Glaeser, Jed Kolko, and Albert Saiz, "Consumer City," *Journal of Economic Geography* 1, no. 1 (2001): 27–50.

71. William F. Fox and Matthew N. Murray, "Do Economic Effects Justify the Use of Fiscal Incentives?," *Southern Economic Journal* 71, no. 1 (2004): 78–92; Alan Peters and Peter Fisher, "The Failures of Economic Development Incentives," *Journal of the American Planning Association* 70, no. 1 (2004): 27–37; Michael D. LaFaive and Michael J. Hicks, *MEGA: A Retrospective Assessment* (Midland, MI: Mackinac Center for Public Policy, 2005); and Todd M. Gabe and David S. Kraybill, "The Effect of State Economic Development Incentives on Employment Growth of Establishments," *Journal of Regional Science* 42, no. 4 (2002): 703–30.

72. Dagney Faulk, "Do State Economic Development Incentives Create Jobs? An Analysis of State Employment Tax Credits," *National Tax Journal* 60, no. 2 (2002): 263–80.

73. Benjamin Y. Clark, "Can Tax Expenditures Stimulate Growth in Rust Belt Cities?," in *The Road through the Rust Belt: From Preeminence to Decline to Prosperity*, William Bowen, ed. (Kalamazoo, MI: W. E. Upjohn Institute for Employment Research, 2014), 37–68.

74. Terry F. Buss, "The Effect of State Tax Incentives on Economic Growth and Firm Location Decisions: An Overview of the Literature," *Economic Development Quarterly* 15, no. 1 (2001): 90–105.

"Perhaps the most consistent factor correlated with population growth is human capital."

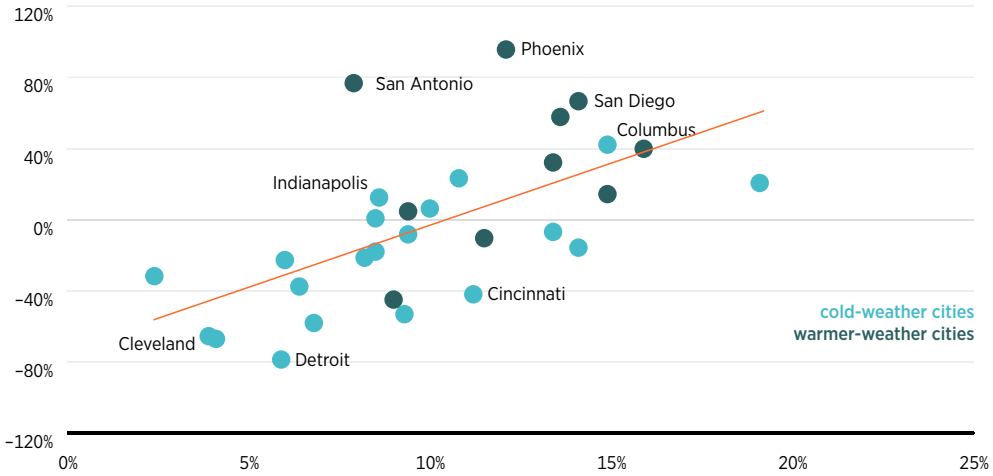
City officials also often support large, conspicuous projects like new sports stadiums to act as an anchor for additional development, but such large-scale projects rarely achieve their goal. In their 1990 report, Robert Baade and Richard Dye suggest a possible negative impact on local economic development from the subsidization of sports stadiums.[75] In a summary of the relevant research in 2000, John Siegfried and Andrew Zimbalist state there is "virtually no evidence of economic development benefits from sports teams or stadiums."[76] And in a 2015 update of his 1999 study, Dennis Coates finds that sports teams may actually hurt economic growth.[77]

Studies have failed to find a positive relationship between economic development subsidies, sports stadiums, and positive economic outcomes, and the lack of population growth in the Dayton MSA area (figure 6) makes it even harder for the consumer city model to work, since a consumer city relies on a large, growing suburban customer base.

Regardless, Dayton officials pursued this consumer-driven sports stadium strategy in the late 1990s, and in the year 2000 Fifth Third Field, home of the Single-A Dayton Dragons baseball team, opened in the city's downtown area. While there has been some new development in the area immediately surrounding the stadium, the project has largely failed to revitalize the city's broader downtown and has not stemmed the city's population loss.

75. Robert A. Baade and Richard F. Dye, "The Impact of Stadium and Professional Sports on Metropolitan Area Development," *Growth and Change* 21, no. 2 (1990): 1–14.
76. John Siegfried and Andrew Zimbalist, "The Economics of Sports Facilities and Their Communities," *Journal of Economic Perspectives* 14, no. 3 (2000): 95–114.
77. Dennis Coates, "Growth Effects of Sports Franchises, Stadiums, and Arenas: 15 Years Later" (Mercatus Working Paper, Mercatus Center at George Mason University, Arlington, VA, September 2015).

FIGURE 7. POPULATION SHARE WITH A BA OR MORE AND CITY POPULATION GROWTH, 1970–2013



Note: The *x* variable is the central city share of residents with a bachelor's degree or more, and the *y* variable is city population growth (not metropolitan statistical area population growth). The regression coefficient on percentage with a BA or more is 0.070 (7%), and the corresponding t-statistic is 4.66. The R^2 is 0.377. Cold-weather cities are cities with a mean January temperature below 40 degrees. Besides the labeled cities, the chart includes Atlanta; Baltimore; Boston; Buffalo, New York; Chicago; Dallas; Denver; Houston; Kansas City, Kansas, and Kansas City, Missouri; Los Angeles–Long Beach; Memphis, Tennessee; Milwaukee; Minneapolis–St. Paul; Newark, New Jersey; New Orleans; New York; Philadelphia; Pittsburgh; San Francisco–Oakland; Seattle; St. Louis; and Washington, DC.

Source: US Census Bureau, "Educational Attainment in 30 Selected SMSAs: 1967," *Census.gov*, last modified January 8, 2017; US Census Bureau, "Population of the 100 Largest Urban Places: 1970," *Census.gov*, June 15, 1998.

C. The Role of Education and How the 1930–1960 Period Contributed to Dayton's Decline

What characteristics are associated with city population growth? Perhaps the most consistent factor correlated with population growth is human capital. Cities with a high proportion of educated residents regularly grow faster than similar cities with fewer educated residents.[78] Figure 7 plots 30 large cities according to education level in 1967 and population growth from 1970 to 2013. The share of a city's population (over the age of 24) with a bachelor's degree or more is shown on the *x* axis, and the population growth of that city is shown on the *y* axis. The chart also distinguishes between cold-weather cities and warmer-weather cities.

78. Edward L. Glaeser and Albert Saiz, "The Rise of the Skilled City" (NBER Working Paper No. w10191, National Bureau of Economic Research, Cambridge, MA, December 2003); and Edward L. Glaeser, "Cities, Information, and Economic Growth," *Cityscape* 1, no. 1 (1994): 9–47.

As shown in the figure, there is a positive relationship between education and population growth for the 30 cities as a group and for the cold cities on their own. The share of the population with a bachelor's or more explains 38 percent of the variation in population growth in this sample.

Only a few of the cold-weather cities—Columbus, Seattle, Denver, and Indianapolis—gained population, while the rest of the cold cities shrank by various amounts. Irrespective of the amount of actual growth, this is still evidence that a high proportion of educated residents can at least dampen subsequent population decline.

A large literature shows that a highly educated population contributes to economic and population growth when controlling for other factors.[79] Duncan Black and Vernon Henderson developed a growth model supported by evidence from US metropolitan data that shows that human capital accumulation positively impacts city population growth.[80] Curtis Simon also finds a robust positive relationship between levels of human capital within an MSA and employment growth.[81] More importantly, Simon provides evidence that the economic benefits of human capital on growth are at least partly localized within a city's boundaries. This means that politicians in cities like Dayton who are interested in stemming population decline may be able to do so by attracting high-human-capital individuals to their city from the surrounding MSA.

There are several theoretical explanations for why a high proportion of high-skill workers leads to more population and economic growth: high-skill workers increase the growth rate of entrepreneurs, they increase the demand for nontradeable goods due to higher incomes, and educated populations are better able to overcome adverse economic shocks.[82]

Table 2 shows that only 8 percent of Dayton's residents had a college degree in 1958. This number was likely lower by 1967 because less educated southern

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79. Edward L. Glaeser, Giacomo A. M. Ponzetto, and Kristina Tobio, "Cities, Skills, and Regional Change," *Regional Studies* 48, no. 1 (2014): 7–43; Clark Nardinelli and Curtis J. Simon, "The Talk of the Town: Human Capital, Information, and the Growth of English Cities, 1861 to 1961," *Explorations in Economic History* 33, no. 3 (1996): 384–413; Clark Nardinelli and Curtis J. Simon, "Human Capital and the Rise of American Cities, 1900–1990," *Regional Science and Urban Economics* 32, no. 1 (2002): 59–96.
80. Duncan Black and Vernon Henderson, "A Theory of Urban Growth," *Journal of Political Economy* 107, no. 2 (1999): 252–84.
81. Curtis Simon, "Human Capital and Metropolitan Employment Growth," *Journal of Urban Economics* 43, no. 2 (1998): 223–43.
82. Glaeser, Ponzetto, and Tobio, "Cities, Skills, and Regional Change"; Enrico Moretti, "Local Multipliers," *American Economic Review* 100, no. 2 (2010): 373–77; and Edward L. Glaeser et al., "The Rise of the Skilled City [with comments]," *Brookings-Wharton Papers on Urban Affairs* 2004, 47–105. For an example of a city overcoming adverse shocks, see Edward L. Glaeser, "Reinventing Boston: 1630–2003," *Journal of Economic Geography* 5, no. 2 (2005): 119–53.

migrants continued to move into Dayton and educated Dayton natives moved to suburban communities such as Beavercreek and Centerville.[83] Even if the share of residents with a bachelor's or more had held steady at 8 percent, Dayton would have been in the southwest quadrant of figure 7. Only one cold-weather city grew from 1970 to 2013 despite such a low percentage of college-educated residents: Indianapolis.

In the 1940s and 1950s, the postwar manufacturing jobs that were created in Dayton increased the demand for low-skill rather than high-skill workers. In 1959, 38 percent of adult residents who had lived in Montgomery County fewer than five years had less than a high school education, while 31 percent had at least one year of college. For residents who had lived in the county for 5 to 19 years—those who had moved to Dayton between 1940 and 1954—47 percent had less than a high school education, while 17 percent had at least one year of college.[84]

Many of the migrants to Montgomery County during World War II and the early 1950s came to take factory jobs that required little formal education. The newer migrants of the late 1950s were better educated than the earlier migrants on average, but unfortunately for Dayton the better-educated people arriving in Montgomery County and the surrounding area in the late 1950s were more likely to settle outside of Dayton than those arriving in the 1940s. As shown in table 6, the populations of Kettering, Vandalia, and Huber Heights all grew rapidly during this period.

It's also important to recognize that the South's history of racial segregation and discrimination before the 1960s Civil Rights movement negatively impacted northern urban economies such as Dayton's. Because of the lack of educational opportunities in the South for blacks owing to discrimination, the Great Migration from the rural South to the industrial North hindered Dayton's ability to adapt to economic changes. Finis Welch reports that in the 1920s and 1930s, southern schools spent about three times more on white students than black students.[85] Southern schools for blacks were also in session significantly fewer days than the average for all southern schools (119 days to 162 in 1919–1920), and the average number of days attended per enrolled student was significantly lower in southern black schools than in all southern schools (80 days to 121

83. In 1970, 11.2 percent of Montgomery County residents 25 and older had a bachelor's degree or more, very close to the 10 percent in 1958 as reported in table 2. If the Dayton to Montgomery County ratio of college-educated residents was steady over this time period, we would expect approximately 9 percent of Dayton's residents to have had a bachelor's degree or more in 1970.
84. Metropolitan Community Studies, *Metropolitan Challenge.*
85. Finis Welch, "Black-White Differences in Returns to Schooling," *American Economic Review* 63, no. 5 (1973): 893–907.

in 1919–1920).[86] Most black migrants who moved to Ohio between 1920 and 1930 came from Georgia, Kentucky, Tennessee, and Alabama.[87] Three of these states are former Confederate states in the Deep South, where school segregation was institutionalized; thus, the characteristics of black schools in these states are likely to align with the low averages presented in Welch's 1973 paper.

These numbers imply that the human capital of Dayton's labor force was actually lower in the mid-20th century than what is reported in table 2. The educational attainment of Dayton's population is reported in that table, but those data say nothing about the quality of the education. Given the information provided by Welch, it is likely that Dayton residents placed in the categories of "8th grade or less" and "some high school" in 1958 had even less human capital than those relatively low levels of education suggest. The same is probably true for high school graduates as well.

As stated earlier, by 1960 nearly 20 percent of Dayton's population was black, and many of these black migrants came from states in the Deep South that relegated black students to lower-quality schools. Southern black schools improved relative to white schools after 1920, but even as late as 1949–1950, they significantly lagged behind white schools in number of days in session, average days attended, and per-student spending.[88] The evidence that Jim Crow's "separate but equal" doctrine was inaccurate in regard to education as in other respects suggests that many of the southern black migrants that arrived in Dayton from 1940 to 1970 had significantly less human capital than the official education statistics indicate.[89]

Thus the de jure segregation and racial discrimination in the South that impeded the human capital attainment of blacks ultimately impacted northern cities such as Dayton. The influx of poorly educated workers combined with the outflow of high-human-capital, high-skill workers negatively affected Dayton's ability to innovate and adapt and so played a role in the city's decline during the latter half of the 20th century.

In addition to the demand-side reasons for the lack of residents with a college degree, there is also a supply-side reason—the lack of colleges in the area in the early 20th century. Today there are three traditional, brick-and-mortar

86. Ibid.

87. Carrington et al., "Migration with Endogenous Moving Costs," table 1.

88. Welch, "Black-White Differences," table 3.

89. Joseph Gyourko makes a similar point in his discussion of Philadelphia in the early 20th century. Joseph Gyourko, "Looking Back to Look Forward: What Can We Learn about Urban Development from Philadelphia's 350-Year History?," *Brookings-Wharton Papers on Urban Affairs* 1 (2005): 25.

schools of higher learning in the Dayton area: the University of Dayton, Wright State University, and Sinclair Community College. But, before 1960, only the private University of Dayton existed. As for the public universities, Wright State was established in 1967, and Sinclair opened for classes in 1972.[90] At a key time when a large number of former military service personnel were attending college and enrollments in general were increasing, Dayton had only one small, private university to offer potential students.

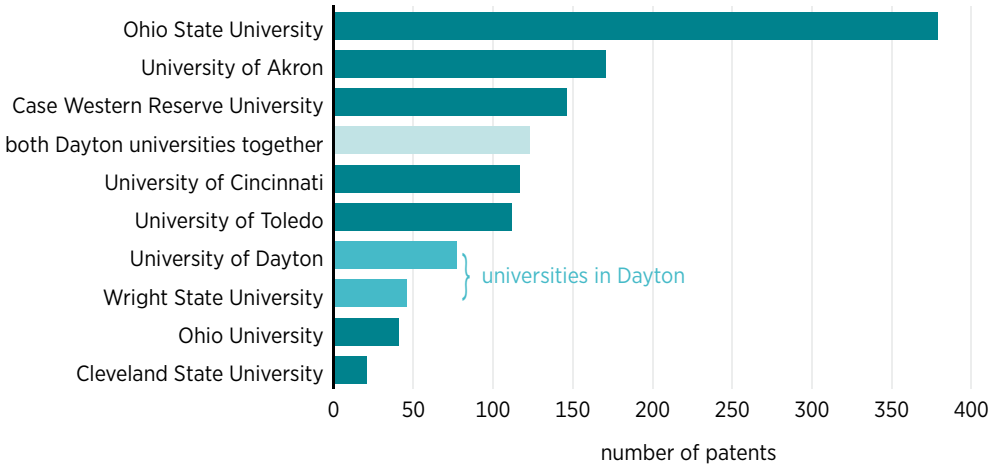
In 1946, there were only 2,800 students on University of Dayton's campus, though enrollment increased to 8,700 by 1964/65.[91] Despite this growth, the number of students enrolled in college in the Dayton area was small compared to other nearby Ohio cities. The Ohio State University in Columbus had an enrollment of nearly 26,000 in 1950, and the University of Cincinnati's enrollment was nearly 14,000 that same year.[92] This supply-side effect also harmed Dayton's ability to innovate since the city was not producing high human capital residents.

In the latter half of the 20th century, the Dayton area failed to remain the innovative area it had once been. A study that examined the geographic location of research and development (R&D) labs and employment in 1975 shows that Dayton was outside of the top 20 MSAs in terms of total number of R&D labs and employment.[93] The only category for which Dayton MSA placed in the top 20 was the location of federally employed scientists and engineers,

"At a key time when a large number of former military service personnel were attending college and enrollments in general were increasing, Dayton had only one small, private university to offer potential students."

90. Sinclair's origin goes back to a YMCA college established in the late 19th century that later became a private two-year college. This small-scale college was vastly different in both form and purpose from the modern Sinclair Community College in downtown Dayton and, as such, had a negligible effect on educating Dayton's population.
91. Kay Timmons, "University of Dayton: Potential Unlimited," *Dayton History Books Online*, September 1965.
92. Ohio History Connection, "The Ohio State University," *Ohio History Central*, accessed September 7, 2017; University of Cincinnati, "Overview of the History of the University of Cincinnati," *UC.edu*, accessed September 7, 2017.
93. Edward J. Malecki, "Dimensions of R&D Location in the United States," *Research Policy* 9, no. 1 (1980): 2–22.

FIGURE 8. OHIO UNIVERSITIES' UTILITY PATENTS, 1969–2000



Source: US Patent and Trademark Office, *US Colleges and Universities—Utility Patent Grants, 1969–2012* (USPTO, Patent Technology Monitoring Team, Alexandria, VA, 2012).

owing to its proximity to Wright-Patterson Air Force Base. A 1998 report by the US Patent and Trademark Office showed that the Dayton-Springfield MSA generated 20.4 patents per 100,000 people, a rate that left it well out of the top 30.[94] This is a sharp contrast to the region's aforementioned patent output in the early 1900s, when the city of Dayton itself, not the MSA, was generating roughly 120 patents per 100,000 people.

The major universities in the Dayton area also produced fewer patents compared to other Ohio universities in the latter half of the 20th century. Figure 8 shows the number of utility patents generated by the research universities in Ohio from 1969 to 2000.

Unsurprisingly, the Ohio State University—the largest in the state—had the most utility patents over this period. The two Dayton-area universities, the University of Dayton and Wright State, were sixth and seventh, respectively. Their combined patent output places them only fourth, just in front of the University of Cincinnati but behind Cleveland's Case Western and the University of Akron.

94. United States Patent and Trademark Office, *United States Patent Grants: Number of Grants per 100,000 Population, by Metropolitan Area, 1998* (USPTO, Technology Assessment and Forecast Branch, Washington, DC, July 1998).

Theoretical work on economic growth in the 1990s formalized the mechanism by which R&D impacts a region's economic growth.[95] In these models, ideas beget ideas, and economic output expands as entrepreneurs bring these ideas to the market. Earlier work by economist Joseph Schumpeter introduced the idea of "creative destruction," a process that involves the endless introduction of new and better products which then destroy the profit margins of older goods and services. Research and development is a critical component of this process, and firms that fail to innovate will be overtaken by their competition.

The lack of innovative firms and universities in the Dayton area in the latter half of the 20th century was a significant culprit in Dayton's waning economy. Throughout the 20th century, Dayton relied on the inventions and achievements of its past: NCR, Frigidaire, Delco, Mead Corporation, McCall's, Huffy Corporation, and L. M. Berry were all well-known national companies and significant employers in the Dayton region through the latter half of the century, and each of them was started prior to 1940. After the entrepreneurs and innovators of the early 1900s passed away—Charles Kettering, John Patterson, Horace Huffman Sr., and others—no new innovators arrived to take their place. As a result, Dayton became dependent on a handful of historically large employers to provide an economic base for the city.

One of these companies was General Motors, whose relationship with Dayton began in the early 20th century. In 1918, General Motors purchased United Motors, which two years earlier had purchased Delco.[96] In addition to Delco, GM eventually bought three other Dayton companies started by Charles Kettering and Edward Deeds: Dayton Metal Products Company, Dayton Wright Airplane Company, and the Domestic Engineering Company.[97]

As late as 1980, employment in the Dayton MSA was still largely tied to GM and the automotive industry as a result of GM's earlier purchases of Kettering's and Deeds's businesses: the MSA contained 11 automotive-related plants that employed 41,800 workers, which was over 40 percent of the MSA's manufacturing employment.[98] During the 1980s, city officials and business leaders began acknowledging that the economy was changing and attempted to adapt via top-

95. Paul M. Romer, "Endogenous Technological Change," *Journal of Political Economy* 98, no. 5 (1990): S71–S102; Charles I. Jones, "R&D-Based Models of Economic Growth," *Journal of Political Economy* 103, no. 4 (1995): 759–84.
96. Tom Dunham, *Dayton in the 20th Century* (published by author, 2005).
97. Ibid.
98. Carol MacLennan and John O'Donnell, *The Effects of the Automotive Transition on Employment: A Plant and Community Study* (United States Department of Transportation, National Highway Traffic Safety Administration, Washington, DC, December 1980).

down planning. After economic changes brought on by the recessions of the late 1970s and early 1980s and the decline of the US automotive industry, city officials began making plans to leverage nearby Wright-Patterson Air Force Base to attract technology firms to a new high-tech research park located in the Dayton suburbs of Kettering and Beavercreek.[99] The park contains 1,250 acres of land, but only 450 acres have been developed since 1984. Though there was some early success, the park ultimately failed to deliver the anticipated economic activity.

Eventually, many of the automotive plants in the Dayton area shut down as US auto companies cut costs and relocated production to better compete with Asian manufacturers. Coupled with the city's unsuccessful attempts to foster the creation of new businesses, Dayton was left with a lack of employment options for its residents, which led to further out-migration. Then, in 2009, Dayton's flagship company, NCR, relocated to the Atlanta metro area. NCR had been Dayton's only remaining Fortune 500 company, but it was also the company founded by Dayton native John H. Patterson in 1884 and the company that rescued Dayton from the 1913 flood. Thus, while its relocation had a harmful effect on Dayton's economy, perhaps the most damaging effect was to Dayton's psyche.[100] In many ways, NCR's departure signified the end of Dayton as an economically important midwestern city.

D. Dayton's Finances

Municipal finance data before the 1950s are sparse, so this examination of Dayton's finances uses 1951–2006 data from the US Census Bureau.[101] Between 1951 and 1984, Dayton ran a fairly balanced budget, as shown in figure 9. Some years it had a surplus and in other years a deficit, but this is to be expected since budgeting relies on forecasts made with imperfect information.[102]

According to these data, Dayton ran relatively large budget deficits from 1988 to 1994. Once these deficits subsided, expenditures were relatively flat from 1995 to 2006.

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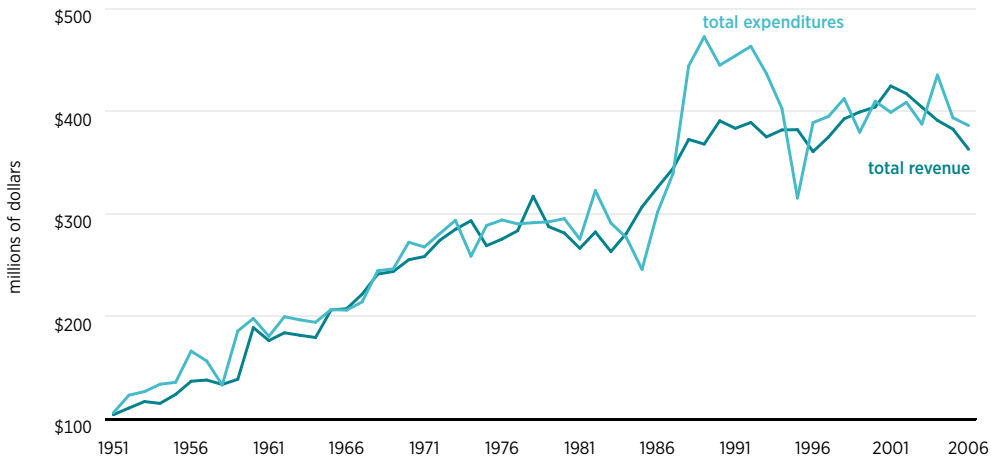
99. Lynn Wasnak, "Dayton: A City of the Future," *Ohio Business* 9, no. 1 (1985): 41–47.
100. Dan Barry, "In a Company's Hometown, the Emptiness Echoes," *New York Times*, January 24, 2010.
101. US Census Bureau, Annual Survey of Local Government Finances and Census of Governments (1951–2006). As stated in the data's documentation, "The data presented here are statistical in nature and do not represent an accounting statement. A difference between total revenue and expenditure does not necessarily indicate a 'budget' surplus or deficit." That being noted, the data are useful for highlighting long-term trends.
102. See Richard E. Wagner, *Deficits, Debt, and Democracy: Wrestling with Tragedy on the Fiscal Commons* (Cheltenham, UK: Edward Elgar, 2012).

FIGURE 9. DAYTON TOTAL REVENUE AND EXPENDITURES, 1951–2006



Note: Data are adjusted for inflation to 2009 dollars using the chained GDP price deflator from the Office of Management and Budget.

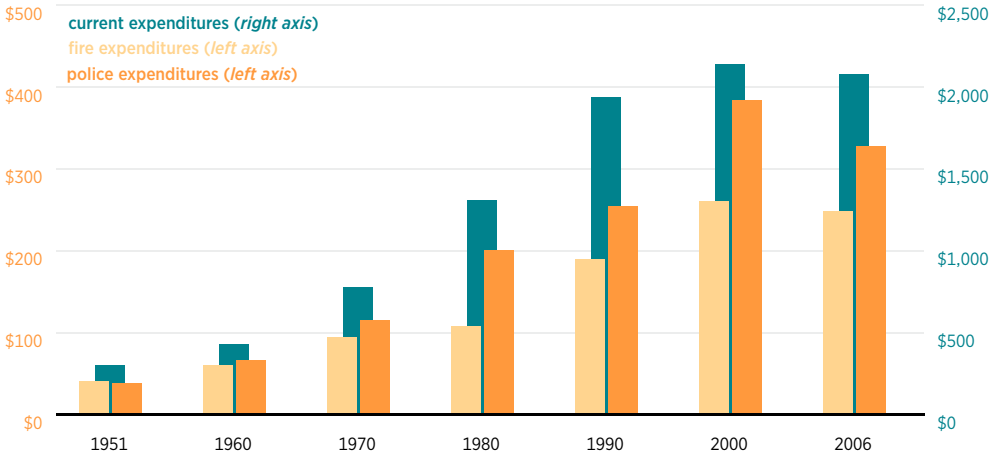
Source: US Census Bureau, Annual Survey of Local Government Finances and Census of Governments (1951–2006).

Economist William Baumol attributes the rising expenditures of a city government over time to what is known as the "cost disease."[103] The main symptom of the cost disease is a rising cost of government, in particular the cost of government-provided goods and services that are labor intensive. Figure 10 depicts the per capita cost of police protection, fire protection (both measured on the left axis), and current expenditures (measured on the right axis) for Dayton from 1951 to 2006.[104] Current expenditures are total expenditures less capital outlays; they measure the amount of money spent by the government to operate and service previously accrued debt.

As shown in figure 10, the per capita expenditure for all three categories increased from 1951 until 2000. From 2000 to 2006, all three measures declined slightly. The largest increases occurred from 1960 to 1990, which is also when Dayton was experiencing its largest decline in population.[105]

103. William J. Baumol, "Macroeconomics of Unbalanced Growth: The Anatomy of Urban Crisis," *American Economic Review* 57, no. 3 (1967): 415–26.
104. Because of the limited availability of accurate historical city population data, only decennial census years are depicted before 2000; 1950 population data were used for the 1951 calculations.
105. Interestingly, these data contradict the quote from the chamber of commerce at the beginning of this section, which claims that per capita spending tends to increase when cities grow rather than shrink.

FIGURE 10. DAYTON PER CAPITA EXPENDITURES, 1951–2006



Note: Data are adjusted for inflation to 2009 dollars using the chained GDP price deflator from Office of Management and Budget. Current expenditures are total expenditures less capital outlays.

Source: US Census Bureau, Annual Survey of Local Government Finances and Census of Governments (1951–2006).

Why do costs of government rise as cities grow but often fail to decline as cities lose population? One thing that Baumol's story ignores is public choice. Specifically, are rising costs in the public sector endogenous to the public sector rather than exogenous? The primary public-sector industries have high rates of unionization, and the primary goal of a labor union is to protect labor. The high level of unionization and near-monopoly status of the policing, firefighting, and teaching industries may be the reason these trades are unsusceptible to labor-augmenting technology that could increase productivity and reduce costs.

The presence of public-sector unions, which partially institutionalize steady wage increases and stable or increasing employment levels, may also explain why per capita costs do not decline with population. This suggests that one way to relieve municipalities of the cost disease is privatization. As Stephen Ferris and Edwin West state in their piece critiquing the inevitability of the cost disease, "Privatization could lead to significant changes in the structure of supply that result in 'genuine' reductions in real costs."[106]

106. J. Stephen Ferris and Edwin G. West, "The Cost Disease and Government Growth: Qualifications to Baumol," *Public Choice* 89, no. 1–2 (1996): 35–52.

E. Unions in Dayton

There is a substantial amount of evidence that public-sector unionization leads to higher wages and higher nonwage benefits, such as generous retirement plans; these, in turn, increase the cost of providing local government goods and services.[107] One study finds that the presence of a union bargaining unit significantly increases pay and total expenditures.[108] Higher compensation for union workers is often attributed to their political clout, and Kevin O'Brien finds that an increase in political activity leads to higher compensation for public employee union members.[109]

Cities that do not have a unionized workforce are not required to purchase labor from a monopoly provider, so it is easier for them to provide government goods and services at a lower cost. Dayton's city employees are unionized today, but that was not always the case.[110] In fact, if Dayton had followed state law, it would have avoided a unionized labor force until at least 1983, when Ohio finally enacted legislation allowing public-sector collective bargaining.[111] Until 1983, local governments in Ohio were not allowed to enter into contracts with unions, a result that stemmed from a 1947 Ohio State Supreme Court case that declared municipal contracts with unions an improper delegation of authority. Also in 1947, the Ohio legislature enacted the Ferguson Act, which banned public employee strikes and enabled local governments to terminate strikers. In addition, rehired strikers would not get a pay increase for one year and were put on probation for two years.[112] Together, these bills not only made it easy for municipalities to avoid bargaining with public sector unions, they also made it their legal duty.

These laws were rarely enforced, however, and the ruling that declared public-sector bargaining an improper delegation of authority was the first to fall. Cincinnati formalized a relationship with the American Federation of State,

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107. For a study of police unions, see Ann Bartel and David Lewin, "Wages and Unionism in the Public Sector: The Case of Police," *Review of Economics and Statistics* 63, no. 1 (1981): 53–59. For more general studies, see Jeffrey Zax and Casey Ichniowski, "The Effects of Public Sector Unionism on Pay, Employment, Department Budgets, and Municipal Expenditures," in *When Public Sector Workers Unionize* (Chicago: University of Chicago Press, 1988), 323–64; and Chris Edwards, "Public Sector Unions and the Rising Costs of Employee Compensation," *Cato Journal* 30, no. 1 (2010): 87.
108. Zax and Ichniowski, "Effects of Public Sector Unionism on Pay."
109. Kevin M. O'Brien, "Compensation, Employment, and the Political Activity of Public Employee Unions," *Journal of Labor Research* 13, no. 2 (1992): 189–203.
110. Dayton firefighters belong to the Ohio Association of Professional Fire Fighters Local 136, Dayton police officers belong to the Fraternal Order of Police of Ohio, and other Dayton public employees belong to the American Federation of State, County, and Municipal Employees Local 101.
111. Gregory M. Saltzman, "Public Sector Bargaining Laws Really Matter: Evidence from Ohio and Illinois," in *When Public Sector Workers Unionize* (Chicago: University of Chicago Press, 1988), 41–80.
112. Ibid.

County, and Municipal Employees (AFSCME) in 1960, and by 1968, Dayton, Cleveland, Columbus, and other major Ohio cities had also signed contracts with the AFSCME.[113] In 1975, the de facto acceptance of public-sector bargaining was solidified in the Dayton-centric Ohio Supreme Court case *Dayton Classroom Teachers Association v. Dayton Board of Education*. In that case, the court ruled that school boards had the authority to bargain with their employees and that any contract reached would be enforceable in court.[114]

In the late 1960s, several public-sector employee unions in the state went on strike, but the penalties of the Ferguson Act were seldom invoked.[115] Such strikes continued into the 1970s, and the consequences of a public employee union strike became apparent in Dayton when the city's fire department went on strike for three days in August of 1977.[116] During the strike, it was reported that many residents were left to fight fires in their neighborhoods with garden hoses.[117] In one such instance, children were credited with containing a fire until a neighboring municipal fire department arrived to take over. By the time the strike ended, more than 20 fires had broken out in the city, and approximately 20 families lost their homes.[118] As a sign of the distrust this strike generated, there was even some suspicion that the striking firefighters had started some of the fires, though this claim was never substantiated. The firefighters' union and the city finally agreed to a two-year contract on the fourth day of the strike that gave them a $0.50 raise over the life of the contract and a shorter workweek. Needless to say, this event tarnished the national image of both the fire department and Dayton.[119]

"During the strike, it was reported that many residents were left to fight fires in their neighborhoods with garden hoses."

113. Ibid.
114. Ibid.
115. Ibid.
116. United Press International, "Dayton Firefighters OK Pact; Go to Work," *Chicago Tribune*, August 11, 1977.
117. Associated Press, "Dayton Residents Fighting Blazes as Firefighters Strike," *Hendersonville Times-News*, August 10, 1977.
118. UPI, "Dayton Firefighters OK Pact."
119. Editorial Board, "Dayton's Horrible Example," *Chicago Tribune*, August 13, 1977.

Several comprehensive pro-union bills were introduced in the Ohio legislature between 1947 and 1982, but none of them became law. However, in 1982, Democrats won control of both houses of the legislature and the governorship, and a comprehensive pro-union bill was finally enacted into law in 1983 without a single Republican vote.[120] This law was considered more pro-union than most public-sector statutes in other states and included, among other things, authorization of the agency shop, mandatory dues checkoff, and provisions for binding interest arbitration for public safety employees (but prohibited strikes to avoid fiascos like the one in Dayton).[121] This law had a negligible effect on Dayton, since, as stated previously, the large cities in Ohio had already been engaging in collective bargaining for years.

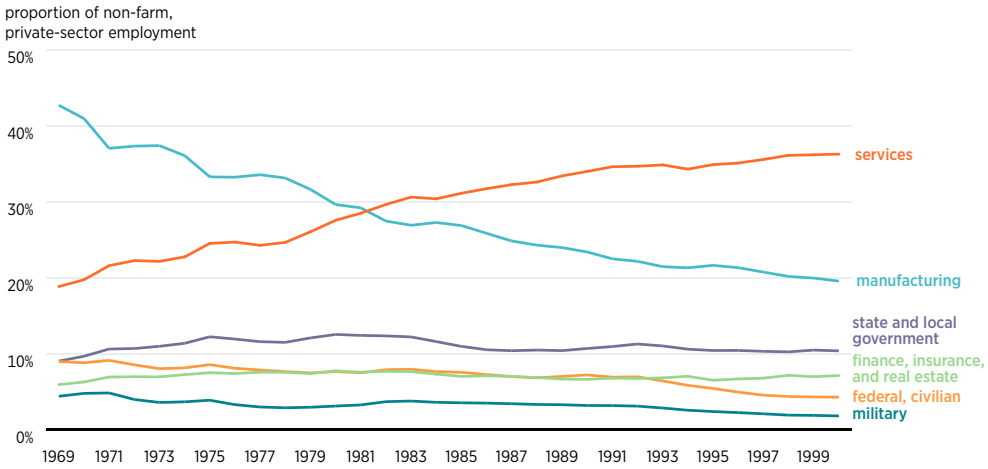
Based on the evidence showing that unions increase municipal labor costs, Dayton officials' early acceptance of public-sector collective bargaining likely contributed to the rising per capita costs between 1960 and 1980 shown in figure 10. The firefighters' union strike of 1977 also tarnished the city's image at a time when its population was already in decline. If Dayton had abided by state law, it would have avoided the cost increase associated with unionization prior to the pro-union bill of 1983, at which time Dayton would have likely joined other municipalities in having a unionized workforce. That being said, it is difficult to know how much of the cost increase shown in figure 10 is due to Dayton's early acceptance of collective bargaining.

4. THE CITY OF DAYTON SINCE 2000: STABILIZATION AND REVITALIZATION?

Like other midwestern and northeastern US cities, the Dayton economy transitioned from a manufacturing economy to a service economy during the late 20th century. As shown in figure 11, the proportion of non-farm, private-sector employment in manufacturing declined from 43 percent in 1969 to 20 percent in 2000. Meanwhile, the proportion of employment in services increased from 19 percent to 36 percent. Military and federal civilian employment also fell relative to private, non-farm employment over this time period, which signifies a decline in the relative importance of federally funded workers to Dayton's labor force.

120. Saltzman, "Public Sector Bargaining Laws."
121. Ibid.

FIGURE 11. EMPLOYMENT IN DAYTON METROPOLITAN STATISTICAL AREA COMPARED TO TOTAL NON-FARM, PRIVATE-SECTOR EMPLOYMENT, 1969–2000



Source: Bureau of Economic Analysis Interactive Data (table CA25; accessed September 19, 2017), https://www.bea.gov/itable/.

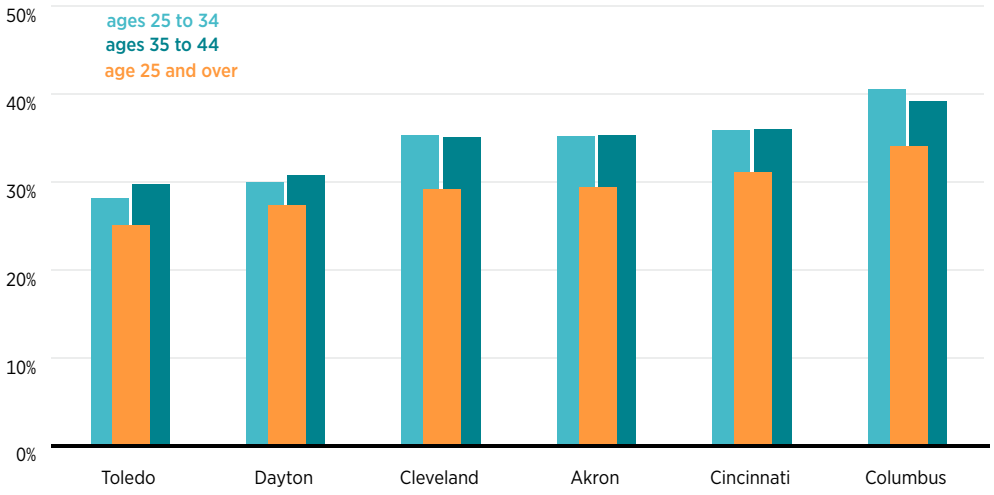
Earlier I discussed the importance of a high-human-capital workforce to a city's success, and in the modern service and knowledge economy, entrepreneurship and innovation remain critical components of any city's well-being. If Dayton is going to be reinvented, it will need a skilled labor force that can continuously create new businesses and develop new products as old ones are made obsolete by global competition. As I showed earlier, Dayton fell behind many other cities in its share of educated residents in the mid-20th century, and relative to other Ohio cities its situation has not improved.

As shown in figure 12, the Dayton MSA had the second-lowest proportion of adults with a bachelor's degree or more in Ohio in 2015, ahead of only Toledo. The Columbus MSA, which contains the largest and fastest-growing city in the state, was well ahead of the Cleveland, Akron, and Cincinnati MSAs clustered together in second place.

Economists Yong Chen and Stuart S. Rosenthal argue that high-skill workers follow a life-cycle migration path that involves locating in a city with a good business environment during their early years and then moving to a location with good consumer amenities as retirement approaches.[122] Chen and Rosenthal

122. Yong Chen and Stuart S. Rosenthal, "Local Amenities and Life-Cycle Migration: Do People Move for Jobs or Fun?," *Journal of Urban Economics* 64, no. 3 (2008): 519–37.

FIGURE 12. PERCENTAGE OF ADULTS WITH BA OR HIGHER IN OHIO'S LARGEST METROPOLITAN STATISTICAL AREAS, 2015



Source: American Community Survey data from American FactFinder.

create a quality of life and quality of business index for 346 US metropolitan and non-metropolitan areas. In their analysis, climate appears to be the most important consumer amenity, as 9 of the areas in the top 10 of the quality of life index are in California or Hawaii and only 4 of the top 20 are in cold-weather states.[123] Using data from 2000, Dayton was ranked 278th in quality of life and 135th in quality of business. Table 7 displays Dayton's ranking along with those of other nearby cities.

According to this ranking, Dayton had the second-worst business environment out of the MSAs in its region, trailing only Toledo. The quality of life indicators for each MSA were all relatively low, which is to be expected when looking at MSAs in colder areas. Since an area's climate is determined by factors largely outside human control, local officials in locations such as Dayton must focus on improving their business environments in order to attract high-skill workers.[124]

123. Other authors have also found that nice weather and proximity to the coast are attractive features. For examples, see David Albouy and Bert Lue, "Driving to Opportunity: Local Rents, Wages, Commuting, and Sub-Metropolitan Quality Of Life," *Journal of Urban Economics* 89 (2015): 74–92; and Liang Zheng, "What City Amenities Matter in Attracting Smart People?," *Papers in Regional Science* 95, no. 2 (2016): 309–27.

124. Dayton's cold weather may reduce the city's attractiveness today, but it was not always viewed as a negative characteristic. In a letter written to the Men's Boosters' Club of Dayton in 1907, John H.

TABLE 7. RANKING OF CITIES NEAR DAYTON BY BUSINESS ENVIRONMENT AND QUALITY OF LIFE

Metropolitan statistical area	Business environment	Quality of life
Cleveland	91	288
Columbus	94	282
Cincinnati	96	311
Indianapolis	103	300
Akron	130	244
Dayton	135	278
Toledo	173	298

Source: Yong Chen and Stuart S. Rosenthal, "Local Amenities and Life-Cycle Migration: Do People Move for Jobs or Fun?," *Journal of Urban Economics* 64, no. 3 (2008): 519–37.

Between 2000 and 2014, Dayton's population declined by 15 percent, but most of this decline occurred between 2000 and 2010. Since 2010, Dayton's population has remained fairly stable, hovering around 140,000 people. The city's total revenues and total expenditures declined accordingly over this time period, as shown in figure 13.

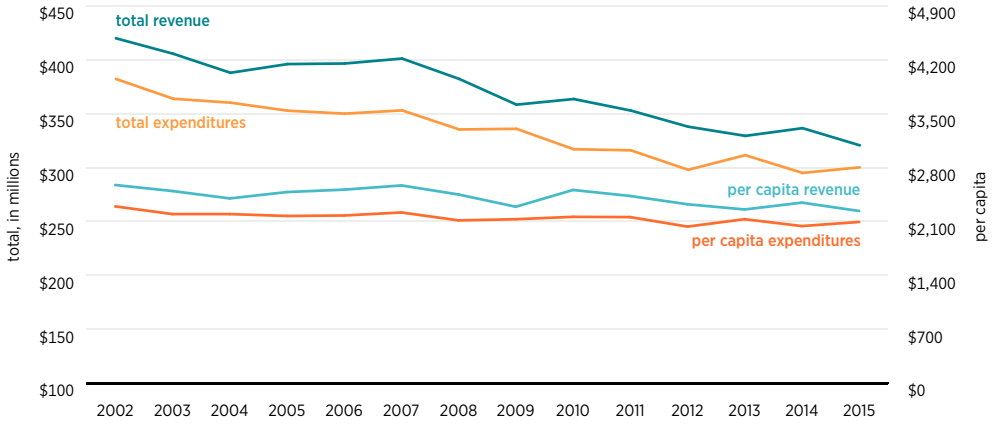
Total revenue and total expenditures are measured on the left vertical axis, and the per capita data are measured on the right vertical axis. Total per capita revenues and expenditures were fairly constant between 2002 and 2015 even though total revenues and expenditures declined. Additionally, Dayton has managed to run a slight surplus every year since 2002 in spite of the decline in population that has strained many similar cities. This shows that Dayton officials have thus far been able to cut spending when revenue declines required it.

As figure 14 shows, Dayton's general fund revenues are largely dependent on local taxes, particularly the income tax, which generated nearly $700 per capita in 2015. In comparison, the property tax generated less than $100 per capita.

From 2002 to 2015, income tax and property tax receipts together generated between 76 percent and 86 percent of all general fund revenue. The bulk of the revenue comes from the income tax, which generated approximately seven

Patterson wrote the following in reference to the difficulty of attracting talented workers to Dayton: "Besides this, people we want to come with us claim that the climate of Dayton is bad on account of the heat and sultry weather of July, August, September, and part of October. It would be worth a good deal to our Company to be located in some city where it is not so hot in summer, as it naturally affects the work of our people, for they cannot do as much work or effectual work, as they could in a cooler climate." The full text of both this 1907 letter and a similar 1896 speech presented at the Dayton Centennial banquet are available online: John H. Patterson, "What Dayton, Ohio, Should Do to Become a Model City," *Dayton History Books Online*, accessed September 8, 2017.

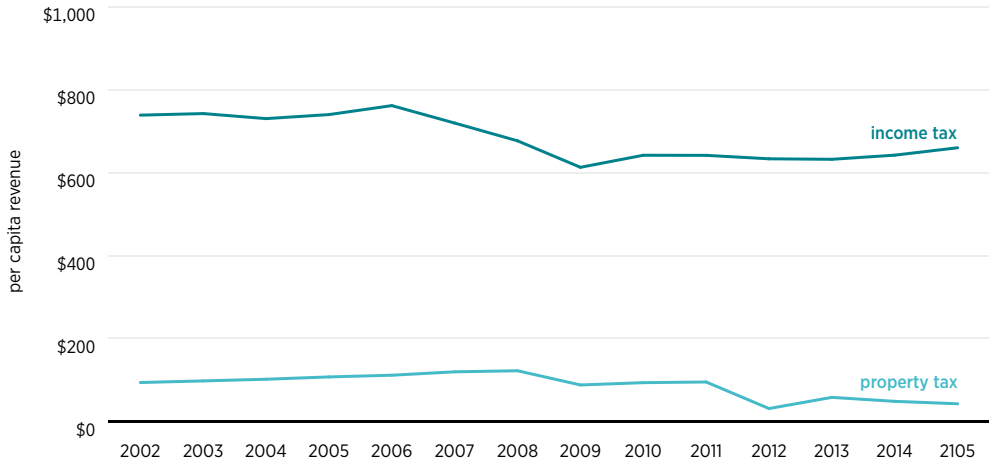
FIGURE 13. DAYTON REVENUE AND EXPENDITURES, 2002–2015



Note: Data are adjusted for inflation to 2009 dollars using the chained GDP price deflator from Office of Management and Budget.

Source: City of Dayton, "Dayton's Comprehensive Annual Financial Reports (CAFR)," 2002–2015.

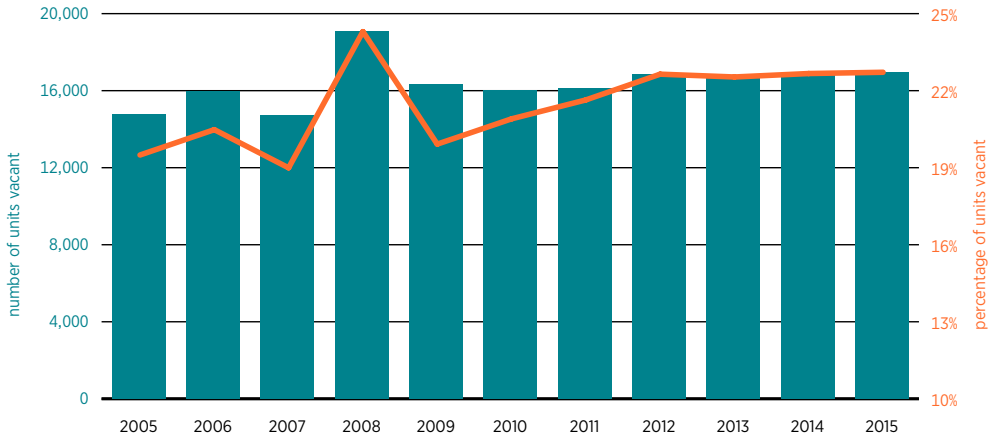
FIGURE 14. LOCAL PER CAPITA TAX REVENUE IN DAYTON, 2002–2015



Note: Data are adjusted for inflation to 2009 dollars using the chained GDP price deflator from Office of Management and Budget.

Source: City of Dayton, "Dayton's Comprehensive Annual Financial Reports (CAFR)," 2002–2015.

FIGURE 15. VACANT HOUSING UNITS IN DAYTON, 2005–2013



Source: American FactFinder (table B25002; accessed September 19, 2017), https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml.

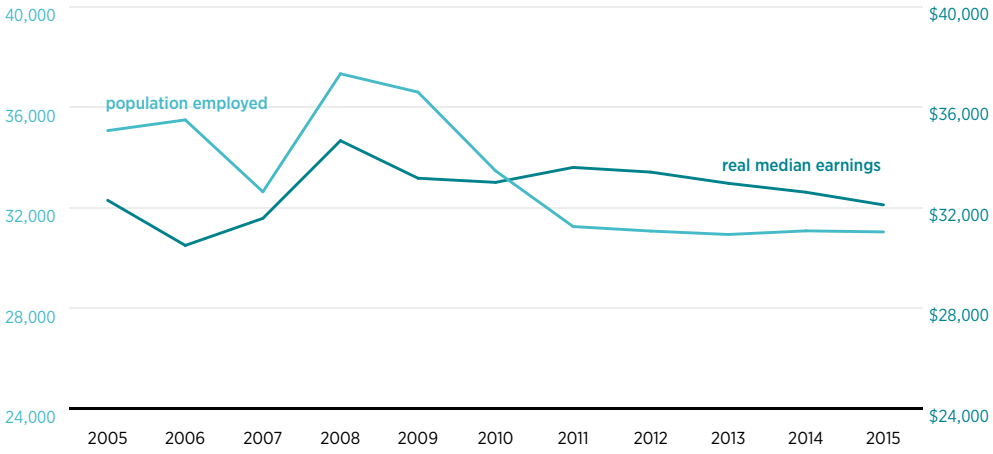
times the revenue per capita as the property tax during this time period. Dayton's income tax rate is 2.25 percent, and the entire tax was made permanent after voters passed a referendum in 2015.[125]

As shown in figure 14, both income tax per capita and property tax per capita declined after 2006. Income tax revenue per capita started to decline in 2006 and continued to fall during the Great Recession, while property tax revenue did not start to decline until 2008, with a second dip in 2011. Both appear to have leveled off, but at levels that are significantly lower than they were at the beginning of the century.

The housing bust that contributed to the Great Recession affected Dayton's property tax revenue. In 2014, real city property valuations were down 26 percent from their 2006 peak, and lower assessed property values decrease the property taxes owed, all else equal. The number of vacant housing properties in Dayton has also increased recently, as shown in figure 15. In 2005 there were only 14,795 vacant housing properties in Dayton. At the peak of the recession in 2008, the number of vacant properties increased to just over 19,000, but by 2010 the amount had fallen to only 16,000. However, from 2010 to 2013 the amount

125. "Dayton Voters Pass Issue 6 Making Income Tax Permanent," *Dayton Daily News*, May 6, 2014.

FIGURE 16. DAYTON FULL-TIME CIVILIAN EMPLOYMENT AND MEDIAN EARNINGS, 2005–2015



Note: Data from 2005 to 2008 are from one-year estimates; data from 2009 to 2015 are from five-year estimates.

Source: American Community Survey data from American FactFinder. Earnings data are from table B24041 and employment data are from table S2404, accessed September 19, 2017, https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml.

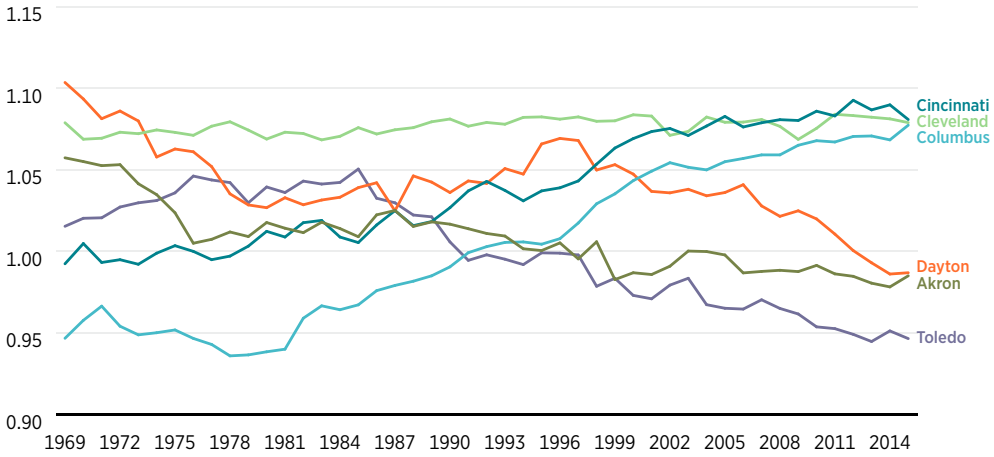
of vacant properties rose again, up to 16,787 in 2013, where it has remained. Vacancies hurt the city's finances in two ways: first, owners of vacant properties pay taxes at a lower rate than owner-occupiers; and second, vacant properties are often maintained by the city, which is a substantial expense in the summer months when lawns need to be maintained.[126]

If Dayton's population declines further, local tax revenue will likely decline with it, since the high-skill, high-income people who pay the most taxes are also the most mobile.

Dayton lost a substantial amount of employment during the Great Recession, as shown in figure 16. The employed population has leveled off at just over 31,500, which is considerably below the pre-recession high of 38,000 or even the 2005–2007 average of 35,000. Median earnings in Dayton have also not recovered to their 2008 high of roughly $35,000. Median earnings slightly rebounded to $34,189 in 2011 but declined again after that, and in 2015 they were $32,698. The decline in earnings has contributed to the city's lower income tax receipts.

126. Doug Page, "Local Governments Filing Liens against Lawns They Had to Mow," *Dayton Daily News*, September 1, 2013.

FIGURE 17. AVERAGE WAGE RATIO BY METROPOLITAN STATISTICAL AREA FOR OHIO CITIES, 1969–2015



Note: The average wage ratio is the metropolitan statistical area average wage divided by the Ohio average wage. A ratio greater than 1 indicates that the metropolitan statistical area average wage is greater than the statewide average wage.

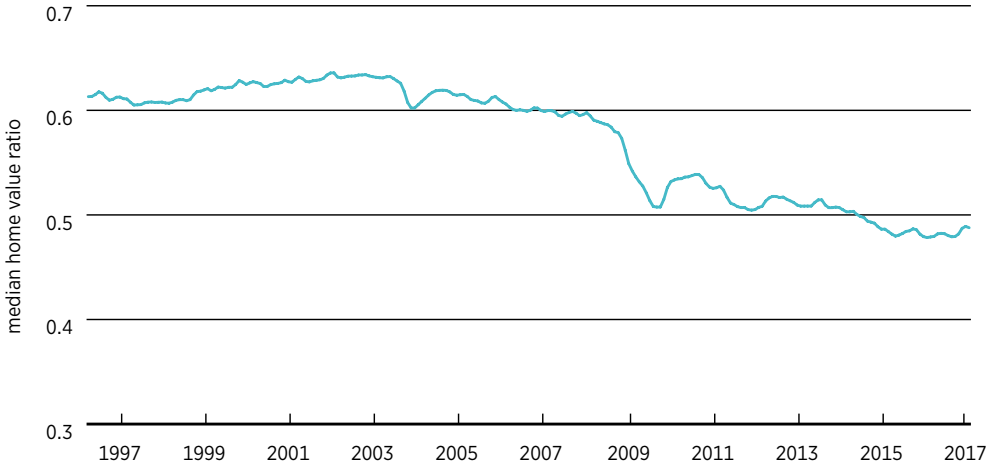
Source: Bureau of Economic Analysis Interactive Data. Ohio data are from table SA30 and metropolitan statistical area data are from table CA30, accessed September 19, 2017.

Over a longer time horizon, the average wage in the Dayton MSA has been declining relative to the overall Ohio average wage, as seen in figure 17. In 1969, Dayton had the highest wage relative to the state average of the six large Ohio MSAs—10 percent higher.

Since then, Dayton's ratio has declined, with a significant drop occurring after the most recent recession in 2007. In 2015, its average wage was about the same as Akron's and below Cincinnati's, Cleveland's, and Columbus's. Cleveland's has remained fairly constant while Cincinnati's and Columbus's ratios increased dramatically, causing them to rise from fifth and sixth, respectively, into a tie for first. In 2015, the average wage in each of those MSAs was about 8 percent higher than the overall state average. Along with the population gains in the Columbus and Cincinnati MSAs shown in figure 6, these wage data are evidence that Columbus and Cincinnati are the Ohio cities best adapting to the 21st century economy.

The wages in Toledo and Akron, two former manufacturing cities that have experienced many of the same problems as Dayton, have also declined substantially over the last 40 years. Along with Dayton, those two cities are clustered separately from Cleveland, Columbus, and Cincinnati. The long-term decline in

FIGURE 18. RATIO OF DAYTON CITY'S MEDIAN HOME VALUE TO DAYTON METROPOLITAN STATISTICAL AREA'S MEDIAN HOME VALUE, APRIL 1996–MARCH 2017



Source: Zillow Group, "ZHVI Single-Family Homes Time Series," *Zillow*, accessed September 8, 2017, https://www.zillow.com/research/data/.

relative wages means it is unlikely that Dayton will experience any significant wage gains in the near future unless something changes.

Dayton's home values are falling relative to the surrounding MSA as well, as shown in figure 18. In January 2008, near the start of the recession, the median single-family home value in Dayton was approximately 60 percent of the median home value in the surrounding MSA ($70,500 versus $118,300).[127] Since then, the median home value in Dayton has declined relative to the surrounding area: in March 2017, it was only 49 percent ($55,700 versus $114,200). The decline in home values negatively affects property tax revenue and helps explain the per capita property tax revenue decline in figure 14.

Three common measures of a city's economic health are population, wages, and home values, and Dayton is performing poorly in all three. The lower level of full-time employment since 2009, declining earnings, and declining home values, combined with a historically declining population, exemplify the economic and fiscal difficulties Dayton is facing.

These measures of economic health are all related, which on the one hand is a good thing, since if one measure improves it will lead to improvement

127. Zillow Group, "Zillow Data," *Zillow*, accessed September 8, 2017, http://www.zillow.com/research/data/.

in the others. On the other hand, this interconnectedness makes improving one measure difficult since they reinforce one another: population decline leads to empty homes and less government revenue, which leads to a decline in property values as services worsen. Firm relocations decrease employment opportunities and often negatively impact wages. This leads to further population decline as people move to take higher-paying jobs in more prosperous cities with better neighborhoods, further pushing down home values and starting the cycle over again.

Stopping this cycle has proved to be a difficult task. Researchers have proposed numerous solutions, and city officials in Dayton and around the country have tried many of them—sports stadiums, refurbished downtowns, tax incentives and abatements for businesses, and subsidized business parks—but as discussed earlier, they have been largely unsuccessful. Moreover, it has been difficult to duplicate the few success stories, which demonstrates the uniqueness of each city's problems, despite apparent similarities.

5. RECOMMENDATIONS AND PERMISSIONLESS INNOVATION

So what can Dayton do to once again become a thriving city? Research has shown that even in declining regions, new businesses are an important generator of employment growth.[128] But new businesses require entrepreneurs who are willing to take risks. Burdensome tax and regulatory policies stifle entrepreneurship and constrain Dayton's ability to compete in the global economy.

In two recent studies of state business climate indices, Jed Kolko and his coauthors and Georgeanne Artz and her coauthors find that indices that emphasize taxes and costs of doing business are able to predict economic growth, though not as much as industry composition or climate.[129] But, as they note, the latter (especially climate) are less amenable to policy, meaning that policymakers who reside in less-attractive areas should focus on improving their business climates if they want to foster economic growth.

128. Heike Delfmann and Sierdjan Koster, "The Effect of New Business Creation on Employment Growth in Regions Facing Population Decline," *Annals of Regional Science* 56, no. 1 (2016): 33–54.
129. Jed Kolko, David Neumark, and Marisol Cuellar Mejia, "What Do Business Climate Indexes Teach Us about State Policy and Economic Growth?," *Journal of Regional Science* 53, no. 2 (2013): 220–55; and Georgeanne M. Artz et al., "Do State Business Climate Indicators Explain Relative Economic Growth at State Borders?," *Journal of Regional Science* 56, no. 3 (2016): 395–419.

A. Taxes

This section reviews Dayton's tax climate. High marginal tax rates reduce the incentive to create value, and a complex tax code increases the cost of compliance, which, in turn, increases the cost of doing business. Individuals also face higher costs from complex tax codes since they must spend more of their time complying and less time doing things they enjoy.

At the state level, Ohio has eight income tax brackets and a top marginal rate of 4.99 percent that applies to incomes over $208,500.[130] Dayton's income tax rate is 2.25 percent, meaning that someone who earns more than $208,500 per year and works in Dayton would face a top marginal rate of 7.25 percent when combined with Ohio's top rate. Meanwhile, the four largest nearby cities of Kettering, Fairborn, Beavercreek, and Huber Heights have income tax rates of 1.75 percent, 1.5 percent, 0 percent, and 2.25 percent, respectively.[131] Only Huber Heights has a rate as high as Dayton's, which hurts Dayton's relative attractiveness as a place for doing business.

In addition to its relatively high income tax rate, Dayton also has a relatively high sales tax burden, though this rate is set at the county level. The state of Ohio has a 5.75 percent sales tax rate,[132] but Montgomery County also levies a 1 percent sales tax and a 0.5 percent transit tax, making the total sales tax burden in Dayton 7.25 percent. In adjacent Greene County, the rate is 6.75 percent, and in Hamilton County, where Cincinnati is located, the rate is 7 percent.[133] Higher sales taxes reduce consumers' purchasing power and, at the margin, induce consumers to purchase goods and services in nearby, lower-tax areas.

Property taxes are difficult to compare across cities due to the overlapping jurisdictions of school districts, cities, counties, and other special-purpose governments. In 2012, the *Dayton Daily News* compiled property tax data from 99 communities in four counties in Ohio and calculated the property tax burden as a percentage of median home value for these municipalities.[134] Dayton's

130. Nicole Kaeding, "State Individual Income Tax Rates and Brackets for 2016," *Tax Foundation*, February 8, 2016.
131. Ohio Department of Taxation, "Municipal Income Tax Rate Database Table," *ODT Online Services*, accessed September 8, 2017, https://thefinder.tax.ohio.gov/StreamlineSalesTaxWeb/Download/MuniRateTableInstructions.aspx.
132. Tax Foundation, "Taxes in Ohio," accessed September 8, 2017, https://taxfoundation.org/state/ohio/.
133. Ohio Department of Taxation, "Total State and Local Sales Tax Rates by County, 2016," *Ohio.gov*, http://www.taxohiotest.com/Portals/0/tax_analysis/tax_data_series/sales_and_use/salestaxmapcolor.pdf.
134. Joanne Huist Smith, "Snapshot of Property Taxes by County," *Dayton Daily News*, October 28, 2012.

property tax burden as a percentage of median home value was 2.16 percent, slightly lower than in Huber Heights (2.31 percent), Kettering (2.24 percent), and Beavercreek (2.17 percent).

In 2014, the average effective property tax rate in Montgomery County was 2.05 percent while adjacent Greene County's was 1.68 percent.[135] In addition to calculating these effective rates, the financial technology company SmartAsset also created an index to capture how efficiently a county spends the resultant property tax revenue. Out of the 88 Ohio counties, Montgomery County ranked 82nd while adjacent Greene County ranked 66th. This suggests that Montgomery County's officials could reduce property taxes in their municipalities without reducing the amount and quality of government services.

Overall, the taxes faced by Dayton's residents are relatively high compared with the surrounding communities, though part of this discrepancy is at the county level and thus outside of Dayton's immediate control. Dayton officials should continuously look for ways to reduce income tax and property tax rates in a way that does not undermine the city's ability to provide basic services. This means they should objectively review what they do and how they do it in order to find tasks that can be done more efficiently, which would allow them to reduce their taxes and increase their city's economic competitiveness.

A reduction in municipal tax rates is unlikely to affect the economy as significantly as a proportional reduction in state and federal tax rates would, since the former is relatively low compared to the latter. However, any improvements to the economic environment create an advantage for the struggling city, and Dayton officials must optimize the policies under their control.

"Evidence suggests that cities can gain a competitive edge by attracting risk-loving individuals who increase the probability of innovation occurring in the city."

135. "Ohio Property Tax Calculator," *SmartAsset*, accessed May 17, 2017, https://smartasset.com/taxes/ohio-property-tax-calculator.

B. Business Climate and Regulation

Urban areas that have an accepting attitude about risk tend to be more innovative.[136] Evidence suggests that cities can gain a competitive edge by attracting risk-loving individuals who increase the probability of innovation occurring in the city. One way for a city to attract high-skill entrepreneurs and foster innovation is to implement a policy of permissionless innovation. In his 2014 book, Adam Thierer writes that permissionless innovation "is the notion that experimentation with new technologies and business models should generally be permitted by default."[137] This is an alternative to current city regulatory regimes that rely on the precautionary principle. The precautionary principle is based on the idea that because some new products, services, or technologies may cause harm, the creators of these new things need to demonstrate that they are safe before they can be brought to market. Local regulations that follow the precautionary principle include occupational licensing, business licensing, liquor licensing, and many zoning laws. For example, Dayton's zoning ordinance is 460 pages long and includes prohibitions in a variety of areas, such as minimum lot sizes, the use of the property, the height and material composition of fencing, and the minimum and maximum heights for buildings.[138]

Technological innovation is increasing at a faster pace than ever before, but local regulations force innovative entrepreneurs to fit their new products and services into a regulatory system designed for a slower-paced industrial economy rather than the modern, faster-paced service and knowledge economy. Regulatory regimes based on the precautionary principle stifle innovation and entrepreneurship by limiting the trial-and-error process. New products and services will always have kinks that need to be worked out, but as Thierer says, "Trying to preemptively plan for every hypothetical worst-case scenario means that many of the best-case scenarios will never come about."

A citywide policy of permissionless innovation is a conspicuous sign of a city's positive attitude toward risk-taking and can help attract the risk-loving entrepreneurs cities need to be successful. Such a policy could help Dayton position itself as a place of innovation and drive long-term prosperity.

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136. Andrea Caragliu, Chiara F. Del Bo, Karima Kourtit, and Peter Nijkamp, "The Winner Takes It All: Forward-Looking Cities and Urban Innovation," *Annals of Regional Science* 56, no. 3 (2016): 617–45.

137. Adam Thierer, *Permissionless Innovation: The Continuing Case for Comprehensive Technological Freedom* (Arlington, VA: Mercatus Center at George Mason University, 2014).

138. City of Dayton, Department of Planning and Community Development, Ohio Zoning Code, Ordinance 30515-05 (August 1, 2006) (amended May 4, 2016 as ord. 31490-16), www.daytonohio.gov/DocumentCenter/View/550.

Earlier I pointed out that Dayton's actual climate is a disadvantage and that the city will have to compensate for its relatively poor weather by creating a much better business environment. Because Ohio has a very robust home-rule law, city officials in Dayton have more control over their local business environment than city officials in many other states.[139] This gives them an opportunity to create a laboratory of innovation. The physical and social infrastructure is already in place —roads, buildings, an airport, universities, parks, police protection, and property rights. What is missing are the innovative, high-skill entrepreneurs capable of utilizing this infrastructure to create new goods and services that satisfy the unmet desires of consumers. Potential entrepreneurs might already be in the area but may feel too discouraged by red tape and regulatory hurdles to take the risky step of starting or expanding a business.

Additionally, research shows that local entrepreneurs cluster together in neighborhoods within cities and that entrepreneurial behavior reinforces itself via social interactions.[140] People who see successful entrepreneurs enjoying what they do can be inspired to try it themselves. Witnessing entrepreneurial success also makes the process seem less daunting, and successful entrepreneurs provide a potential source of guidance and advice for those just starting out. Over time, neighborhoods with a relatively high concentration of entrepreneurs can foster additional entrepreneurs, and this effect may spill over into nearby neighborhoods. The crucial task for policymakers is to create an environment that enables this process to occur.

Measuring the net effect of regulation on economic activity at any level of government is difficult, but it is an especially challenging task at the state and local level due to the number of jurisdictions and the paucity of available data. However, there have been efforts to do so, and the measures are continuously improving. One recent study by the Pacific Research Institute ranked the 50 states according to their small business regulatory burden.[141] The ranking consisted of 14 components that impact small businesses, including workers' compensation insurance, occupational licensing requirements, minimum wage

139. Ohio is ranked 11 out of 49 states in discretionary authority assigned to cities. Jesse J. Richardson, Meghan Zimmerman Gough, and Robert Puentes, *Is Home Rule the Answer? Clarifying the Influence of Dillon's Rule on Growth Management* (Washington, DC: Center on Urban and Metropolitan Policy, Brookings Institution, 2003).
140. Martin Andersson and Johan P. Larsson, "Local Entrepreneurship Clusters in Cities," *Journal of Economic Geography* 16, no. 1 (2014).
141. Wayne Winegarden, *The 50-State Small Business Regulation Index* (San Francisco: Pacific Research Institute, 2015).

laws, right-to-work laws, and land use regulations, among others. Though this is a state-based ranking, it still has implications for Dayton.

Ohio was ranked 27th, just in front of Michigan and behind Kentucky. Indiana, Ohio's neighbor to the west, was ranked 1st. To the extent that this ranking is accurate, it puts Ohio cities—especially those close to Indiana, such as Dayton—at a disadvantage. In fact, Richmond, Indiana, is only 49 miles from Dayton. The proximity of the two cities means that they have similar climates and geographic features, but Richmond is in a state that provides a better business environment. Local officials should pressure Ohio's state officials to remove the barriers and restrictions that prevent them from effectively competing with nearby out-of-state cities.

At a more granular level, the consumer service website Thumbtack has conducted a small-business-friendliness survey since 2012.[142] The 2015 results were based on the responses of nearly 18,000 small business owners from around the country. This survey grades states and MSAs in 10 different categories, such as ease of starting a business, ease of hiring, regulations, zoning, and the tax code. Dayton received an overall grade of A-minus in 2014 and B-minus in 2015. It ranked poorly on ease of hiring and environmental regulations in both years and also fared poorly on health and safety regulations in 2015. As for the other large Ohio cities, Columbus received an A-minus in 2015, Akron a B, Cincinnati a B-minus, and Cleveland a C-plus.

Survey data are not a perfect measure of a city's regulatory burden, but they do reveal something about how small business owners view the burden in their city. This is important since perception can affect reality. As noted previously, aspiring entrepreneurs often look to established entrepreneurs for guidance, and if current small business owners think operating a business is hard, they may discourage others who ask them for advice. The survey results from Thumbtack reveal that there is room for improvement in Dayton.

In the long run, Dayton, or any other city, should not hinge its hopes on large, footloose companies to serve as employment anchors. If a company can be attracted by a tax incentive package, it is also likely to leave when the incentives end. Dayton needs local entrepreneurs to plant a thousand seeds and then hope that some take root.

The Dayton area is home to two research universities and a large community college. Dayton officials need to implement policies that improve the city's

142. Lucas Puente, "Small Business Friendliness Survey," *Thumbtack*, June 2015, https://www.thumbtack.com/survey#/2015/1/states.

chances of retaining the graduates of these schools in order to increase the average skill level of its workforce. If Dayton is going to successfully compete with larger cities that boast more amenities, better weather, a higher-skilled workforce, or any combination thereof, then it must do a better job of retaining the top talent from the area: Dayton needs a new John Patterson and Charles Kettering.

Homegrown entrepreneurs and high-skill workers who have social and familial ties to the area are less likely to migrate to another city. And if they do migrate at a relatively young age, they are more inclined to return upon attaining success. For example, economist Enrico Moretti reports in his book, *The New Geography of Jobs*, that Bill Gates and Paul Allen decided to return to Seattle from Albuquerque, New Mexico, after launching Microsoft because they were originally from the Seattle area.[143]

CONCLUSION

Since its prime in the early 1900s, Dayton has become an economically stagnant city. An early effort to create an efficient, business-like government was initially successful and positioned Dayton to be a midwestern economic success. Eventually the relative benefits of that government waned and it no longer provided the advantage it once did. The economic success of this period encouraged poorer, less educated southern migrants to move to Dayton, and this largely black in-migration coupled with national policies restricting home sales to blacks to one side of the city resulted in a high level of racial segregation. The subsequent departure of relatively educated whites to the suburbs—facilitated by the construction of highways I-75 and I-675—diminished the human capital of Dayton's workforce. The resulting lack of innovation led Dayton to rely on a handful of historically large firms in declining industries to provide employment opportunities. As global economic competition intensified, these firms declined, went out of business, or relocated to more advantageous areas. Today, Dayton's taxes are high relative to nearby cities, and its workforce is relatively unskilled; both factors are contributing to the city's slow recovery from the 2007 recession.

Dayton used to be one of the most innovative cities in the country. If Dayton is going to have a shot at future economic success, it needs to once again fulfill the economic role of a city: a place of specialization and innovation.

A city's success relies on home-grown businesses with ties to the community, not footloose companies attracted by tax breaks. And if home-grown

143. Enrico Moretti, *The New Geography of Jobs* (Boston: Houghton Mifflin Harcourt, 2012).

companies do leave, there needs to be a culture of innovation in place that is comfortable replacing and replenishing rather than holding onto the past.

A regulatory environment based on permissionless innovation would help Dayton become a friendlier place for entrepreneurs and help it reclaim its status as an innovative city. This is an important step in fostering economic growth at the local level since, as economist Edward Glaeser has stated, "Private entrepreneurs, not public officials, power urban economies."[144]

144. Edward L. Glaeser, "A New Urban Opportunity Agenda," *City Journal* (Autumn 2015), http://www.city-journal.org/2015/25_4_urban-opportunity.html.

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