PERSPECTIVES on Economic Development Incentives and Economic Growth in WICHITA

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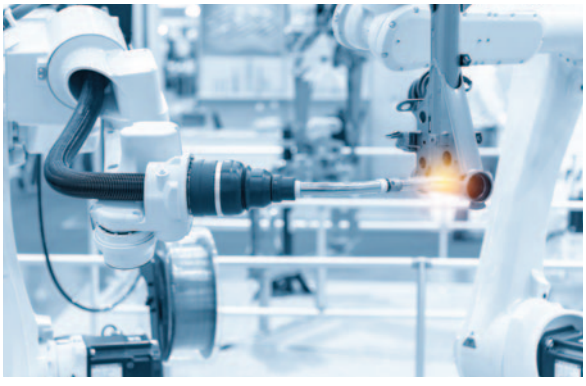

KANSAS POLICY INSTITUTE

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TABLE OF CONTENTS

CHARTS, TABLES & EXHIBITS

INTRODUCTION

Wichita, Kansas, achieved what few regional economies achieve: a genuine industrial identity. In 1928, Wichita began promoting itself as the "Air Capital of the World."[1] Wichita became known for the production of aircraft in the same way that Detroit became known for the production of automobiles, Hollywood became known for the production of movies, and Silicon Valley became known for the production of information technology.

In the parlance of regional economic development, Wichita developed an industry "cluster." Economist Michael E. Porter of Harvard University coined the term "cluster" to give modern-day currency to a general idea that economists had understood for at least a century. Porter describes clusters as "geographically close groups of interconnected companies and associated institutions in a particular field, linked by common technologies and skills."[2] Clusters – as a form of economic specialization – can drive the competitive advantage of regional economies. However, true clusters, those worthy of the name, evolve naturally through market processes; attempts to create them through proactive planning process rarely succeed.[3]

In 2001, Porter, in association with the Council on Competitiveness, as part of a nationwide program known as the Clusters of Innovation Initiative, published an in-depth study of the Wichita economy.[4] One might argue that the Porter report inspired the creation of Wichita's modern-day economic development strategic planning process. In 2004, civic leaders in Wichita initiated the Visioneering Wichita project, which embarked on "a citizen-driven process to identify the future" Wichitans wanted to build.[5] Visioneering Wichita preceded what is now called Project Wichita.

Porter's assessment of the Wichita economy nicely captured the broad structural contours of the Wichita economy which remain relevant two decades later. Porter said: "Wichita has experienced fairly steady economic prosperity during the last 80 years. Wichita lays claim to early innovative entrepreneurs, most markedly in aerospace vehicles and defense, whose innovations contributed to the region's present broad-based manufacturing capacity and prosperity. The U.S. government's need for military aircraft fostered the burgeoning aerospace vehicles and defense cluster. Early Wichita innovations extended to other areas including plastics, machinery, and franchised restaurants. But Wichita's economic prosperity is challenged."[6]

Porter diagnosed Wichita's challenged future based on his assessment that established "companies are not innovating at a high rate due to weak innovative capacity. Entrepreneurial firms lack the necessary support to start their new businesses." Perhaps, but the particulars of that assessment seem dubious. A more convincing way to make the same argument would add an important qualification. These firms – along with other innovators, entrepreneurs, and investors – do not necessarily consider the regional economy of Wichita to be the most promising place to implement their strategic initiatives and deploy their venture capital.

The reason for such a perspective relates to fundamental forces of economic geography and the evolving nature of business value creation. Wichita's commercial history has collided with (1) expanding global supply chains and (2) U.S. regional economic dynamics in which city size itself seems to have become a determinant of economic growth. Wichita is a relatively small, geographically isolated city with an economy dominated by manufacturing activity – aircraft manufacturing activity, in particular. Manufacturing remains an engine of productivity and value creation, but manufacturing is often a highly cyclical enterprise.[7]

Wichitans understand this perspective. Discussions about it often arise during the strategic planning initiatives characterized by Project Wichita. The core challenge relates to escaping an economic history derived from a process known as path dependence – a lock-in effect that persists in regional economic patterns because of past events that tend to reinforce themselves over time. In Wichita, this could mean being locked-in as the "Air Capital," come what may – or, more generally, a lock-in related to the manufacturing competencies developed over many decades.

The past two decades of weak economic performance in the Wichita metro area can be considered yet another chapter in a familiar story – a story nicely summarized in *Wichita's Legacy of Flight*, a book commemorating a century of aviation in Wichita: "Wichita had some tumultuous times during the first century of flight. The roller-coaster aircraft industry – slave to the whims of military and commercial airline contracts as well as fickle business aircraft customers – caused a similar roller-coaster in Wichita's economy. When the industry boomed, so did the city. When the industry lagged, Wichita's unemployment jumped, causing scores of workers and their families to leave Wichita for better opportunities."[8]

In brief, the preponderance of the evidence presented in this report suggests what Wichitans already know: the 2001 and 2008 recessions had an adverse impact on aircraft manufacturing activity in the city. Such negative impacts have happened before in the aircraft industry, and Wichita has recovered.

The question is: will Wichita recover again? As this report went to press, the 2020 coronavirus pandemic continued to negatively shock economies around the world, dramatically diminished air travel, and awakened people to the high-quality capability of modern video-conferencing technology.[9] In addition, many world leaders intend to hold the Chinese Communist Party responsible for

unleashing the pandemic. The political backlash against China may remake global supply chains, potentially shifting significant volumes of manufacturing capability to U.S. soil.[10] Both of these mega-trends – widespread video conferencing and the increase of manufacturing capacity on U.S. soil – have the potential to influence the future demand for air travel (and, therefore, aircraft) and the general direction of Wichita's manufacturing-centric economy.

This report emphasizes the importance of past and future mega-trends in the shaping of the Wichita economy because well-intentioned, citizen-led efforts like Project Wichita have the potential to underestimate the complexity and uncertainty associated with the process of economic development. As argued – and demonstrated – throughout the report, a market-driven trial-and-error process defines patterns of regional economic growth. An underappreciation of this fact can lead to an over-simplified perspective of the causal elements of economic growth – and, consequently, the potential for a misallocation of scarce resources on well-intentioned projects that have a low probability of achieving the goal of economic growth.

The 2018 Project Wichita report offers many thoughtful community-building ideas. The part of the report most connected to the information in this report relates to the Economic Prosperity Action Plan, which has two general components: (1) business and job growth combined with efforts to "strengthen the regional entrepreneurship ecosystem" and (2) enhance tourism driven by modernized amenities in downtown Wichita.[11] Component (1) primarily leverages an earlier effort known as the Blueprint for Regional Economic Growth,[12] which essentially continued the 2001 Michael Porter Clusters of Innovation work referenced previously. Component (2), as discussed next, relates to the long-running effort to redevelop downtown Wichita through the application of economic development incentives, typically with the goal of fostering tourism in the city.

A Perspective on Intra-City Patterns of Economic Growth

The redevelopment of downtown Wichita has been a persistent theme for many years. Wichita's motivations for downtown redevelopment mirror those of many small and midsize cities: "Downtowns are more than retail, commercial, service, and work centers. They are the symbolic centers of cities and are unifying forces for their communities. These are the reasons cities across the country are committing resources, both financial and human, to bring them back to economic health."[13]

The American Planning Association – a trade group supporting and advocating the activities of urban planners – drafted that uplifting sentiment about downtowns for a 2018 report on downtown redevelopment efforts across the nation. The Association also included this important statement in its report: "Assessing the impact of downtown revitalization programs and projects is the most underdeveloped aspect of the downtown revitalization process. Few cities regularly monitor and report the outcomes of their plans, and even fewer provide comprehensive evaluations of plan outcomes."[14]

The author, working with the Kansas Policy Institute over the years, has first-hand knowledge of this deficiency in the monitoring and measurement of economic development programs. Many attempts to gather specific data for an accurate evaluation of economic development programs in Wichita – and the economic development incentives that go with them – have failed, because the information does not exist or would not be released. Instead of relying

CHART 1A: Zip Code Map of Wichita, KS, and Quadrants Used for Analysis

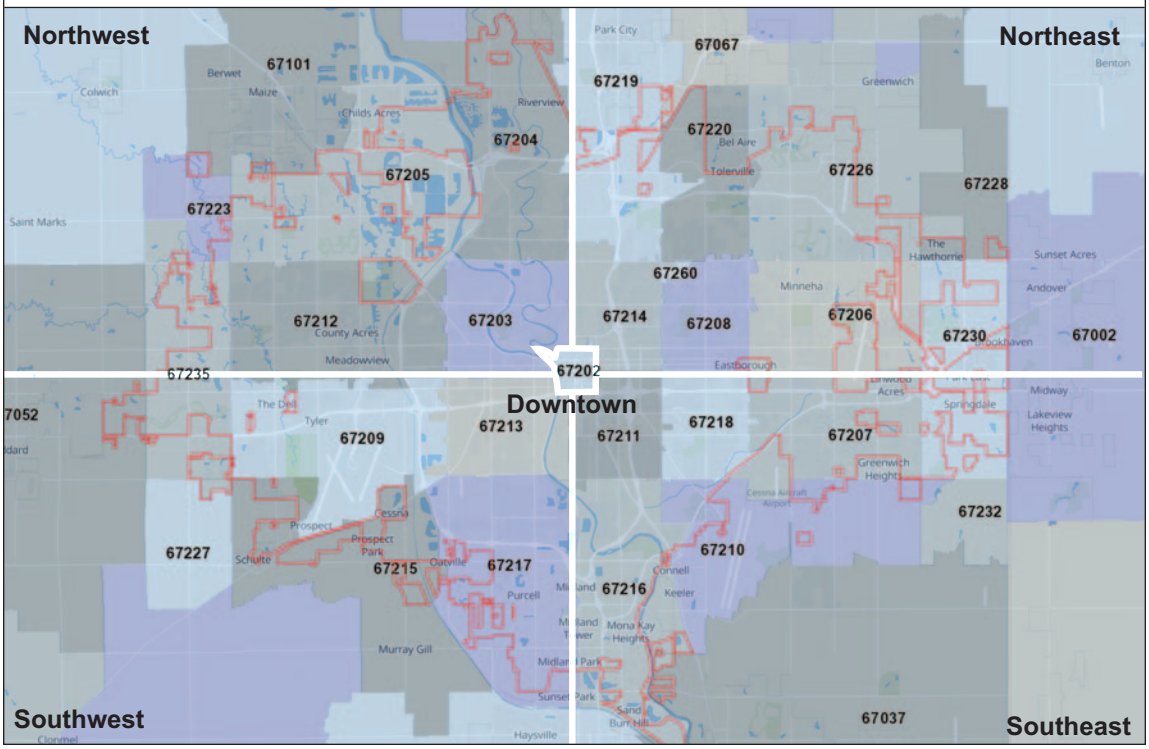


CHART 1B:
Count of Business Establishments by Zip Codes, 1994-2017

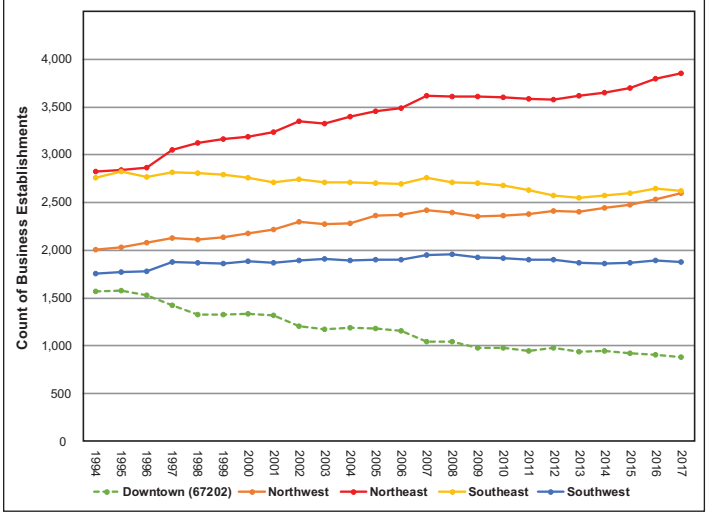


CHART 1C:
Job Count by Zip Codes, 1994-2017

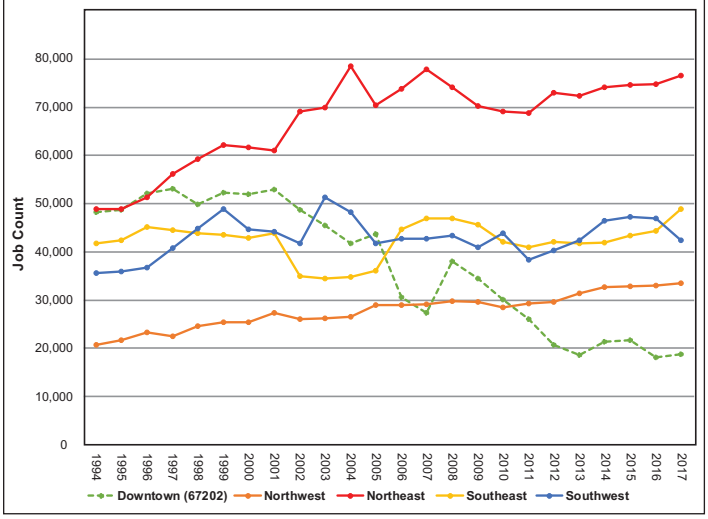
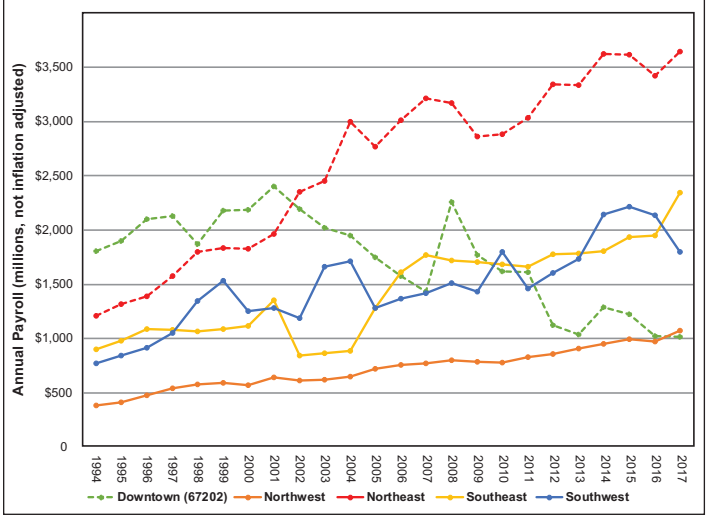


CHART 1D:
Annual Payroll by Zip Codes, 1994-2017



on specific data from the City of Wichita or Sedgwick County, the analysis presented in this report results from the gathering of data from alternative sources that can help evaluate the overall impact of select economic development programs in Wichita.

To set a context for the evaluation, this section examines broad geographic patterns of business and employment growth within the City of Wichita from 1994 through 2017, the time period of available data from the U.S. Census Bureau. The charts in this section document what most Wichitans already know: The natural flow of economic development in Wichita over the past two decades has been away from downtown and toward the Northeast quadrant of Wichita, and, to a much lesser extent, the Northwest quadrant. This trend is clear across all relevant metrics: business count, job count, and payroll tally.

Chart 1A illustrates the zip codes used to create the geographic definitions used for analysis. Zip code 67202 defines the geography of "downtown" Wichita. The other zip codes on the map define the four different quadrants of the city.

Chart 1B illustrates a simple count of business establishments. Chart 1C illustrates a count of jobs. Chart 1D illustrates a tally of payroll (in millions of dollars). These data, compiled by the U.S. Census Bureau, reflect data from business establishments with more than one employee. This fact is important because single-employee businesses may count for a significant share of jobs and businesses in the City of Wichita, and the Census data for zip codes do not include these jobs and businesses. For example, data for the greater Wichita metro area, compiled by the U.S. Bureau of Economic Analysis, does account for single-employee businesses; many of these businesses are categorized as: non-farm self-employment businesses. From 1994 to 2017, the same time frame corresponding to the Census data, non-farm self-employment businesses account for about half of the total job growth in the Wichita metro area (see, and compare, Chart 7A and Chart 7B). Presumably, a similar pattern holds for the city of Wichita, given its statistical prominence in the greater metro area. (The Wichita Metropolitan Statistical Area is defined as the counties of: Butler, Harvey, Sedgwick, and Sumner.)

Table 1 summarizes the growth shown in Chart 1B, Chart 1C, and Chart 1D. Comparing 2017 with 1994, the total number of business establishments increased by 905; total job count increased by 24,811; and total payroll (not adjusted for inflation) increased by $4.8 billion. The metrics

TABLE 1: Growth in Select Metrics by Geographic Area: 2017 Compared to 1994

Area	Businesses	Jobs	Payroll (millions)
Downtown	(682)	(29,456)	$(789)
Northwest	583	12,772	692
Northeast	1,028	27,715	2,435
Southeast	(142)	7,036	1,449
Southwest	118	6,744	1,031
Totals	**905**	**24,811**	**4,818**

listed by geographic area report how each area contributed – positively or negatively – to the totals.

Aside from the general geographic patterns, it is difficult to make meaningful positive statements about the drivers of economic growth in the City of Wichita. Many different businesses, across many different industry sectors, contribute. As explained in more detail below, the normal patterns of business dynamism continually redefine the details of commercial activity in the city.

Table 2 provides some summary information related to select features of each geographic region, much of which is well known. Note the average number of business births and deaths each year; this turnover reflects a key part of the trial-and-error process associated with economic growth. Also note the substantial diversity of different types of businesses that already exist in the City of Wichita – one of the metrics identified as important by Project Wichita. It is difficult to imagine what steps in the economic development planning process could further expand this diversity in the naturally occurring context of continual business births and business deaths.

TABLE 2:
Select Business Statistics Related to Wichita Geography

Top-Five Private Industry Sectors for Jobs by Area	Ave. No. of Annual Business BIRTHS, 1990-2015	Ave. No. of Annual Business DEATHS, 1990-2015	Diversity of Business Types, 2015 (Unique 8-Digit Ind. Codes)
Downtown	148	144	621
Legal Services			
Eating & Drinking Places			
Management & Public Relations			
Miscellaneous Business Services			
Ins. Agents, Brokers, & Service			
Northwest	581	417	1,519
Eating & Drinking Places			
Offices & Clinics of Med. Doctors			
Individual & Family Services			
Aircraft & Parts			
Management & Public Relations			
Northeast	800	587	1,870
Eating & Drinking Places			
Miscellaneous Business Services			
Offices & Clinics of Med. Doctors, Hospitals			
Management & Public Relations			
Hotels & Motels			
Southeast	466	394	1,334
Eating & Drinking Places			
Miscellaneous Business Services			
Department Stores			
New & Used Car Dealers			
Offices & Clinics of Med. Doctors			
Southwest	374	301	1,261
Agricultural Chemicals			
Misc. Primary Metal Products			
Nursing & Personal Care Facilities			
Services to Buildings			
Commercial Printing			

Source: National Establishment Time-Series Database; author's calculations

A Perspective on Economic Development Incentives

The dominant business trends related to the decline of downtown Wichita and the ascension of Northeast Wichita help to set a context for evaluating the effectiveness of government planning-related economic development incentives. The City of Wichita, like municipalities across the country, uses a variety of tools to aid favored economic development projects.[15] This section of the report will evaluate a tool known as sales tax revenue (STAR) bonds, because this tool uses a state-government economic development incentive program to leverage other local-government incentive programs. Wichita has used sales tax revenue (STAR) bonds in an effort to drive economic development in two locations: (1) downtown and (2) the intersection of K-96 and Greenwich Road (in the already growing Northeast quadrant of the city).

In brief, STAR bonds work by issuing public debt to help finance approved projects. The state and local governments in Kansas use STAR bonds as an economic development tool to finance specific types of projects – by statute, projects associated with "a historic theater, major tourism area, major motorsports complex, auto race track facility, river walk canal facility, major multi-sport athletic complex, or a major commercial entertainment and tourism area."[16] The Kansas Secretary of Commerce must approve all STAR bond projects.

The Kansas Legislature enacted the STAR Bond Financing Act in 2007 (and revised certain portions of the Act in 2016). However, the use of STAR bonds in Wyandotte County pre-dated the 2007 Act. The state government and the Unified Government of Wyandotte County used STAR bonds in 1999 to build the Kansas Speedway and Village West tourism district (and several subsequent expansions to that project).

Both Wichita STAR bond projects conform to the statute's stipulated list of allowable projects. The downtown Wichita project uses a "river walk canal facility" as its organizing principle. The K-96 and Greenwich project uses a "major multi-sport athletic complex" as its organizing principle.

The discussion that follows will evaluate both STAR bond projects. To anticipate the key take-aways, the discussion will argue that (1) the downtown project has had no measurable effect on the persistent decline of business and job growth in downtown Wichita and (2) the K-96 and Greenwich project – as a greenfield development – demonstrates obvious growth, but the measured growth would have happened anyway (it just may not have been anchored by government-subsidized sports facilities).

The analysis that drives these arguments relies on the address-specific job counts available from a unique database known as the National Establishment Time-Series

Database (NETS).[17] It allows researchers to identify the business-reported job counts of specific businesses at specific addresses. This capability allowed the author to use the addresses specified by the Kansas Department of Revenue for each of Wichita's two Wichita STAR bond districts to query the NETS database for job-count (along with the job-count within the larger zip code areas associated with the districts).

■ Wichita Riverwalk STAR Bond District

The Wichita Riverwalk District has progressed in two phases. In October 2005, the City of Wichita officially created a redevelopment district to modernize a downtown area along the Arkansas River. The Kansas Secretary of Commerce authorized the district to become a STAR Bond financing district in October 2007.[18] This authorization constituted phase one. In October 2013, the City passed an ordinance to create a second River District project. The Kansas Secretary of Commerce authorized this second phase as a STAR bond financing district on January 22, 2014.

According to the City of Wichita's 2013 STAR Bond Annual Report:

> The City of Wichita and the State of Kansas developed a unique approach to the use of STAR resources for the [phase one] River District project. Because of this project's unique characteristics, particularly since the district did not begin as a "greenfield," but already contained a number of thriving businesses, it was possible to more efficiently use the STAR resources in essentially a "pay-as-you-go" manner.

As a practical matter, the pay-as-you-go agreement allowed Wichita to use the money earmarked to repay STAR bonds without having to issue any bonds. The State made these reimbursements in stages from the sales taxes set aside in escrow beginning in November 2007.[19] The Secretary of Commerce authorized up to $13 million in reimbursements for Phase One, but the city only used $11.9 million. To help finance Phase Two, Wichita issued $4.8 million in STAR bonds in 2015 (which it repaid by year-end 2016).[20]

Phase One of the Riverwalk District project included:

- the Keeper of the Plains sculpture, plaza, and pedestrian bridge project;
- the East Riverbank Redevelopment project adjacent to the Broadview Hotel; and
- the WaterWalk fountain and public plaza area (including riverbank amenities).

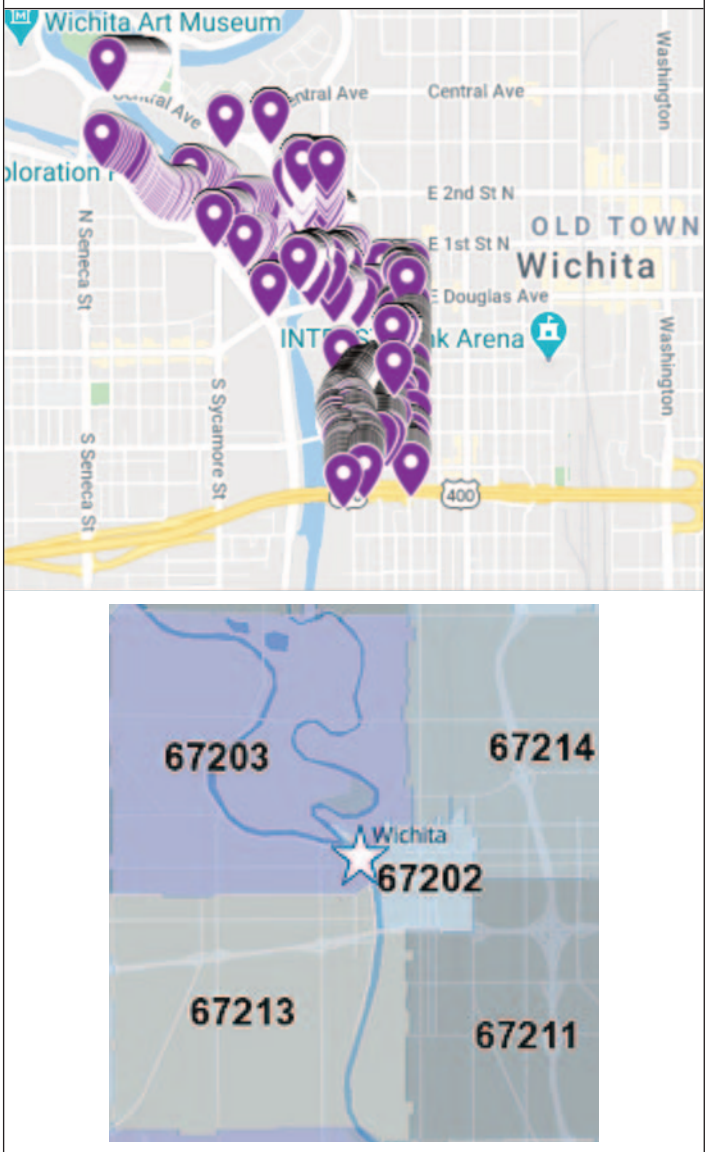
Phase Two of the Riverwalk District project included:

- improvements to the west bank of the Arkansas River;
- apartments complexes;
- boat and bike rental facilities and storage for rowing shells; and
- improvements to Delano Park, a 0.6 acre park adjacent to the apartments.

In 2016, the City of Wichita expanded the Riverwalk District project in order to renovate and modernize Lawrence-Dumont Stadium, redevelop the area around the Stadium, and build a new library.[21] This report does not explicitly include analysis of this most recent expansion of the Wichita Riverwalk STAR bond district, because it is too new and data is not yet available.

Exhibit 1 shows two maps. The top map illustrates a sample of the business locations specified by the Kansas Department of Revenue for sales-tax diversion to STAR

EXHIBIT 1: Maps of Riverwalk STAR Bond District and Select Zip Code Boundaries, Wichita, KS



Sources: Kansas Department of Revenue; Google Maps; unitedstateszipcodes.org; author's calculations

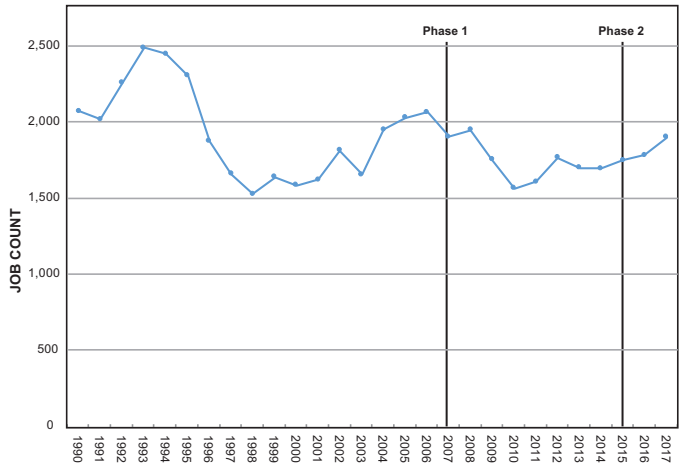
Note: The expanded STAR bond district associated with rebuilding the stadium generally encompasses the areas north of U.S. 400 between South Sycamore Street and the river.

Bond servicing. The bottom map illustrates the location of the STAR Bond District – white star image – in juxtaposition to the zip codes used for comparison purposes in certain charts that appear below.

Charts 2A and 2B illustrate job growth trends in the Riverwalk district and select zip codes, as described. Chart 2A illustrates specific job counts within the Riverwalk district. Chart 2B shows the relative growth trends among employment defined by the Riverwalk district, Zip Code 67202, and the combined zip codes of 67202 and 67203.

Chart 2A shows a decline in district employment during the 1990-1991 recession; followed by an increase until 1993; and then a consistent decline until 1998. A rebound followed the decline up until 2006, the year after Wichita developed a downtown redevelopment district. As discussed on page 6, Wichita received authorization to use the STAR bond program beginning in 2007; unfortunately, the Great Recession began in December of 2007, which is reflected by the jobs decline from 2008 through 2010. A rebound trend began in 2011 and continued through the last available data point of 2017.

CHART 2A:
Job Count in the Riverwalk STAR Bond District, 1990-2017



Sources: National Establishment Time Series Database; Bureau of Labor Statistics; author's calculations.

CHART 2B: Relative Job Growth: Riverwalk STAR Bond District vs. Zip Codes 67202 and 67202 + 67203, 1990-2017

Sources: National Establishment Time Series Database; Bureau of Labor Statistics; author's calculations.

Chart 2B is designed to show how the Riverwalk district relates to the larger economic area – in order to evaluate the degree to which the district is creating net new jobs or merely rearranging jobs within a larger geographic area. On average, the district amounts to about 7.5 percent of the job count in the zip code of 67202 and about 4.7 percent of the combined job counts of zip codes 67202 and 67203.

Consistent with Chart 1C, zip codes close to downtown Wichita illustrate persistent decline in job counts, except for an increase from 2000 to 2002.

To gauge the relative magnitudes, as it relates to the trend lines in Chart 2B, note the spike at year 2002. For the district, that spike represents an increase of 190 jobs, but it represents an increase of 2,781 jobs in zip code 67202. For zip codes 67202 and 67203 combined, the spike represents an increase of 2,682 jobs, which is lower than the job count of 67202 alone because zip code 67203 lost 99 jobs. With that reference related to relative magnitude, the increasing trend in jobs in the district beginning in 2014 had virtually zero influence on overall job change in the larger zip code areas. The best one could argue is that the increase of 117 jobs in the district in the year 2017 offset the job decline of 122 in the combined zip codes; however, we have no way of knowing if that job accounting is the influence of the district or just random chance (since the combined zip codes added 539 jobs in 2016, compared to 35 jobs for the district).

(The author has conducted a similar analysis of the Manhattan, Kansas, STAR bond district. It, too, indicates that the STAR bond project merely rearranged the pattern of economic development. It did not generate net-new economic growth.[22])

■ Wichita K-96/Greenwich Rd. STAR Bond District

The City of Wichita adopted plans for a STAR bond district around the intersection of K-96 and Greenwich Road. The Kansas Secretary of Commerce authorized phase one in June 2013 and phase two in April 2017. The City issued $36.3 million in STAR Bonds in December 2013 to help finance phase one and $33.2 million in STAR Bonds in August 2017 to help finance phase two. (The August 2017 bond issue actually amounted to $71.3 million, because the City borrowed enough to refinance the 2013 bond issue, as well as fund phase two.)[23]

Key amenities in phase one:

- Wichita Sports Forum – an indoor facility designed to host local, regional, and national competitions in basketball, volleyball, cheer, softball, baseball, football, and dodgeball.
- A 20,000 square-foot Extreme Air Sport Trampoline Park.
- A hotel adjacent to the Wichita Sports Forum.
- A national retail store and multi-tenant retail center.

Key amenities in phase two:

- Stryker Sports Complex, a destination sports facility.
- DRIV Gold Lounge & Brewhouse, an interactive golf and entertainment experience similar to Top Golf.

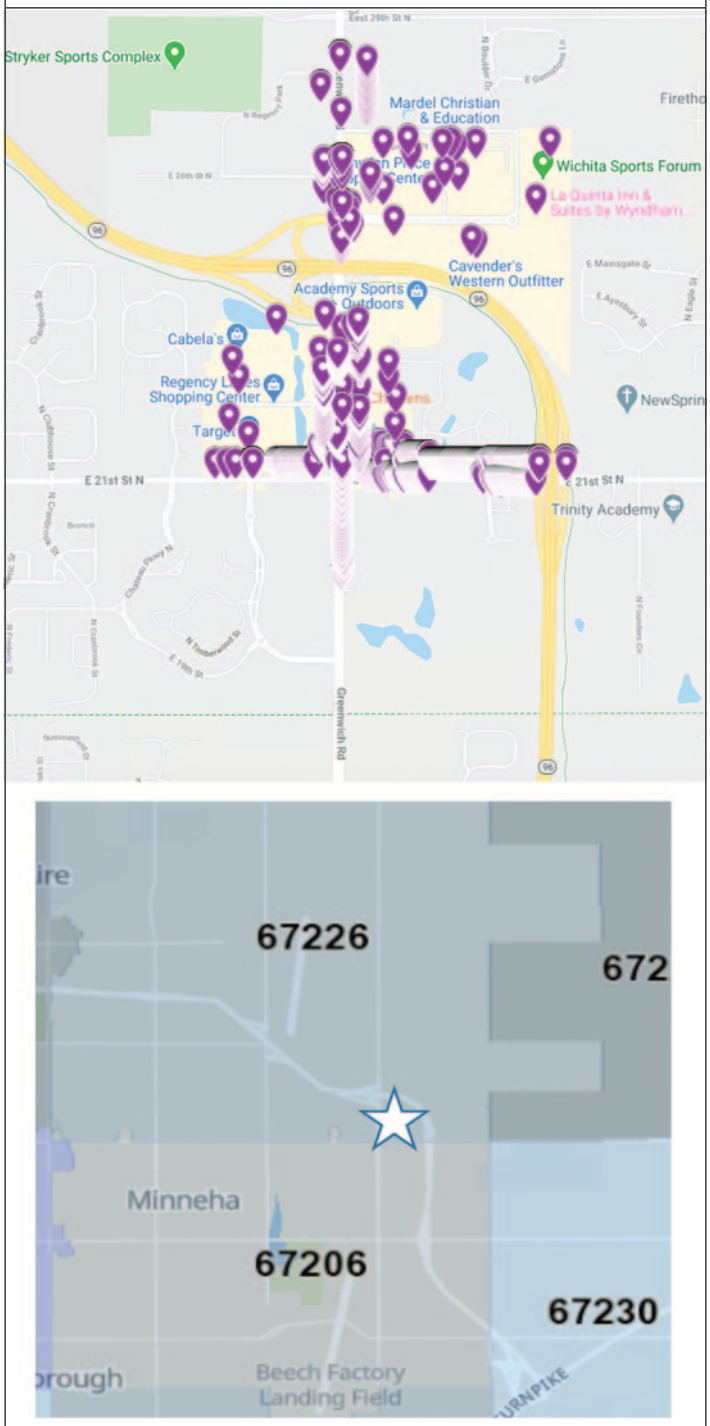
From a data availability perspective, the K-96/Greenwich STAR Bond District had only four full years of operating history, which constrained the economic analysis. The District could be characterized as primarily a green-field development, but the area of Greenwich Road to the south of the District has developed steadily over the past 1.5 decades.

Exhibit 2 shows two maps. The top map illustrates a sample of the business locations specified by the Kansas Department of Revenue for sales-tax diversion to K-96 STAR bond servicing. The bottom map illustrates the location of the K-96 STAR bond district – white star image – in juxtaposition to the zip codes used for comparison purposes in certain charts that appear below.

Chart 3A illustrates the trend in job count at the addresses specified by the Kansas Department of Revenue for the K-96/Greenwich STAR bond district. As the chart shows, the intersection defined by the district began to develop 10 years before Phase One of the project. The implementation of the project resulted in a clear increase of job counts in 2016 and 2017 (the year Phase Two started).

Granted, supporters of the STAR bond district can argue in good faith that a mini sports mecca offers an amenity that may not have materialized without active government planning. However, for citizens not necessarily sympathetic to that perspective, Chart 3B attempts to place the job count numbers in the STAR bond district into a larger perspective. That perspective asks: would the area of K-96 and Greenwich Road have developed without the taxpayer-financed incentives?

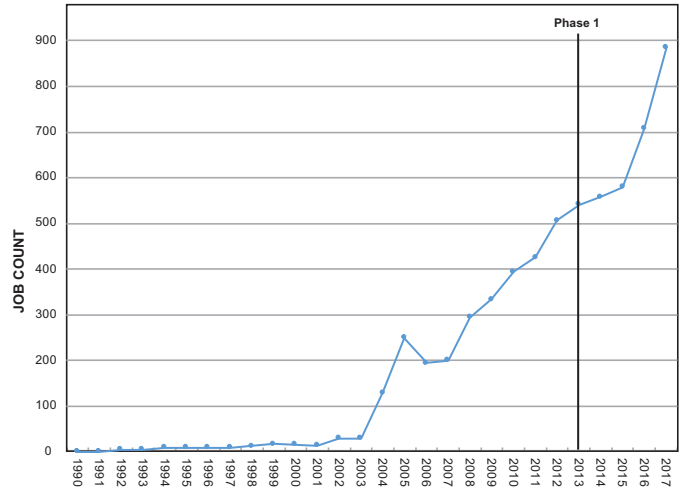
EXHIBIT 2: Maps of STAR Bond District and Select Zip Code Boundaries, Wichita, KS



Sources: Kansas Department of Revenue; Google Maps; unitedstateszipcodes.org; author's calculations

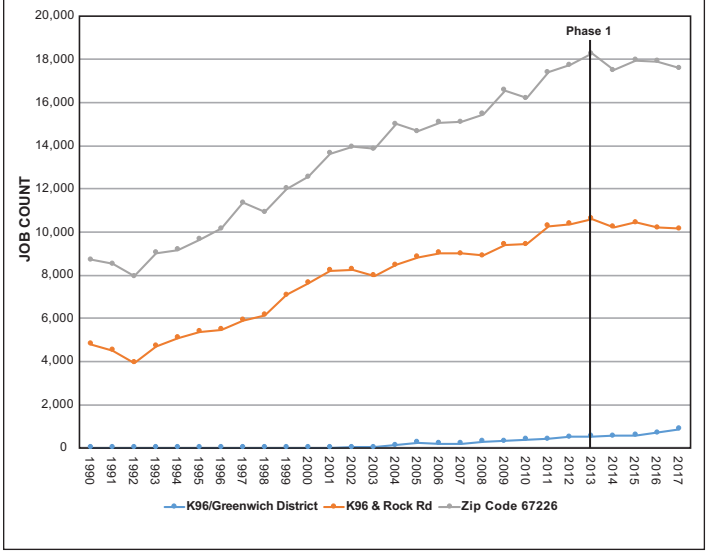
The trends in job count illustrated in Chart 3A already suggest that the answer is "yes." For comparison, Chart 3B illustrates the job count for the area surrounding the intersections of K-96 and Rock Road. Specifically, the job count derives from the businesses that have addresses along or within the location bounded by: 29th Street, Rock Road, 37th Street, and Webb Road. To the best of

CHART 3A: Job Count in the K-96/Greenwich STAR Bond District, 1990-2017



Sources: National Establishment Time Series Database; Bureau of Labor Statistics; author's calculations.

CHART 3B: Job Count: K-96/Greenwich STAR Bond District, K-96 & Rock Rd, and Zip Code 67226, 1990-2017



the author's knowledge, this area developed organically, without the use of any taxpayer-financed economic development incentives.

Chart 3B also shows the job count in zip code 67226, which is the primary zip code in which the K-96/Greenwich STAR bond district resides. The trend in job growth for zip code 67226 and the designated geography around Rock Road track with each other. The leveling off of growth in 2013 for the zip code and Rock Road seem coincidental to the relative increase in job count for the initiation of Phase One of the STAR bond district, because zip code 67226 regularly experienced job-related commercial activity with annual fluctuations that exceed the job gains reported for the district.

To summarize, and to reiterate, two prominent government-incentivized economic development projects do not show evidence of promoting net-new economic growth. At best, the projects redirected or redefined growth that would have happened without the subsidized intervention into the natural flow of commerce within the City of Wichita. The discussions which follow explain the drivers of authentic economic growth – and why the trial-and-error nature of the process makes it highly improbable for proactive government intervention in the process to make a meaningful impact.

A Perspective on Population Growth

A long-run perspective on population growth has a keen relevance for understanding – and comparing – current-day regional economies. An interesting fact about regional population growth is its tendency to be persistent. Significantly different growth rates among localities tend to sustain themselves. Localities that experience strong population growth in one decade tend to have strong growth in subsequent decades.[24]

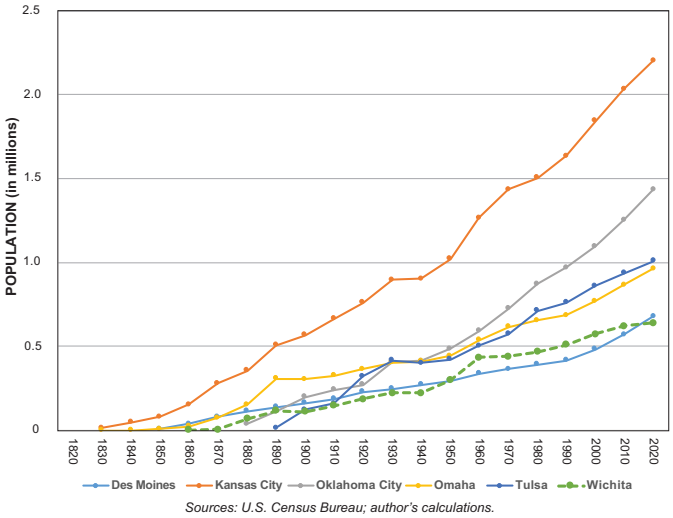
Academic economists continue to debate the reasons for persistence in regional population growth trends. In brief, the dominant explanations relate to "frictions" – relocation costs – associated with the movement of people and capital investments from one location to another. Even small relocation costs can drive estimates of persistence in population growth rates. An economist at the Federal Reserve Bank of Kansas City summarized his research by noting that "small changes to local productivity or to local quality of life, even very small frictions to labor and capital mobility, suffice to cause highly persistent population flows."[25] Similarly, but more pointedly, economists at the Federal Reserve Bank of Chicago found that the costly business processes of finding and then relocating employees account for the phenomenon of persistence in population growth – or, as they phrase the matter in academic-speak: "the process of attracting workers to cities through costly directed search is the prime determinant of slow population adjustments to [productivity] shocks."[26]

As with the above two references, economic researchers typically use "economic shocks" to evaluate persistence in population growth among cities. Such shocks can be positive or negative and can relate to changes in business conditions or to changes in quality-of-life variables.

Economic shocks help tell the story of economic growth in Wichita. The theme of persistence punctuated by economic shocks offers a general way to read Chart 4A and Chart 4B. Chart 4A illustrates long-run population trends for Wichita and five other select Metropolitan Statistical Areas:[27] Des Moines, Iowa; Kansas City, Missouri (which includes several Kansas counties); Oklahoma City, Oklahoma; Omaha, Nebraska; and Tulsa, Oklahoma. This selection of metro areas will be used as comparison regions to help put Wichita's economic growth history into a regional context. Chart 4B illustrates the county-level composition of the long-run population growth within the Wichita Metropolitan Statistical Area.

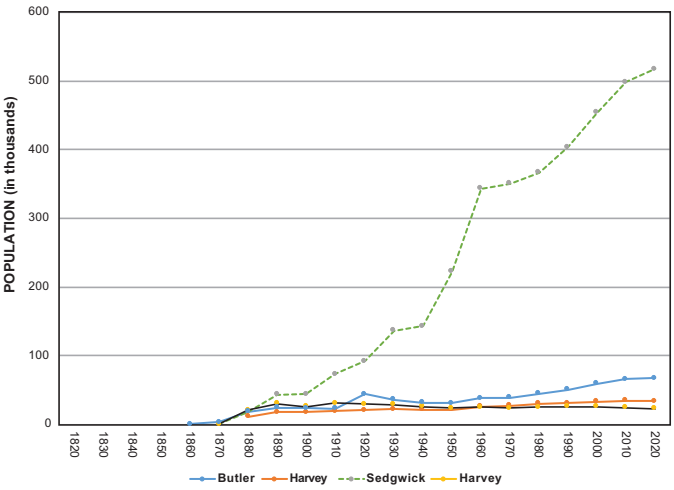
Following the initial decades of population settlement in these select metro areas, Chart 4A shows a high degree of persistence among the census-to-census population growth rates for each region, unless the region experienced

CHART 4A: Population Growth in Select Metropolitan Areas



Sources: U.S. Census Bureau; author's calculations.

CHART 4B: Population Growth in the Counties Comprising the Wichita Metropolitan Statistical Area



Sources: U.S. Census Bureau; author's calculations.

an economic shock (either positive or negative). Each of the metro areas experienced the Great Depression (1930-1940) as a negative shock that interrupted persistent population growth. Each of the metro areas, except Des Moines, experienced the postwar era (1950-1960) as a positive shock, probably related to suburbanization trends following World War II. Des Moines – perhaps because of changed business conditions following the 1990-1991 recession – experienced a positive shock between 1990 and 2000 that has persisted to the present.

The most interesting economic shock for the present analysis relates to Wichita's identity as the "Air Capital of the World." The lucky local combination of oil-related wealth and industrious aviation pioneers set the stage for Wichita to become a major aircraft manufacturing location.[28] That fortunate series of events set the stage for an economic boom when the fighting in World War II

generated an enormous federal-government demand for aircraft.[29]

Chart 4B illustrates the two-decade population boom in Sedgwick County. From 1940 through 1960, Sedgwick County ranked 124th in population growth among 3,305 counties – and it experienced this rapid growth from a relatively large starting population base. In addition to building the city's population base, this economic shock essentially locked-in Wichita's economic history as a manufacturing-intensive regional economy.

As highlighted at the beginning of this report, that history established the current-day conditions that are helping to define Wichita's economic future. Wichita remains a manufacturing intensive regional economy. For example, the decline in population growth from 2010 to 2020 arguably represents the cumulative negative shocks to the aircraft industry (and other manufacturing-related businesses) following the recession of 2001 and the Great Recession of 2007-2009. (On this point, also see the employment discussion below.)

Another important analytical factor illustrated in Chart 4A relates to the relative population size of the select metro areas. Wichita, with the temporary exception of Des Moines, has always had the smallest population. Kansas City and Omaha have always had a substantially larger population than Wichita. In the early days of westward expansion, Oklahoma City and Tulsa attracted population later in history than Wichita, but quickly surpassed Wichita in population count. Des Moines fell behind Wichita in population count in 1950, but will probably reverse that situation in the 2020s.

A Perspective on Population Dynamics

Wichita's relatively small size may handicap its future economic growth. Nationwide, a general pattern has emerged over the past two decades: larger-size cities tend to have an economic advantage in growth. One explanation for this trend relates to the nature of "knowledge work." Population density tends to facilitate "knowledge spill-overs" and therefore value-creating businesses.[30] Scholars at the Brookings Institution summarize the issue by noting that:

> "… growth across communities now tracks exactly with their size. The nation's bigger communities – powered by well-educated millennial workers and the agglomeration trends brought by digital technology – are now growing notably faster and accounting for more and more of the nation's growth than before, even as small metros wane and most of the rural hinterland slides into deep decline. In short, fully half of all of the country's employment growth took place in just 20 metropolitan areas, home to about one-third of Americans, led by the usual suspects of New York, Boston, the Bay Area, Seattle, and Washington, D.C., along with such fast-growing Sun Belt hubs as Dallas, Atlanta, Miami, and Orlando.[31]

An economist at the Federal Reserve Bank of Kansas City has studied the same general trend and says that: "Statistical analysis shows that most of this positive correlation is likely driven by size itself rather than location characteristics correlated with size." This finding matters because: "The similar relationships between size and growth of both population and employment reflect that employment and population growth are strongly positively correlated over the long term. In particular, increases in employment tend to be matched approximately one for one by inflows of workers."[32] (More on this point below: Jobs attract people more than people attract jobs. Job growth results from business formation driven by an organic trial-and-error process.)

Kansas and other Great Plains states are unambiguously urbanizing, as measured by the share of total state population associated with specific metro areas. Table 3 helps to capture the contours of this general trend. It reports the populations for each metro area as a share of the aggregate population for the five-state region encompassing Iowa, Kansas, Missouri (less the independent city of St. Louis), Nebraska, and Oklahoma. As shown in Table 3, from 1990 to 2020e, each metro area's population share has increased. In percentage point terms, Oklahoma City and Kansas City recorded the greatest increases in shares, at 1.26 and 1.07 percentage points, respectively. Wichita is the only metro in the sample that did not increase its

TABLE 3: Population Shares by Metro Area Based on Multi-State Total Population*

	1970	1980	1990	2000	2010	2020e
Des Moines	2.76%	2.73%	2.84%	3.01%	3.33%	3.69%
Kansas City	10.91%	10.48%	11.14%	11.48%	11.87%	12.21%
Okla. City	5.52%	6.11%	6.60%	6.84%	7.32%	7.86%
Omaha	4.71%	4.56%	4.67%	4.79%	5.05%	5.30%
Tulsa	4.34%	4.98%	5.18%	5.37%	5.47%	5.59%
Wichita	3.32%	3.27%	3.48%	3.57%	3.63%	3.59%

Source: U.S. Census Bureau; author's calculations

*Note: To simplify the problem associated with Kansas City and Omaha straddling state borders, and to generate a unified perspective for the larger geographic region, *the metro area shares are based on the aggregate population of: Iowa, Kansas, Missouri (less the independent city of St. Louis), Nebraska, and Oklahoma.

population share in the most recent decade, perhaps reflecting its relatively small size (and, as argued previously and below, its relatively high concentration of manufacturing-related employment).

Wichita – Sedgwick County, specifically – is one of the few Kansas localities that has consistently experienced an increase in its share of Kansas population over the past several decades. However, over the past quarter century, Wichita has not attracted a net in-migration of people; more people have moved out than moved in.

Chart 5A illustrates the estimated migration of people into and out of Sedgwick County each year from 1992 to 2018 (based on U.S. tax return data). The chart separates intra-state inflows and outflows from inter-state inflows and outflows. (Chart 5B complements Chart 5A by illustrating the income flows associated with the migration of people.)

On an intra-state basis, a high percentage of migration into and out of Sedgwick County takes place among counties that are contiguous to Sedgwick – with Johnson County serving as the major exception. In rank-order, in terms of migration volume (from 2011 to 2018), the intra-state counties are: Butler, Johnson, Sumner, Harvey, Reno, and Cowley. Recall that Butler, Sumner, and Harvey count as part of the Wichita Metropolitan Statistical Area, so migration among these counties and Sedgwick County could technically count as people simply moving within the "city." These data reinforce a common finding in population migration analysis: most moves are short moves.[33]

From the perspective of future economic growth in Wichita, what matters most is the net migration out of the region – the net migration to Kansas City or other out-of-state locations. Not surprisingly, from an inter-state perspective, many dozens of different locations comprise the origin into or destination out from Sedgwick County. However, a few places dominate the move-in and move-out data. Again, in rank order, in terms of migration volume, and counting Johnson County as part of Kansas City, the top metro areas are: Kansas City, Dallas, Oklahoma City, Tulsa, Houston, and Phoenix. Unfortunately, consistent with the data in Table 3, more households move out to these metros than move in from them. However, as Chart 5A shows, many households continue to move into Sedgwick County from other metro regions, so it is the net flow that counts. On average, each year, Sedgwick County loses a few hundred households to Kansas City and several dozen households to each of the other metros listed. The net outflows could reverse if economic opportunities in Wichita increase relative to the recent past. *(Note: The population "gross flow" volume, not the "net flow" volume, is the variable that drives the research findings on persistence in population growth discussed above.)*

CHART 5A: Estimates of Population Migration, Sedgwick County

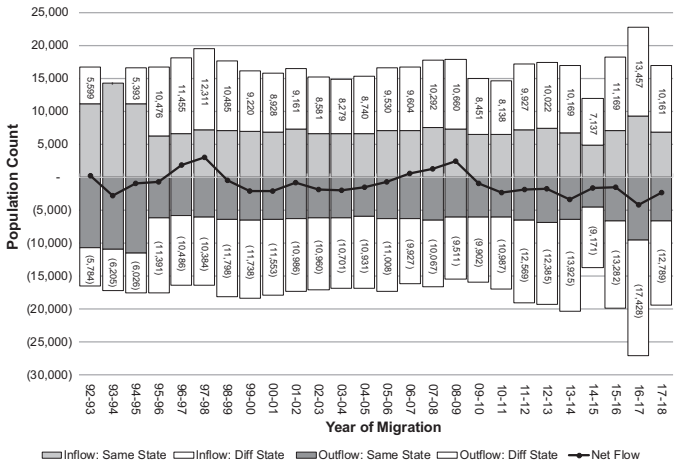
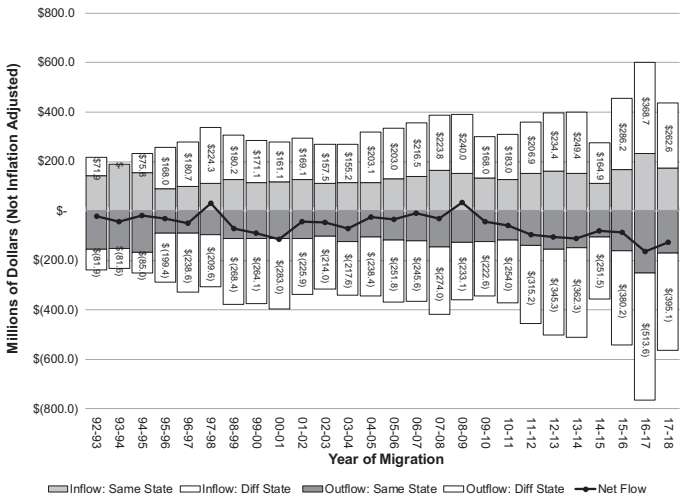


CHART 5B: Estimates of Income Migration, Sedgwick County



Sources: U.S. Internal Revenue Service; author's calculations.

Note: The IRS began a new estimation procedure in 2011. The author has adjusted older data to be more consistent with the 2011 procedure.

A Perspective on Job Dynamics

Market economies exhibit a remarkable amount of dynamism. Indeed, the entire process of economic development can be fairly characterized as a trial-and-error system – a numbers game in which a variety of businesses continually enter a market to test their market viability. This perspective, in part, helps explain why the city-size variable discussed earlier has important explanatory power. Larger (and denser) metro areas run a higher number of trials and have the market depth and breadth to support more economic experiments.

Related to this trial-and-error perspective, economic research refers to fast-growing businesses as "gazelles." Such businesses tend to be few in number but large in job-creation impact. A study by the Kansas City-based Kauffman Foundation found that, nationwide: "Just [one] percent of companies – those growing the fastest – generate roughly 40 percent of new jobs in any given year."[34] Another study focused on the typical location of gazelles and found that "40 percent of all the Gazelles are located in only 20 MSAs, which are mostly the largest cities in the United States."[35] Yet another study, one focused on a broad review of the research literature related to gazelles, concluded that: "Gazelles are found to be outstanding job creators. They create all or a large share of new net jobs. On average, Gazelles are younger and smaller than other firms, but it is young age more than small size that is associated with rapid growth. Gazelles exist in all industries."[36]

When presented with these research findings related to gazelles, policy makers and economic development professionals often respond by saying "we need to find our gazelles." However, that task is difficult, because gazelles emerge out of the trial-and-error process. An imperfect, but useful analogy, relates to the venture capital industry. Venture capitalists, too, hunt for their gazelles, and consider themselves fortunate if they invest in the approximately one out of 20 businesses (per venture fund) that will generate enough investment return to compensate for the 19 failures.[37] Perhaps this venture-capital analogy explains why a European-based study of gazelles found that: "Business subsidies do not seem to provide significant further boost for the contemporary or after-subsidy growth of gazelles. In other words, there are apparently some other factors dominating the growth of young high-growth firms making them grow strongly, in many cases, with or without subsidies."[38]

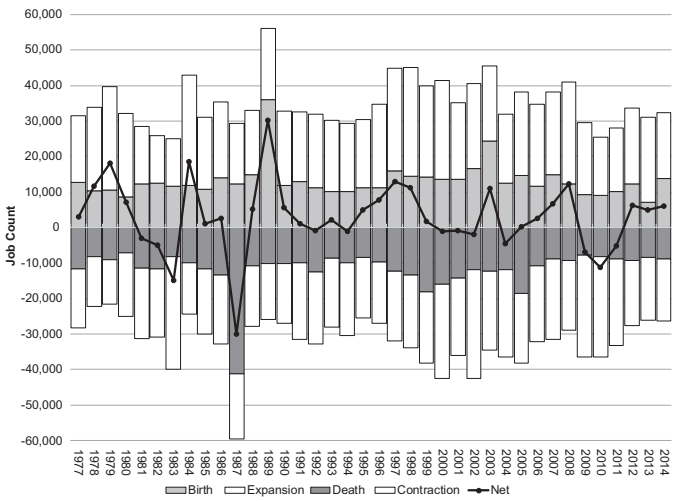
Nationally recognized businesses like Microsoft, Dell, Google, Amazon, Netflix, Facebook, Uber, and Airbnb represent unambiguous examples of gazelles. In the Kansas City area, Garmin and Cerner would qualify as gazelles. In Wichita, Pizza Hut might be the best example of a gazelle. However, businesses like Cessna, Koch Industries, and Rent-a-Center capture the same economic essence as gazelles; they may have grown more slowly than the image of gazelles is meant to convey, but they represent businesses born in Wichita that persistently grew to become major employers.

Evidence for Wichita from 1990 through 2015 helps reinforce the broader economic research related to gazelles. Despite the abundant research on gazelles, no precise definition exists for identifying what a "fast-growing" business should mean. However, using a NETS Database referenced earlier, it is possible to quantify a thought experiment. The experiment imposed on all businesses operating in the Wichita metro area the following criteria (between 1990 and 2015). First, the business had to be in businesses in 2015 (the last year of available data). Second, the business had to have been in business for at least five years, so no businesses born after 2010 count in the sample. Third, a qualifying business had to have an average annual growth rate in job count of at least 20 percent. Fourth, the business had to have in 2015 a job count of at least 50. Using those four criteria, 71 businesses increased Wichita's job count by 9,899. Also, according to the Database, Wichita's total job count grew by 63,392 from 1990 to 2015; and, in 2015, Wichita had 32,451 operating business establishments. So, put in context, the NETS Database indicates that 0.22 percent of businesses generated 15.6 percent of the growth in total job count. (The 71 business units in the "fast-growing" sample sort into 42 different broad industry classifications, further reinforcing the hard-to-predict, dynamic nature associated with the types of businesses that may propel job growth.)

The data presented below illustrate the dynamic trial-and-error process that creates gazelles – or not. The job markets in all regional economies are in continual flux from four sources: business births, business deaths, business expansions, and business contractions. Taken in total, the job counts associated with these four sources of dynamism account for about 27 percent to 30 percent of total employment, on average, in any given year. Each of the metro areas evaluated in this report lies within this range of annual job turnover.

Chart 6A illustrates job dynamics for the Wichita metro area. Notice the remarkable symmetry between job gains and job losses as the market process "tests" businesses for economic fitness. To read the chart, note that business births and existing-business expansions account for the job counts (gains) above the zero-level on the chart; business deaths and existing-business contractions account for the job counts (loss) below the zero-level on the chart. The "Net" job count subtracts the job losses from the job gains. For most years covered by the chart – except for years associated with national recessions – the Wichita metro area gained net job counts.[39]

CHART 6A: Job Dynamics in the Wichita Metro Area, 1977-2014



Sources: U.S. Census Bureau; author's calculations.

TABLE 5: Wichita Net Job Creation by Business Firm by Age of Firm

	Age of Business Firm in Years											Total Net Job Creation	Net Job Creation without Age Zero
	0	1	2	3	4	5	6-10	11-15	16-20	21-25	26+	Censored		
1977	9,124											-6,002	3,122	-6,002
1978	6,434	339										4,884	11,657	5,223
1979	6,808	-426	-134									11,798	18,046	11,238
1980	5,871	-625	-1,055	-286								3,238	7,143	1,272
1981	7,188	-45	-473	-420	-1,086							-8,092	-2,928	-10,116
1982	6,923	-1,140	-1,314	-939	-1,056	-659						-6,700	-4,885	-11,808
1983	5,767	-606	-1,032	-610	-602	-224	763					-18,274	-14,818	-20,585
1984	6,830	396	-510	134	-367	-160	-1,037					13,212	18,498	11,668
1985	6,316	-722	-458	-560	-204	-82	108					-3,276	1,122	-5,194
1986	7,551	-432	-147	-1,438	-701	32	-629					-1,591	2,645	-4,906
1987	5,864	-1,344	-1,151	-1,140	246	-405	-1,327					-30,757	-30,014	-35,878
1988	6,454	-377	343	-218	-513	-632	323	32				-270	5,142	-1,312
1989	5,541	-1,056	-138	319	-733	260	-901	26				26,954	30,272	24,731
1990	6,082	748	68	-551	53	30	-600	166				-326	5,670	-412
1991	4,350	1,171	-809	-111	-831	-208	-1,055	412				-1,778	1,141	-3,209
1992	5,896	-144	-2,433	-272	-104	264	-636	-309				-3,167	-905	-6,801
1993	5,894	69	-114	-189	-306	-1,538	299	-319	1,054			-2,679	2,171	-3,723
1994	5,778	-86	-735	-204	-362	-508	-410	33	293			-4,792	-993	-6,771
1995	5,389	383	-410	-306	-219	-206	-2	-522	-652			1,549	5,004	-385
1996	5,512	865	-632	-187	154	-27	-339	559	259			1,692	7,856	2,344
1997	6,140	-219	-1,612	311	-86	-237	-850	529	969			8,037	12,982	6,842
1998	7,048	254	-241	-16	195	320	38	-353	-466	306		4,040	11,125	4,077
1999	7,523	155	-1,218	-426	-535	-1,263	-2,733	501	241	39		-591	1,693	-5,830
2000	6,285	-362	-381	-342	-442	-604	-287	-279	417	-221		-4,797	-1,013	-7,298
2001	6,322	-1,022	-2,711	493	-114	-134	-871	-880	-2,410	-330		807	-850	-7,172
2002	6,160	-62	-418	-336	24	-554	-774	-140	278	-1,206		-4,970	-1,998	-8,158
2003	7,517	-211	-711	-50	96	-649	809	457	-918	401	-350	4,629	11,020	3,503
2004	5,693	394	-656	-759	-164	-218	332	-1,166	-199	573	297	-8,638	-4,511	-10,204
2005	7,134	-269	-160	-165	-262	92	-1,240	519	562	556	586	-7,215	138	-6,996
2006	5,489	-726	2	394	88	-48	-147	260	123	500	83	-3,373	2,645	-2,844
2007	4,930	-58	-665	-340	672	44	-487	-422	310	65	1,192	1,408	6,649	1,719
2008	5,804	-591	-156	-453	191	-352	-733	-561	288	-637	1,532	7,898	12,230	6,426
2009	5,332	-693	-489	-164	-522	-412	-377	-1,798	-832	-613	-288	-5,967	-6,823	-12,155
2010	3,660	-985	-1,259	-138	-230	-356	-1,279	-1,445	-592	-1,239	-2,541	-4,716	-11,120	-14,780
2011	5,005	-544	-682	-328	-184	-229	-2,462	-977	-677	1,796	-2,039	-3,752	-5,073	-10,078
2012	4,691	-860	171	90	361	-334	645	221	-629	180	-268	1,897	6,165	1,474
2013	3,500	-639	-508	-222	64	181	-1,099	-1,269	546	-209	-810	5,484	5,019	1,519
2014	4,016	117	-206	-9	-70	124	-542	-124	309	65	-700	2,998	5,978	1,962

Sources: U.S. Census Bureau; author's calculations.

The following two tables – Table 4 and Table 5 – complement the story told by Chart 6A. These tables are constructed to illustrate net job creation by businesses of different ages. Table 4 uses national-level data to focus on business establishments (a place of business with a unique physical address). Table 5 uses firm-level data and focuses on the Wichita metro area (because the U.S. Census Bureau does not report establishment-level data for metro areas).

To understand the important story told by Table 4 and Table 5, let us first understand how to interpret Table 4. The database begins with business establishments born in 1977. Starting in 1977, the database tracks the job-creation activity of each business establishment over time. Business establishments that already existed in 1977 are categorized in the "Left-Censored" column. So, business establishments born in the U.S. in 1977 (Age = 0) created 5.8 million net new jobs. Left-Censored business establishments contracted by a net 1.6 million jobs. The Total Net Job Creation of 4.2 million was due solely to the birth of new business establishments.

Once 1977 is established as a base year, the data can account for the net job creation of all businesses: those born in any given year and those one year old or older. With that fact in mind, notice that each shaded cell in Table 4 represents a positive number – or, in other words, a representation of net job gain for a particular cohort of business establishments for a particular year. Now … note how infrequently a given cohort creates net new jobs. And, yet, Table 4 shows a positive number for "Total NET Job Creation" in almost every year.

The big take-away: Without the birth of new business establishments, the U.S. economy would have always

TABLE 4: United States Net Job Creation by Business Establishment by Age of the Establishment

	Age of Business Establishment in Years											Total Net Job Creation	Net Job Creation without Age Zero
	0	1	2	3	4	5	6-10	11-15	16-20	21-25	26+	Left Censored		
1977	5,858,902											-1,650,541	4,208,361	-1,650,541
1978	4,227,027	-265,161										-287,725	3,674,141	-552,886
1979	4,477,125	62,804	-194,062									26,130	4,371,997	-105,128
1980	4,100,566	-258,874	-366,472	-332,322								-2,213,028	929,870	-3,170,696
1981	4,791,850	-297,130	-378,080	-336,191	-529,422							-3,375,907	-124,880	-4,916,730
1982	5,244,591	-249,757	-322,376	-291,025	-178,314	-317,872						-2,825,345	1,059,902	-4,184,689
1983	4,271,102	-750,590	-476,247	-321,760	-311,393	-362,856	-294,058					-3,243,514	-1,489,316	-5,760,418
1984	4,901,178	-55,043	-62,338	1,186	-14,440	7,891	4,552					-132,729	4,650,257	-250,921
1985	4,805,557	97,507	-169,576	-263,568	-120,303	-92,445	-349,563					-1,230,490	2,677,119	-2,128,438
1986	5,263,142	457,123	-275,504	-234,891	-220,711	-181,655	-520,774					-1,617,583	2,669,147	-2,593,995
1987	5,759,903	-207,161	-417,111	-393,829	-277,867	-229,291	-845,941					-1,923,199	1,465,504	-4,294,399
1988	5,379,189	-67,589	-277,456	-230,568	-197,835	-150,147	-569,748	-102,872				-924,189	2,858,785	-2,520,404
1989	5,302,355	56,822	-456,083	-154,939	-220,681	-163,789	-487,287	-189,357				-818,483	2,868,558	-2,433,797
1990	4,954,296	198,641	-356,517	-279,988	-233,520	-173,069	-525,109	-250,652				-1,063,944	2,270,138	-2,684,158
1991	5,388,930	64,393	-585,948	-468,855	-541,542	-421,517	-1,412,401	-724,827				-2,400,551	-1,102,318	-6,491,248
1992	5,100,902	-152,800	-456,472	-384,233	-342,296	-276,601	-980,354	-629,788				-1,405,770	472,588	-4,628,314
1993	4,550,089	88,561	-326,165	-168,161	-186,969	-196,638	-700,409	-349,230	-81,733			-1,014,860	1,614,485	-2,935,604
1994	4,958,440	46,389	-352,464	-235,043	-198,662	-202,948	-670,583	-417,830	-158,703			-918,841	1,849,755	-3,108,685
1995	5,303,326	75,588	-143,416	-180,734	-134,228	-87,787	-380,021	-198,096	-103,852			-493,735	3,657,045	-1,646,281
1996	5,530,047	-2,160	-279,697	-228,479	-302,562	-212,585	-837,376	-542,021	-300,252			-1,058,172	1,766,743	-3,763,304
1997	6,197,928	-32,782	-330,612	-272,302	-245,903	-207,547	-887,624	-405,478	-335,610			-756,797	2,723,273	-3,474,655
1998	6,070,944	64,027	-346,207	-195,140	-214,865	-151,594	-676,439	-403,419	-249,790	-50,192		-671,614	3,175,711	-2,895,233
1999	6,294,202	-41,462	-367,948	-266,340	-198,538	-189,842	-859,772	-580,029	-367,799	-146,575		-835,082	2,440,815	-3,853,387
2000	6,442,233	92,566	-189,916	-207,572	-191,787	-152,878	-665,502	-527,525	-302,327	-138,207		-600,070	3,559,015	-2,883,218
2001	6,311,986	-78,275	-452,973	-445,962	-433,058	-275,228	-1,045,117	-836,227	-501,511	-328,002		-1,037,604	878,029	-5,433,957
2002	7,438,709	-331,621	-578,523	-621,283	-566,464	-514,747	-1,814,195	-1,384,436	-964,748	-643,878		-1,760,043	-1,741,229	-9,179,938
2003	6,195,279	-683,196	-299,689	-244,319	-226,513	-234,638	-668,914	-436,833	-364,897	-224,570	-40,685	-681,917	2,089,108	-4,106,171
2004	5,841,922	-166,363	-459,798	-230,300	-211,745	-292,726	-641,019	-424,188	-288,387	-196,393	-81,743	-632,357	2,216,903	-3,625,019
2005	6,249,760	-259,937	-417,178	-267,278	-161,094	-231,764	-762,516	-523,090	-378,685	-287,781	-141,709	-693,575	2,125,153	-4,124,607
2006	6,784,756	-198,667	-179,895	-140,279	-139,464	-97,495	-518,654	-361,913	-269,909	-179,557	-117,235	-451,032	4,130,656	-2,654,100
2007	6,417,625	-329,902	-240,916	-198,069	-214,569	-316,510	-1,073,780	-753,801	-521,264	-400,604	-289,286	-605,013	1,473,911	-4,943,714
2008	5,673,643	-466,587	-360,808	-363,033	-312,307	-285,460	-1,075,416	-574,685	-388,727	-310,546	-201,552	-357,551	976,971	-4,696,672
2009	4,665,376	-743,441	-648,397	-676,137	-654,969	-463,720	-2,050,569	-1,359,190	-936,575	-817,454	-727,224	-1,241,675	-5,653,975	-10,319,351
2010	4,536,383	-417,433	-373,672	-360,278	-361,925	-346,024	-1,237,284	-849,128	-574,265	-457,674	-590,923	-849,028	-1,881,251	-6,417,634
2011	4,344,436	-308,403	-96,199	-137,414	-88,826	-87,780	-509,586	-314,930	-272,386	-193,562	-257,001	-287,161	1,791,188	-2,553,248
2012	4,483,609	-21,444	29,929	6,599	-25,174	-92,128	-450,855	-282,559	-157,015	-164,491	-231,672	-185,577	2,909,222	-1,574,387
2013	4,374,353	-278,915	-43,357	-54,807	-52,408	-58,906	-323,186	-162,166	-182,893	-56,509	-175,282	-211,382	2,774,542	-1,599,811
2014	4,765,320	-252,975	-28,294	-48,571	-59,960	-14,651	-501,735	-202,454	-178,546	-184,104	-322,015	-273,542	2,698,473	-2,066,847
2015	5,056,442	-177,576	-82,249	-44,204	-71,716	-111,555	-388,751	-307,113	-171,558	-110,926	-274,879	-224,613	3,091,302	-1,965,140
2016	5,133,916	-99,412	-136,644	-84,097	-96,766	-160,130	-334,149	-378,179	-247,218	-127,646	-341,862	-202,939	2,924,874	-2,209,042

Sources: U.S. Census Bureau; author's calculations.

experienced negative job growth, as indicated by the far-right column titled "Net Job Creation without Age Zero." So, the birth of brand new businesses drives economic development by providing to the market for "testing": new products, new services, new management expertise, or new business models.

Table 5 works in a similar way and tells the same story as Table 4. However, for two reasons, the results are not as robust as in Table 4. First, Table 5 uses firm-level rather than establishment-level data. This fact distorts the picture. For example, a national or regional retail chain may control multiple establishments in a particular metro area. Specific business locations (establishments) controlled by the chain may open or close within the metro area, but the firm will remain persistent in the data. Since the data is reported by the age of the firm and not the age of the establishment, it under-emphasizes the economic development importance of establishment-level business dynamics. Second, the Wichita metro area has several successful large businesses that have operated in Wichita for decades. This fact accounts for the more persistent net job creation of older firms.

Nevertheless, the "big take-away" still holds for the Wichita metro area (using the firm-level data). Without the birth of new firms, Wichita would lose jobs in many more years than it would gain jobs from older firms represented in the data: New firm entry (age-zero firms) plays a dominant role in the on-going process of job creation. In other words, economic development is inherently a trial-and-error process; a numbers game that occasionally produces a break-away business that drives regional economic growth.

A Perspective on Employment Trends

Two economic development issues that have preoccupied the research agenda of regional economists also arise frequently in discussions about economic development in Wichita. First, does industry mix matter for regional economic growth? Put another way: Is it more advantageous from an economic growth perspective for the regional economy to be more specialized or more diversified? Second, do jobs draw people or do people draw jobs?

For the present study, perhaps the best way to frame these two issue is in the context of an economic shock related to national economic recession. Employment is the indicator most commonly chosen to measure economic impact during and after a negative shock.[40] As the data which follows will illustrate, the 2001 and 2008 recessions had a significantly negative impact on job growth in the Wichita metro area. A major theme in explaining Wichita's weak recovery relates to Wichita's economic identity as a broad-based manufacturing center. The relatively high concentration of employment in the manufacturing sector is a strength (a source of specialization and high wages), but also a source of volatility.

Empirical research provides no definitive conclusions to the industry mix question. It just depends. Every regional economy has unique attributes, and the variety of unique combinations have positive or negative influences on growth under different circumstances. Some research finds support for specialization. Some research finds support for industry diversity. And still other research finds support for a combination of specialization and diversity. Simply put, researchers have a difficult time untangling the many interactions that influence regional economic performance. That said, a recent study evaluating the resilience of regional economies to the 2008 recession concluded with two important findings that apply to Wichita:

1. "The results … support theory and previous empirical work showing that manufacturing is associated with greater vulnerability to the recession," and, in non-recessionary times, manufacturing does not provide a "positive contribution" to employment growth.[41]
2. After "controlling for the specific mix of industries in a county, industrial diversity itself does not influence an area's resilience during a recession, but it is associated with slower [employment] growth during non-recessionary times."[42]

These two points reinforce the arguments highlighted in the previous section related to job dynamics. Economic development results from a complex trial-and-error process that confounds simplistic formulations related to the causes of economic growth. As famed British

economist John Kay once remarked: "If we could predict the evolution of markets, we would not need markets in the first place."[43]

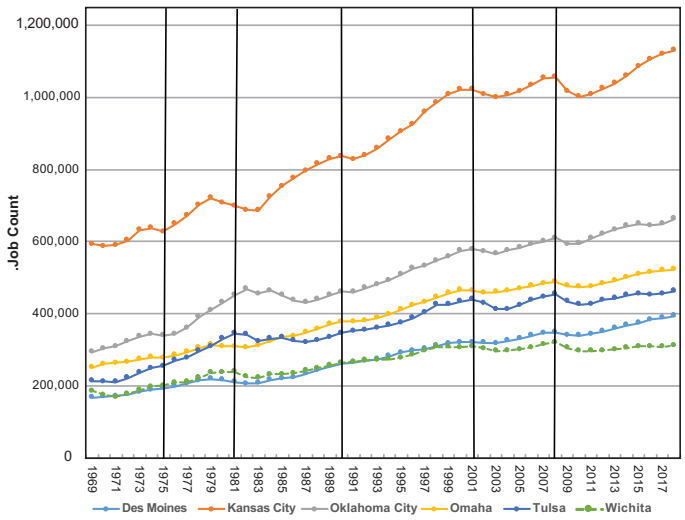
Researchers have had more success in answering the jobs-versus-people question than they have had in answering the industry-mix question. In general, they find that labor demand is more important than labor supply for driving employment growth and recession recovery. That is, labor demand on the part of business is a more potent force for drawing population into a region when compared with excess labor supply drawing businesses into a region.[44] One study that explicitly investigated the drivers of "recovery from regional downturns" concluded that: "the labor demand response is two to three times larger than the labor supply response, meaning that local job creation … is the main driver of recoveries in the US."[45] That is, local business formation drives net-new job creation – just as described in the section discussing job dynamics. And, as Table 4 and Table 5 demonstrated, local job creation primarily comes from the birth of brand new businesses. (But, alas, as Chart 6A showed, employment changes driven by business births and business deaths are highly correlated.)

With the above research background in mind, this section compares Wichita to the other select metro areas with respect to trends in employment over the past half century. Chart 7A shows trends in wage-and-salary job counts. Chart 7B shows trends in (non-farm) self-employment job counts. The vertical lines in each of the charts correspond with years in which a recession began; these years help identify inflection points in the trends.

It is important to know that employment and population have a tight statistical linkage. Wichita is attracting people for the jobs that do exist, but more people are leaving Wichita for opportunities elsewhere (see earlier migration discussion). This linkage ties together the trends in this section with the trends in the population section. Among the metros listed, Wichita has the lowest correlation coefficient for the co-movement between the growth of wage-and-salary jobs and the growth of population, at 92 percent. Wichita also has the lowest coefficient for the co-movement between self-employment and population, at 98 percent. The high levels of statistical correlation speak to the jobs-versus-people question discussed above. The population dynamism discussion indicated that plenty of people migrate into Wichita. The evidence indicates, however, that labor demand – the availability of job opportunities – is not sufficiently high to generate a net in-migration of people.

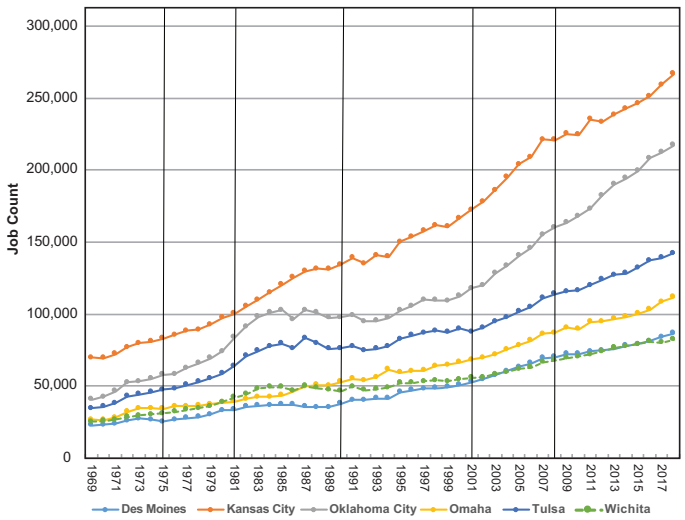
However, Wichita has increased its job count, even though that count has grown more slowly than Wichitans would want. For example, benchmarking off the 2001 recession, the Wichita metro area had 3,350 more wage-and-salary jobs in 2018 than it did in 2001. It had 26,560 more (non-farm) self-employment jobs in 2018 than it did in 2001. Perhaps one or more of these "small businesses" will become a "gazelle" that drives home-grown job demand.

CHART 7A: Number of Wage & Salary Jobs, 1969-2018



Sources: U.S. Bureau of Economic Analysis; author's calculations.
Note: Vertical lines represent years of recession onset.

CHART 7B: Number of Non-Farm Self-Employment Jobs, 1969-2018



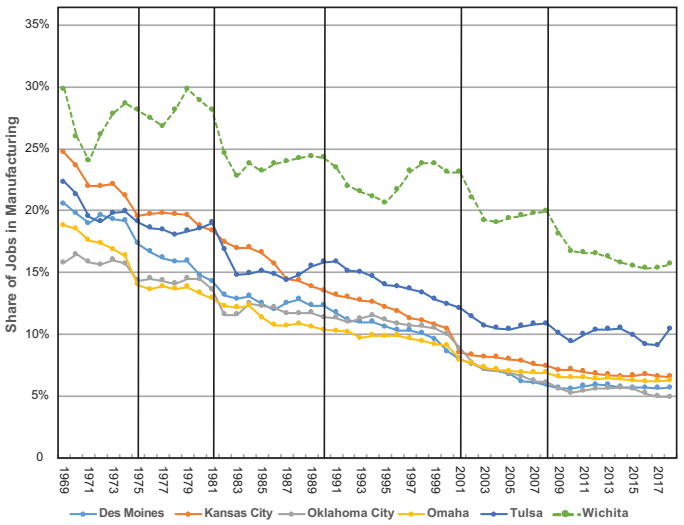
Sources: U.S. Bureau of Economic Analysis; author's calculations.
Note: Vertical lines represent years of recession onset.

The economic uniqueness of each metro area combined with the dynamism of business activity, in general, makes it difficult to identify clear cause-and-effect related to inflection points in the employment trends (aside from the onset of national recessions). Industry sectors in each of the metro areas are in continual flux, with some gaining and some losing in any given year. However, the data allow for a few useful observations:

1. Among the metros, Wichita, since the 1990 recession, recorded the lowest growth rates in wage-and-salary job count and self-employment job count. With a few exceptions, Wichita's relatively slow growth in employment occurred over the long run and for most sub-periods – like the time periods in-between recessions or in-between decadal endpoints. In other words, the relatively slow employment growth in Wichita has persisted for many decades. Furthermore, these low employment growth rates have applied to the lowest beginning-level employment base among the metro areas, so the absolute number of jobs has grown the slowest. As discussed previously, in an era when city size itself (total job count or total population count) seems to matter as a causal factor for predicting future growth, Wichita may experience an ever-harder job-growth challenge, absent some type of positive shock.
2. An interesting general trend relates to the growth in self-employment job count relative to the growth in wage-and-salary job count. Since recovery from the 1981-1982 recession, year-over-year self-employment job counts have risen one to two percentage points faster, on average, than wage-and-salary job counts – and this is true for each metro area. This trend, again, may advantage the metro areas with larger populations, since city size itself may allow for superior commercial opportunities for small businesses.
3. Even though industry mix is an ambiguous variable when judging the performance of employment growth in a particular region, industry composition may have some explanatory power for some of the general trends in job counts among the select metro areas. Two examples are well illustrated by the data in Chart 7A and Chart 7B. First, notice the stagnation in job counts for Des Moines, Oklahoma City, Tulsa, and Wichita from about 1985 through 1993. (Particularly note the stagnation in Wichita's self-employment job counts.) States with a relatively greater reliance on farm income and oil and gas income struggled economically during this time period – and oil and gas production levels remained relatively low until 2010.[46] Oklahoma experienced a major resurgence in its oil and gas-related jobs over the past decade; Kansas did not. Much of this Oklahoma resurgence is driven by hydraulic fracturing and horizontal drilling that is, to date, not supported by the geology of Kansas's energy reserves. Second, Wichita has a relatively high share of its employment involved in manufacturing and Des Moines has a relatively high share of its employment involved in financial services (10.5 percentage points higher than Wichita, 4.0 percent points higher than Omaha, and 3.0 percentage points higher than Kansas City). Following the onset of the 2001 recession, this difference in industry mix offers one substantive explanation for the divergence in the growth of wage-and-salary job counts (and, relatedly, population counts) when comparing Wichita with Des Moines – and, once again, may point to "accidents" of economic history that no one can anticipate, because they emerge from a process of trial-and-error.

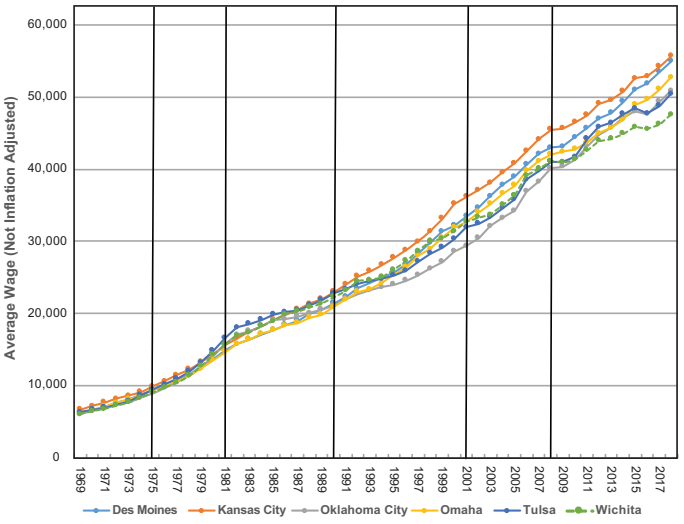
The issue of manufacturing concentration and economic performance is a key issue for Wichita. Chart 7C illustrates the comparatively high concentration of jobs in manufacturing in the Wichita metro area relative to the comparison metro areas. In 2018, Wichita's share of jobs in manufacturing was 5.2 percentage points higher than Tulsa's share and more than 9.0 percentage points higher than each of the other metro areas. However, like the other metros (and the nation, in general), the share of jobs in

CHART 7C: Share of Jobs in Manufacturing, 1969-2018



Sources: U.S. Bureau of Economic Analysis; author's calculations.
Note: Vertical lines represent years of recession onset.

CHART 7D: Average Wage per Wage & Salary Job (Not Inflation Adjusted), 1969-2018



Sources: U.S. Bureau of Economic Analysis; author's calculations.
Note: Vertical lines represent years of recession onset.

manufacturing has been declining over the past half century. This decline has clear negative implications for job count, but not necessarily overall economic performance.

Statistically speaking, analysts can easily demonstrate – *on average* – a negative relationship between the share of jobs in manufacturing and overall wage-and-salary employment growth (at both the county level and the metropolitan level). However, important qualifications apply to this general statistical tendency. For example, in 2001, the Wichita metro area had about 24 percent of its job count in manufacturing. That ranked 29th highest among America's 384 different metro areas. That manufacturing-share ranking corresponded with Wichita's rank of 295th in the growth of wage-and-salary job count from 2001 to 2018. Compare Wichita's results, however, to the results in the Elkhart, Indiana, metro area. Elkhart ranked first among all metro areas in manufacturing job share, at 47 percent, but ranked 106th in the growth of wage-and-salary job count from 2001 to 2018. Grand Rapids, Michigan, and Spartanburg, South Carolina, offer two other examples of metro areas with higher ranking manufacturing job shares than Wichita and much higher growth rates in wage-and-salary jobs than Wichita.

As already argued, simple formulas or metrics cannot readily explain the economic dynamics that drive economic growth. The unique characteristics of regional economies matter.

As most people in Wichita understand, negative shocks to manufacturing activity in the aircraft-related industry following the 2001 and 2008 recessions provide a dominant explanation for the stagnation of wage-and-salary jobs in Wichita – and the drop in overall average wages shown in Chart 7D. In 2001, jobs in the aircraft industry accounted for 62 percent of all manufacturing jobs in Wichita; in 2018, they accounted for 49 percent. That change in share equates to a decrease of about 18,000 aircraft manufacturing-related jobs that earn average wages 50 to 60 percent higher than the average wages earned in non-aircraft manufacturing activities.

A Summary and Synthesis of Perspectives

Few regional economies become as specialized as the Wichita economy became – and remains. A confluence of events at the dawn of aviation made Wichita the "Air Capital of the World." A second confluence of events – primarily the demand for aircraft to fight World War II – meta-sized that identity, creating an economic boom that increased Wichita's population by 140 percent from 1940 to 1960. Aircraft manufacturing – and all of its support systems – have defined the foundational dynamics of Wichita's economic ecosystem for close to a century.

The economic dynamics of specialization tend to be self-reinforcing. Wichita has birthed many successful businesses that have diversified the regional economy, but the natural flow of commerce has reinforced Wichita's primary economic identity as a specialized, manufacturing town. Such specialization comes with upsides and downsides. The upsides relate to high levels of productivity and high wages. The downside relates to volatility – volatility related to the cyclical aspects of specialized manufacturing and the volatility of a changing world in which manufacturing-related supply chains have globalized. Despite these downsides, many regional economies in the U.S. have both a higher concentration of manufacturing activity than Wichita and a higher rate of economic growth.

Wichitans have for a long time understood the upsides and downsides of a manufacturing concentration. This understanding has motivated frequent discussions related to the strategic goal of promoting a more diversified level of economic activity. The economic development challenge attached to this goal has two components. First, diversification, per se, may do nothing to enhance Wichita's prospects for faster economic growth. Second, "diversification" of the regional economy is not something that the community can just decide to do: economic development is an organic process driven by trial-and-error.

Understanding economic development as an organic process driven by trial-and-error, rather than a mechanistic process driven by strategic planning and engineering, offers a crucial perspective for concerned citizens seeking to enhance Wichita's economic future through civic-minded endeavors like Project Wichita. The primary driver of regional economic growth relates to the formation of new businesses (or activation of existing businesses) that grow quickly because they have discovered – by luck or design – a market with under-served demand. Almost by definition such businesses emerge from a dynamic market process of trial-and-error because they would be abundant if people already knew how to create them. This fact explains why government-subsidization of specific enterprises or groups of people through targeted economic

development rarely produces net-new economic growth. What may look like economic growth on the surface ends up being, upon closer scrutiny, an expensive exercise in the rearrangement of existing business activity.

The dynamic economic processes of trial and error are clearly at work in Wichita. The Wichita economy continues to grow, even if Wichitans would like it to grow faster. Hundreds of businesses start and expand every year, and thousands of people relocate into Wichita every year. However, as an inherent part of the dynamic process, hundreds of businesses dissolve and contract every year, and thousands of people relocate out of Wichita every year. Yet, on net, overall business activity grows and so does the population.

Wichita could birth new, fast-growing businesses (or spark existing, fast-expanding businesses) that might provide a step change in the rate of regional economic growth. However, the probability of that event is conditioned on luck and broad economic trends. In the U.S., economic activity is naturally flowing towards metropolitan areas with larger populations. City size itself seems to have become a causal factor. More populace regional economies support a greater volume of commercial experimentation, which increases the chance of generating fast-growing businesses. Unfortunately, despite the mid-20th Century population boom, Wichita has always been a relatively small, geographically isolated metro area. Perhaps the flow of commerce in a post-pandemic world, in which more manufacturing capability takes place on U.S. soil will create a counterveiling trend that will mitigate Wichita's size disadvantage and activate its manufacturing advantage.

Taken together, the various perspectives presented in this report should encourage a data-driven understanding of Wichita's economic history and economic growth potential. All cities face their own version of economic development challenges. Wichita is growing and will likely continue to grow. The community – elected leaders, businesses, and individual citizens – should embrace these challenges with a clear understanding of how economies grow. Policies that improve the odds of creating "gazelles" offer a better use of community resources when compared with the use of economic development incentives targeted to specific companies or groups of people.[47] By way of analogy, this policy perspective suggests that the proper role of government in the economic development process is to run tournaments not field players.

ENDNOTES

[1] https://www.360wichita.com/blog/Local/Aviation-History-in-Wichita.html (retrieved on March 16, 2020.)

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[5] https://web.archive.org/web/20040807043010/http://www.visioneeringwichita.org/index.htm

[6] Michael E. Porter, "Wichita: Clusters of Innovation Initiative,"p. 3.

[7] Arthur P. Hall and Dan Korber, "A History of Manufacturing in Kansas: Profile of an Economic Strength," Kansas Inc. Research Report, December 2008.

[8] Jay M. Price, "Wichita's Legacy of Flight," The American Institute of Aeronautics and Astronautics – Wichita Section, 2003, p. 8.

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[13] Michael A. Burayidi, "Downtown Revitalization in Small and Midsized Cities," American Planning Association, PAS Report 590, 2018, p. 4.

[14] *Ibid.*, p. 8.

[15] Three noteworthy types of tools include Tax Increment Financing districts, Community Improvement Districts, and Transportation Improvement Districts. Each of these tools, in one way or another, use increases in (or dedicated percentages of) real estate tax revenues or local sales tax revenues to retire bonds sold to finance eligible projects or to reimburse the developer(s) on a pay-as-you-go basis.

[16] K.S.A. 12-17,162.

[17] Walls & Associates converts Dun and Bradstreet (D&B) archival establishment data into a time-series database of establishment information, the National Establishment Time-Series (NETS) Database. http://maryannfeldman.web.unc.edu/data-sources/longitudinal-databases/national-establishment-time-series-nets/

[18] City of Wichita, "Wichita STAR Financing Annual Report 2013," January 23, 2013.

[19] *Ibid.*

[20] City of Wichita and Kansas Department of Commerce Annual Reports, various years. The City of Wichita reports also provide a detailed list of projects undertaken with the funds.

[21] City of Wichita, "Wichita STAR Financing Annual Report 2018," October 1, 2018.

[22] Arthur P. Hall, Unpublished manuscript. Portions available upon request.

[23] City of Wichita, "Wichita STAR Financing Annual Report 2018," October 1, 2018.

[24] See, for example, Jordan Rappaport, "Why are Population Flows So Persistent?" *Journal of Urban Economic*s 56 (2004), pp. 554–580; and Shalini Sharma, Persistence and Stability in City Growth," *Journal of Urban Economics* 53 (2003), pp. 300–320

[25] Rappaport, "Why are Population Flows So Persistent?", p. 578.

[26] Morris A. Davis, Jonas D.M. Fisher, and Marcelo Veracierto, "Gross Migration, Housing and Urban Population Dynamics," Federal Reserve Bank of Chicago, WP 2013-19, November 2013.

[27] Metropolitan Statistical Areas (or MSAs) are a definitional standard used by government data collection agencies, like the U.S. Census Bureau and the U.S. Bureau of Economic Analysis.

[28] https://www.360wichita.com/blog/Local/Aviation-History-in-Wichita.html

[29] See, for example, Andrea Wilson, "Bombing Wichita: How the Bombing Campaign of World War II Spurred Production and Change in Wichita, Kansas," Fairmount Folio: *Journal of History*, Vol. 18, 2018.

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[33] Arthur P. Hall, Scott Moody, Wendy P. Warcholik, "The County-to-County Migration of Taxpayers and Their Incomes, 1995-2006, Center for Applied Economics, University of Kansas School of Business, Technical Report 09-0306, March 2009.

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[36] M. Henrekson and D. Johansson, "Gazelles as Job Creators: A Survey and Interpretation of the Evidence. *Small Business Economics* 35, 227–244 (2010). https://doi.org/10.1007/s11187-009-9172-z, p. 1.

[37] See, for example, Peter Thiel (with Blake Masters), *Zero to One: Notes on Start-Ups, or How to Build the Future* (New York: Crown Publishing, 2014), Chapter 7.

[38] Heli Koski and Mika Pajarinen, "The Role of Business Subsidies in Job Creation of Start-Ups, Gazelles and Incumbents," *Small Business Economics* 41, 195–214 (2013). https://doi.org/10.1007/s11187-012-9420-5, p. 213.

[39] The author believes the unusually large job loss from business deaths in 1987 and the unusually large job gain from business birth in 1989 represents a data anomaly; probably the result of a large business reorganizing itself under a different name or legal structure.

[40] Timothy Jaquet, "The Great Recession and Regional Resilience in U.S. Regions," Doctoral Dissertation, The Ohio State University, 2019, p. 52

[41] Jaquet, p. 74.

[42] Jaquet, p. 54. Also see, Stephen Malpezzi, Kiat-Ying Seah, and James D. Shilling, "Is it What We Do or How We Do It? New Evidence on Agglomeration Economies and Metropolitan Growth," *Real Estate Economics*, Vol. 32, No. 2, 2004, pp. 265-295.

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[46] Data available from the U.S. Energy Information Administration shows that oil production in Kansas and Oklahoma dropped sharply in 1986 and continued a long decline through the 1990s. From 1986 through 2010, Oklahoma relative to Kansas produced, on average, about twice as much oil and four times as much gas, so oil-related income levels support more economic activity in Oklahoma. Beginning in 2010, Oklahoma has experienced a massive increase in oil and gas production. Kansas has not. For an overview of the recession in farming during the 1980s, see "Taking a Look Back at the 1980s Farm Crisis and its Impacts," FarmProgress, August 22, 2016.

[47] Nancy McCarthy Snyder, "Business Perceptions of the Economic Impact of State and Local Government Regulations," Kansas Policy Institute, March 2015.

About the Author

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