



## Oklahoma GDP Growth Has Lagged the Nation the Past Decade, But Not Everywhere

by: Chad Wilkerson and Chase Farha

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This edition of the *Oklahoma Economist* investigates GDP trends across the state during three distinct time frames: the oil boom years of 2011-15, the oil bust and sluggish growth of 2015-19, and the pandemic years of 2019-21.

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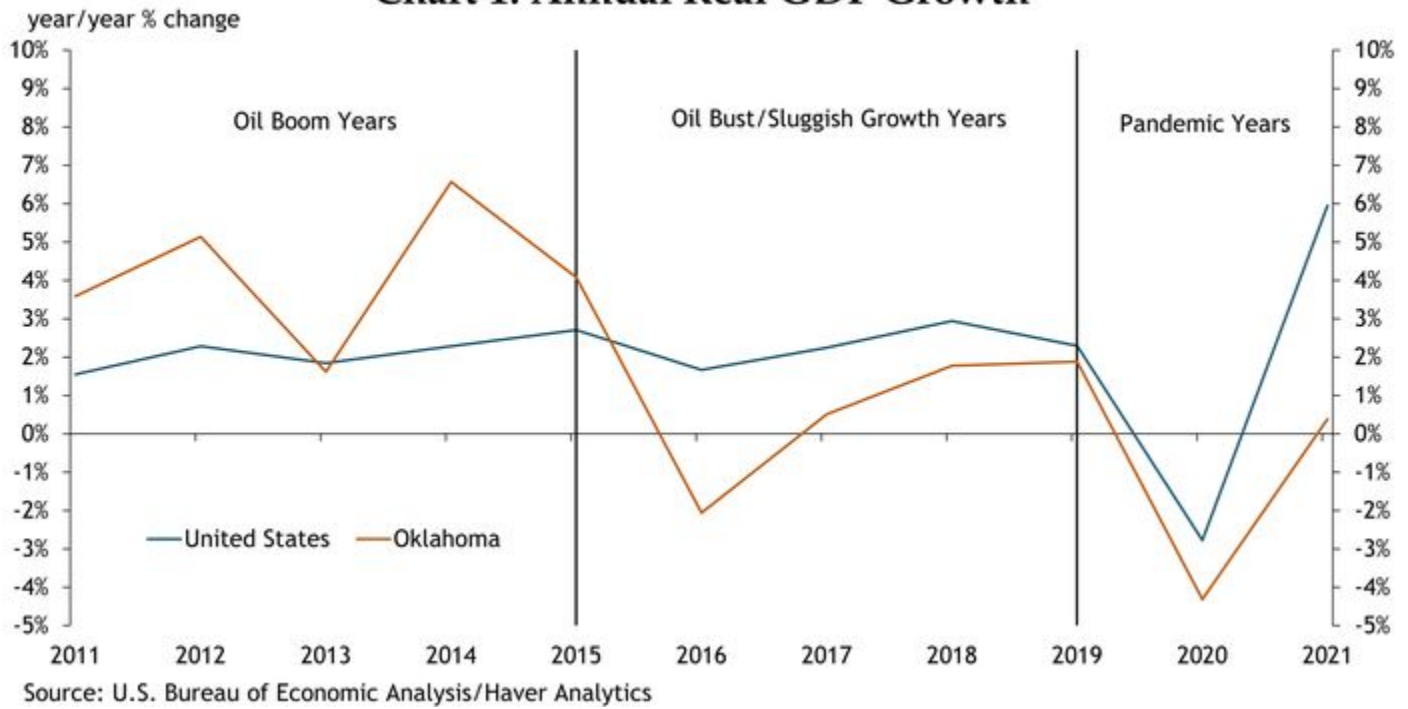
Over the past decade, Oklahoma GDP growth averaged 1.5% per year, somewhat less than the 2.1% national growth rate.

However, large fluctuations in the state's important energy sector played a significant role, and some places in Oklahoma have outpaced the nation. This edition of the *Oklahoma Economist* investigates GDP trends across the state during three distinct time frames: the oil boom years of 2011-15, the oil bust and sluggish growth of 2015-19, and the pandemic years of 2019-21. It finds that much of the state greatly outgrew the nation early in the period but has lagged since, and that the Oklahoma City metro area and a few micropolitan areas have experienced the fastest growth.

### Larger places generally had faster GDP growth, energy a factor

While the United States experienced steady annual GDP growth of around 2% from 2011 to 2019, Oklahoma's growth was much more volatile, reaching 6.6% at the height of the oil boom and a low of -2.1% during the following bust (Chart 1). GDP data from the U.S. Bureau of Economic Analysis, just released at the county level for 2021 in December 2022, allows for a new examination of the output growth of regions and industries within the state during the past decade.

### Chart 1: Annual Real GDP Growth



Overall, the more populous parts of Oklahoma grew faster than other areas of the state over the decade (Table 1). Oklahoma City and Tulsa metro area GDP—which together make up nearly 70% of Oklahoma’s total GDP—grew by an average of 2.3% and 1.4%, respectively, while smaller areas as a whole averaged yearly growth below 1%.

### Table 1: Annualized Real GDP Growth by Area

Area	GDP Growth				2021 Share of Oklahoma GDP
	2011 to 2021	2011 to 2015	2015 to 2019	2019 to 2021	
United States	2.1%	2.3%	2.3%	1.5%	-
Oklahoma	1.5%	4.3%	0.5%	-2.0%	100.0%
Oklahoma City	2.3%	5.7%	0.9%	-1.6%	41.1%
Tulsa	1.4%	4.2%	0.4%	-2.2%	27.1%
Small Metro & Micro Areas	0.8%	3.3%	0.2%	-2.8%	22.2%
Rural Areas	0.4%	2.0%	0.4%	-2.9%	9.5%
	0.3%	0.7%	0.0%	-0.1%	8.5%

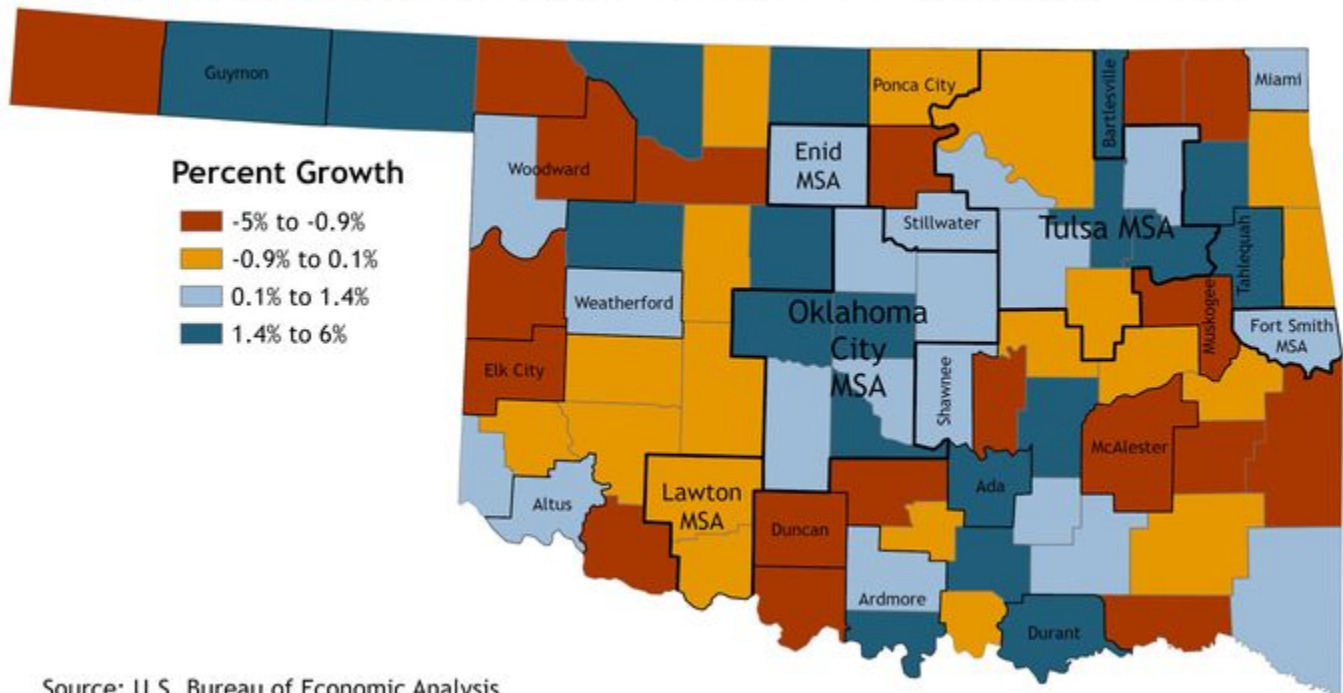
Notes: *Italicized calculations* represent GDP growth excluding *Mining, quarrying, and oil and gas extraction (Energy)*. Oklahoma City's 2021 Energy GDP is not released to avoid disclosure of confidential information; estimates are included in higher-level totals.

\*Estimate is from the year 2020, the most recent data point with Energy GDP.

Source: U.S. Bureau of Economic Analysis

Both Oklahoma County and Tulsa County were in the top quartile for GDP growth in the state, and most counties on the periphery of the metropolitan areas were in the top one or two quartiles (Map 1). Simultaneously, many rural counties experienced flat or negative growth.

**Map 1: 2011 to 2021 Annualized Real GDP Growth by County**



Oklahoma's GDP growth continued to be influenced by the oil and gas sector. Energy contributed to approximately 15% of state GDP in 2020, while it only contributed to 2.6% of U.S. GDP. The state outperformed the nation during the oil boom years of 2011-15, averaging yearly growth of 4.3%, while state GDP only grew by 0.5% a year during the subsequent four years (Table 1). Without the energy sector, Oklahoma's GDP growth would have been halved during the boom years, and Oklahoma City's reduced by more than two-thirds. Similarly, Oklahoma City's annual growth without energy would have been nearly a quarter of a percentage point higher on average during the bust.

In addition to the large metros, smaller metropolitan and micropolitan areas—comprised of Enid, Lawton, Fort Smith (Sequoyah County), and the micropolitan statistical areas—were also heavily reliant on energy, at least as a group. These areas enjoyed yearly growth of 3.3% during the boom years, but GDP declined by 2.8% annually during the pandemic, a time of low public energy demand. Non-energy production in these areas increased by around 2% in the same period, similar to the state as a whole. The pandemic-induced demand shock also affected the entire United States, as low energy production levels subtracted nearly a quarter of a percentage point from yearly national GDP growth.

## Differential effects across Oklahoma areas, what industries driving?

The GDP location quotients of industries in different parts of Oklahoma can help explain some of the discrepancies in growth between metropolitan areas and smaller areas. <sup>[1]</sup> Oklahoma was seven times more specialized in energy (*Mining, quarrying, and oil and gas extraction*) than the United States in 2021, and the Oklahoma energy sector grew 2.4% per year on average over the past decade (Table 2). During this time, Oklahoma City overtook small metropolitan and micropolitan areas for the highest energy specialization in the state, with a location quotient of 8.9 in 2020. Both the Oklahoma City and Tulsa metros' specializations in energy increased significantly from 2011 to 2020, while the specialization in small metro and micro areas and rural areas stayed relatively constant. Thus, the growth of the energy industry partially contributes to Oklahoma City and Tulsa's faster pace of growth.

**Table 2: Location Quotients by Area**

Industry	2011-21 OK Annualized GDP % Change	Location Quotients									
		Oklahoma		OKC		Tulsa		Small Metro/Micro Areas		Rural Areas	
		2011	2021	2011	2021	2011	2021	2011	2021	2011	2021
Private industries	1.8%	1.0	1.0	1.0	1.0	1.1	1.0	0.9	0.9	1.0	1.0
Agriculture, forestry, fishing and hunting	0.3%	1.4	1.4	-	0.1	0.2	0.1	2.0	2.5	7.7	7.9
Mining, quarrying, and oil and gas extraction	2.4%	6.9	7.3	7.6	8.9*	5.6	6.8	7.9	7.9*	5.1	5.3
Utilities	-1.0%	1.3	1.2	0.6	0.5	1.4	-	1.1	1.4	3.7	4.1
Construction	-1.6%	1.1	0.8	1.1	0.8	1.2	1.0	1.0	0.5	1.2	0.8
Manufacturing	0.3%	0.8	0.8	0.5	0.5	1.0	1.1	0.8	0.8	1.0	0.9
Wholesale trade	-0.3%	0.9	0.8	-	0.9	1.1	0.8	0.6	0.5	0.5	0.3
Retail trade	1.5%	1.0	1.0	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.1
Transportation and warehousing	4.6%	1.2	1.7	-	0.5**	-	2.9	1.0	0.8	0.8	1.1
Information	5.8%	0.5	0.5	0.6	0.5*	-	0.5*	0.2	0.3	0.2	0.3
Finance, insurance, real estate, rental, and leasing	0.8%	0.7	0.7	0.7	0.7	0.8	0.7	0.6	0.6	0.7	0.7
Professional and business services	2.4%	0.7	0.6	0.8	0.7*	0.9	0.8	0.3	0.3	0.3	0.2
Educational services, health care, and social assistance	1.3%	0.9	0.9	1.0	0.9*	1.0	1.0*	0.7	0.5	0.5	0.4
Arts, entertainment, recreation, accommodation, and food services	1.8%	0.8	0.9	-	1.0	0.7	0.8	0.9	1.0	0.4	0.7
Other services (except government and government enterprises)	-0.1%	1.0	1.0	1.0	1.0*	-	1.0*	0.9	0.8	0.9	0.8
Government and government enterprises	0.0%	1.2	1.2	1.2	1.2	0.6	0.7	1.7	1.9	1.3	1.3

Notes: Missing data are not released to avoid disclosure of confidential information; estimates are included in higher-level totals.

Aggregations for Small Metro/Micro Areas and Rural Areas may not include every county due to missing data.

\*Location quotient is from 2020 due to 2021 data being missing

\*\*Location quotient is from 2019

Source: U.S. Bureau of Economic Analysis

The large metro areas also have the largest location quotients in services industries, which saw the most growth over the decade. Tulsa has the largest specializations in *Transportation and warehousing* and *Information*, which both grew well above 4% annually. It also has the largest specialization in *Professional and business services*; *Finance, insurance, real estate, rental, and leasing*; and *Educational services, health care, and social assistance*, all of which experienced steady growth.

Key industries in Oklahoma’s micropolitan and rural economies declined over the decade, resulting in negative or sluggish growth for some communities. The *Utilities* industry—comprised of electricity generation, natural gas distribution, and water and sewage services—saw a 1.0% average annual decrease in GDP. Location quotients for this industry grew in micropolitan and rural areas over the decade, even as output fell, while the location quotient for the whole state decreased. In Oklahoma’s rural areas, *Utilities*’ location quotient increased from 3.7 in 2011 to 4.2 in 2021. Production in *Agriculture, forestry, fishing, and hunting* remained mostly flat, with an average annual growth rate of 0.3%. This industry is also heavily concentrated in Oklahoma’s rural communities. Rural areas are nearly six times as specialized in agriculture and its related industries as the state as a whole, and nearly eight times as specialized as the nation.

### **Some smaller areas have grown fastest of all, what characterizes them?**

Even as less populous areas in Oklahoma saw relatively sluggish growth in aggregate over the decade, some micropolitan areas have grown similarly to—and in some cases much faster than—the state and the nation. Specifically, the Guymon, Bartlesville, and Durant micropolitan areas all average annual GDP growth over 3.9%, and Ada, Tahlequah, and Shawnee all grew by at least 1.4% on average (Table 3).



## Table 3: Small Metropolitan and Micropolitan Area Annualized Real GDP Growth

Area	GDP Growth			
	2011 to 2021	2011 to 2015	2015 to 2019	2019 to 2021
Guymon	5.3%	10.6%	3.6%	-1.3%
Bartlesville	4.2%	13.9%	3.0%	-10.8%
Durant	3.9%	3.0%	4.6%	4.2%
Ada	2.1%	1.5%	3.8%	-0.1%
Tahlequah	1.5%	0.3%	0.4%	6.3%
Shawnee	1.4%	2.1%	0.8%	1.2%
Altus	1.0%	-0.4%	1.3%	3.1%
Ardmore	0.8%	2.7%	2.0%	-5.2%
Weatherford	0.6%	3.2%	0.8%	-4.7%
Fort Smith (Sequoyah County)	0.6%	-0.5%	1.6%	0.6%
Enid	0.4%	8.8%	-7.3%	0.3%
Miami	0.3%	0.0%	0.8%	-0.1%
Stillwater	0.2%	-0.3%	1.1%	-0.7%
Ponca City	0.0%	-1.2%	0.6%	1.0%
Lawton	-0.5%	-0.4%	-0.8%	-0.4%
McAlester	-1.1%	0.9%	-0.2%	-6.5%
Woodward	-1.2%	-0.1%	-0.3%	-4.9%
Muskogee	-1.4%	0.1%	-3.3%	-0.4%
Duncan	-1.8%	-0.3%	-2.8%	-2.7%
Elk City	-3.5%	-0.8%	-4.1%	-7.7%

Source: U.S. Bureau of Economic Analysis

Each of these six micropolitan areas with the most increase in GDP have a heavy concentration in particular industries which likely helped propel the growth. Guymon grew the fastest of any area in Oklahoma and outpaced the nation, growing at 5.3% on average from 2011 to 2021. Guymon's economy is largely defined by the agriculture industry. Its agriculture location quotient was 31.2 in 2011 and grew to 35.1 in 2021 (Table 4). Guymon saw the fastest growth during the oil boom years—also solid years for agriculture—with GDP increasing by 10.6% on average from 2011 to 2015, but also posted 3.6% annual growth in the following four years.

**Table 4: Location Quotients of Fastest Growing Micropolitan Areas**

Industry	Guymon		Bartlesville		Durant		Ada		Tahlequah		Shawnee	
	2011	2021	2011	2021	2011	2021	2011	2021	2011	2021	2011	2021
Private industries	1.0	1.1	1.1	1.1	0.8	0.7	0.8	0.7	0.6	0.6	0.9	0.9
Agriculture, forestry, fishing and hunting	31.2	35.1	0.1	0.0	0.1	0.4	1.3	0.1	0.2	0.9	0.1	0.1
Mining, quarrying, and oil and gas extraction	3.6	2.2	32.6	32.3	1.0	-	2.3	-	0.1	-	1.5	1.1
Utilities	0.6	1.3	0.2	0.1	0.3	-	0.4	-	0.6	0.9	0.3	0.4
Construction	0.8	-	0.3	0.2	0.9	0.7	1.1	0.5	1.1	0.7	1.2	0.8
Manufacturing	1.3	-	0.2	0.3	0.6	0.8	0.7	0.6	0.1	0.1	1.0	1.2
Wholesale trade	0.6	0.3	0.1	0.1	1.0	1.0	0.7	0.5	0.7	0.1	0.5	0.4
Retail trade	0.6	0.4	0.8	0.5	1.1	1.3	1.0	1.0	1.3	1.2	1.1	1.3
Transportation and warehousing	0.8	0.6	1.3	-	0.7	1.0	0.8	-	0.1	-	0.5	0.4
Information	0.7	0.6	0.1	0.2	0.4	0.3	0.2	1.0	0.2	0.1	0.4	0.4
Finance, insurance, real estate, rental, and leasing	0.3	0.2	0.3	0.3	0.7	0.7	0.7	0.7	0.8	1.0	0.8	0.7
Professional and business services	0.4	0.2	0.3	-	0.5	0.4	0.7	0.3	0.2	0.3	0.5	-
Educational services, health care, and social assistance	0.2	0.1	0.5	0.3	1.1	0.8	1.1	0.9	0.7	0.6	1.1	-
Arts, entertainment, recreation, accommodation, and food services	0.4	0.2	0.4	0.3	1.1	-	0.7	0.9	0.9	0.8	3.7	3.9
Other services (except government and government enterprises)	0.6	0.4	0.5	0.4	1.2	1.0	1.1	1.0	1.3	1.4	1.2	1.2
Government and government enterprises	0.7	0.4	0.3	0.2	2.5	3.2	2.3	3.2	3.5	4.4	1.4	1.5

Note: Missing data are not released to avoid disclosure of confidential information; estimates are included in higher-level totals.

Source: U.S. Bureau of Economic Analysis

Second to Guymon in growth was Bartlesville, increasing GDP by 4.2% a year on average during the decade. Like Guymon, Bartlesville's GDP increased the most in the oil boom years. The economy grew 13.9% yearly during this time, the highest annual rate of anywhere in the state. Also similar to Guymon, the Bartlesville economy has one primary industry in which it is heavily concentrated, namely oil and gas. Bartlesville was nearly five times more specialized in energy GDP than the state at the start of the oil boom, with a location quotient of 32.6. Bartlesville's economic growth largely follows the trends of the oil and gas industry. It experienced a much more modest 3.0% annual growth rate during the oil bust years, and the area's output fell by 10.8% yearly from 2019 to 2021 as energy demand dropped during the pandemic.

Several micropolitan areas with large tribal presences also had solid growth in GDP over the decade and actually grew the most during the state's more sluggish years. Durant, headquarters of the Choctaw Nation, outpaced the state and nation from 2011 to 2021, and Ada, Tahlequah, and Shawnee—headquarters of the Chickasaw, Cherokee, and Citizen Potawatomi Nations, respectively—grew steadily as well. Unlike Guymon and Bartlesville, Durant and Ada grew the most in the years following the oil boom. Durant and Tahlequah also grew considerably during the pandemic years. Tahlequah averaged a yearly growth rate of 6.3% during the pandemic, the largest growth of any area in the state. Ada sustained relatively constant GDP when the state and many other micropolitan areas experienced a decline. Shawnee saw the most consistent growth over the decade, ranging from an annualized rate of 0.8% from 2015-19 to 2.1% in 2011-15. All these areas are highly specialized in *Government and government enterprises*, which includes tribal activity. The location quotients in this category increased in each of these places from 2011 to 2021.

Unlike most other micropolitan and rural areas in the state, these tribal headquarters micropolitan areas also have a higher concentration in services, which grew at a faster pace than goods. Shawnee was nearly four times as specialized than the nation in *Arts, entertainment, recreation, accommodation, and food services* in 2021, which includes casinos and hotels, and Durant was slightly more specialized in it in 2011. Durant, Ada, and Shawnee also specialize in *Educational services, health care, and social assistance*, which may also be related to tribal activity. Durant, Ada, Tahlequah, and Shawnee all specialize in *Retail Trade* and *Other Services*. By contrast to most smaller areas in the state, these areas have little specialization in the industries that weakened the most over the decade, like *Utilities* and *Construction*. Their higher concentrations in services and the growth in tribal activity allowed these areas to avoid the declines that much of the state experienced during the oil bust and pandemic years.

## Summary and Conclusions

While Oklahoma's GDP growth averaged 1.5% annually from 2011 to 2021, there were noteworthy differences by time period and region. After strong growth during the oil boom years of 2011 to 2015, the state underwent periods of sluggish growth and declining GDP due to the oil bust and Covid-19 pandemic. Overall, the Oklahoma City and Tulsa metro areas experienced a faster pace of growth than smaller areas, due largely to their greater specialization in the energy and services sectors, which grew the most over the decade. High growth in some smaller micropolitan areas was driven by key industries in each area that either experienced a boom or insulated them from large declines during the turbulent bust and pandemic years. Heading forward, there may be continued divergence in growth trends across the state as energy production sources evolve and service sectors in more densely populated areas continue to grow in a post-pandemic economy.

## Endnotes

- [1] A location quotient is a ratio of ratios which shows how sizable or specialized an industry is in a certain location relative to a larger location. In this case, the numerator is the GDP of an industry in an area of Oklahoma over the total GDP of that area, and the denominator is the GDP of that industry in the United States over total U.S. GDP. So, a location quotient greater than 1 shows that the area has a relatively larger presence of that industry than the United States.



## Authors



### Chad Wilkerson

#### Senior Vice President and Oklahoma City Branch Executive

Chad Wilkerson serves as Oklahoma City Branch Executive and Senior Vice President of Community Development for the Federal Reserve Bank of Kansas City. Wilkerson has been with the Federal Reserve since 1998, starting in Kansas City's research department. Appointed in 2006 as Oklahoma City Branch Executive, Wilkerson is the Bank's lead officer and regional economist in Oklahoma. He recruits and works closely with the Oklahoma City Branch Board of Directors and is responsible for briefing the Kansas City Fed president, a member of the Federal Open Market Committee, on economic trends in the state. His team conducts research and surveys on key regional issues such as energy, manufacturing and migration. Wilkerson was appointed Senior Vice President in 2022, and supports a Community Development team located across the Kansas City Fed's seven-state region. This group works to understand and address issues affecting the ability of underserved communities and small businesses to access credit. Community development focus areas include financial resiliency, affordable housing, community investments, workforce development, rural development and digital inclusion. Wilkerson holds a master's degree in public policy from the University of Chicago, as well as a master's degree from Southwestern Seminary and bachelor's degree from William Jewell College. He serves on the boards of the Economic Club of Oklahoma, the United Way of Central Oklahoma and City Rescue Mission. He lives in Edmond, Oklahoma, with his wife and children.



### Chase Farha

#### Research Associate

Chase Farha is a Research Associate in the Regional Affairs department at the Oklahoma City branch of the Federal Reserve Bank of Kansas City. In this role, his responsibilities include contributing to the Oklahoma Economist and a variety of research projects. He holds a Bachelor of Science degree in Economics, with minors in mathematics and Arabic, from Tulane University.