

HOW  
**TULSA REMOTE**  
IS HARNESSING THE  
REMOTE WORK REVOLUTION  
TO SPUR  
**LOCAL ECONOMIC GROWTH**

*Lessons from a Leading Remote Work  
Incentive in Tulsa, Oklahoma*

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ECONOMIC  
INNOVATION  
GROUP 

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# Executive Summary

The knowledge- and technology-driven economic growth of recent decades largely bypassed many mid-sized metropolitan areas, concentrating instead in parts of the country already home to dense networks of highly-educated workers and technical industries. This left many heartland cities in a quandary: How to match the magnetic attraction of superstar cities and develop their own critical mass of expertise and workers? Finding a set of solutions will be pivotal for helping these communities catch up and embark on a similarly virtuous circle of economic development.

In a promising development, the same technologies that have fed the increasing concentration of economic well-being in coastal and tech-dominated cities now appear set to potentially help spread economic opportunity to more places than ever before. The rise of remote work—the ability to perform certain jobs from anywhere—could be a ticket into the skilled worker competition for a heartland community like Tulsa, Oklahoma, that has previously had to watch from the sidelines.

Tulsa Remote, an initiative spearheaded by George Kaiser Family Foundation, is a leading remote worker incentive program that has demonstrated great success at luring hundreds of new remote workers to Tulsa since its launch in 2018. The highly-selective program offers a package of incentives including a \$10,000 grant, local resettlement assistance, a membership to a local co-working space, and programming directed at community building in order to encourage remote workers and entrepreneurs to relocate to Tulsa for at least one year.

The intervention takes aim at some of the Tulsa region's core structural economic challenges familiar to many state and local leaders across the heartland: inconsistent population growth that is slower than many peers, difficulty retaining and attracting highly educated workers, and lagging growth in high-tech, high-wage industries and occupations. While not a solution to all of the community's economic problems, Tulsa Remote is designed to act as a catalyst for change in the face of these hurdles. Thus far the incentive has succeeded in attracting

a highly educated, well-paid cohort of remote workers and their families: The median income of a Remoter stood at \$85,000 as of mid-2021 and the average was just over \$104,600. Fully 88 percent of program members have at least a bachelor's degree compared to 32 percent of Tulsa residents more broadly, and Remoters frequently work in the knowledge-intensive information or professional and scientific services industries.

Since its founding in 2018, Tulsa Remote has brought more than 1,200 program members to Tulsa—a contribution that may seem small in a metro area of one million people—but one that is set to have a truly outsized impact. Even though not all members stay beyond their one-year commitment and a select group may have moved to Tulsa anyway given previous ties to the region, the program is expected to be responsible for 592 full-time equivalent (FTE) jobs and \$62.0 million in new labor income for Tulsa County in 2021 alone. In total, for every dollar spent on the remote worker incentive itself, there has been an estimated \$13.77 return in new local labor income to the region. If the program continues to grow as expected, the combined new employment in Tulsa as a result of the program—counting program members and locally created jobs—is projected to be upwards of 5,000 in 2025, while the new labor income in the local economy in 2025 alone is projected to reach approximately \$500 million dollars.

The success of Tulsa Remote to date is closely tied to both program design—emphasizing pro-social behavior in the application process with community support services upon arrival—and strong support from local institutions. Moving forward, the potential success of the initiative will be mediated by four primary factors: retention, competition, community support, and the extent to which it is able to actually contribute to long-term economic transformation.

Each factor is closely tied to questions that Tulsa and any community considering such an approach to economic development must ask when considering a remote work incentive:

- How does the community bring remote workers and ensure that they stay?
- How can the initiative stand out in the face of competing remote worker programs?
- How can the community ensure that local institutions and residents buy into the initiative?
- Will newly attracted remote workers live up to expectations and eventually go on to form the base of a new local knowledge economy?

Tulsa Remote's long-term success as an economic development tool appears promising thanks to its strong answers to many of these questions and its advantage as of the first and best-known remote worker incentive programs of its kind in the country. The program has only become more relevant as the ranks of the footloose digital nomads eligible to take advantage of a remote worker incentive have grown in the wake of the COVID-19 pandemic. While other communities may develop and innovate their own remote worker incentives into competitiveness, one thing is clear: as one of the leading programs and largest scale attempts at such an intervention, there is much to learn from Tulsa Remote.

# Introduction



In recent decades, a select few places across the United States have reaped the bulk of rewards from an increasingly concentrated knowledge economy dominated by highly skilled workers and technical industries. These places—armed with initial endowments of skilled workers and strong existing ties to the leading industries of the modern economy—have amassed enormous structural and agglomerative advantages that are not easily replicated. Yet the same technologies that have fed the increasing concentration of economic well-being in coastal and tech-dominated cities now appear set to potentially help spread economic opportunity to more places than ever before. The rise of remote work—the ability to perform a job from anywhere—could be a ticket into the high tech worker competition for communities nationwide that have largely watched from the sidelines.

Remote work has been the subject of much hype and oftentimes hyperbolic predictions about its potential transformational influence on the economy, but there is still

much we do not know about its long term implications for economic development. The emergence of the COVID-19 pandemic truly upended the relationship between work and geography, thrusting the remote work model into a large-scale experiment with unknown results. In 2019, just under 6 percent of workers performed their duties from home,<sup>1</sup> a share that rocketed up to 35 percent at the height of the pandemic.<sup>2</sup> While its long term durability remains an open question, the pandemic has undoubtedly provided proof of concept for the feasibility of remote work for both employee and employer. This nontraditional model of work provides an opportunity for previously bypassed places to now compete for and capture economically valuable knowledge workers. Even prior to the pandemic, many communities had turned to offering incentives to attract remote workers in an acknowledgment of the growing promise of remote work.

George Kaiser Family Foundation (GKFF) launched Tulsa Remote, a remote worker incentive program, in 2018 as an

attempt to bring talented individuals to Tulsa, Oklahoma and potentially provide a much-needed shot in the arm to the local economy. The program is designed to help relocate eligible remote workers or entrepreneurs from outside of Oklahoma in exchange for a \$10,000 grant distributed over the course of a one-year commitment to residing in Tulsa, along with supportive community-building opportunities.

Tulsa's traditionally natural resource-oriented economy has been held back from becoming more dynamic and economically competitive in recent years because of inconsistent population growth, difficulty retaining and attracting highly educated workers, and lackluster growth in high-tech, high-wage industries and occupations. The Tulsa Remote initiative is taking on these structural hurdles by bringing in remote workers, commonly referred to as "Remoters," who can plant the seeds of economic growth through their valuable skill sets and generally well paying jobs. As the largest and most advanced among at least 50 similar remote worker attraction programs that have sprouted across the country in recent years,<sup>3</sup> Tulsa Remote could hold the keys to better understanding the rise of remote workers and their role in the future of the American economy. Still in early stages, the initiative has

shown promising signs of success in luring more than 1,200 new remote workers with the potential to leave an outsized impact on the local economy.

This report provides an assessment of remote work, a tailored overview of relevant impediments for the Tulsa economy, and an analysis of the economic impact of the Tulsa Remote program. It is based on data analysis, original survey work, economic impact modeling, and numerous interviews with community stakeholders. The report begins with an overview of the state of remote work in the United States, particularly in the wake of the COVID-19 pandemic. It then transitions to an analysis of the challenges and strengths of the Tulsa economy, focused specifically on population dynamics, educational attainment in the local labor force, and the implications of past and current economic structure for future growth prospects. The subsequent sections present the analysis of a survey of Tulsa Remote program members and an economic impact analysis of the Tulsa Remote program utilizing IMPLAN economic modeling. It concludes with a discussion of the report's implications surrounding the transferability, social impact, and economic effects of remote worker incentive programs more broadly.

## Endnotes

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<sup>1</sup> U.S. Census Bureau, American Community Survey 1-year Estimate, 2019.

<sup>2</sup> Sabrina Wulff Pabilonia and Victoria Vernon, "[Telework and Time Use in the United States](#)," May 2020.

<sup>3</sup> [MakeMyMove.com](#), accessed September 2021.

# Section I.

## Getting to Know Tulsa and its Peers

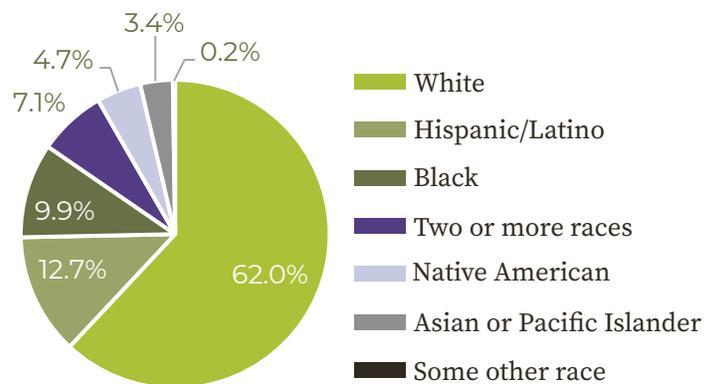


Tulsa, Oklahoma’s metropolitan statistical area (MSA) surpassed 1 million people for the first time in 2020 and is the 54th most populous MSA in the country.<sup>1</sup> The metro area covers seven counties located in northeastern Oklahoma in a part of the state commonly known as Green Country. Tulsa County—encompassing nearly all of the City of Tulsa—is the region’s most populous jurisdiction containing approximately 657,600 residents, or nearly two-thirds of the entire metro area’s population.\*

The area is slightly more racially and ethnically diverse than Oklahoma overall, as 62 percent of the population are non-Hispanic white.<sup>2</sup> Hispanics and Latinos make up 12.7 percent of the population, while Black residents constitute the second largest minority group at 9.9 percent. Native Americans make up nearly 5 percent of residents while

the broader metro area has the second highest number of Native American residents nationwide. An additional 7.1 percent identify as two or more races, while just under 9 percent of Tulsa County residents are foreign born.

### Tulsa County Demographics



Source: U.S. Census Bureau American Community Survey 5-year Estimates, 2015-19

\* Data points for “Tulsa” throughout this report are based on statistics for Tulsa County unless otherwise specified.

Tulsa County is a core component of Oklahoma’s overall economy and is responsible for nearly a quarter (24.3 percent) of the state’s entire economic output as measured by gross domestic product (GDP). Tulsa serves as a regional hub for

the aerospace and oil and gas industries, and its legacy as the one-time “oil capital of the world” remains clear: Six of the seven Fortune 1000 companies headquartered in the region are tied to the oil and gas industry.<sup>3</sup>

### Comparison of Tulsa with Oklahoma and the United States on Select Economic and Demographic Metrics

	Tulsa	Oklahoma	United States
Population	657,600	3,980,800	329,484,100
Total population growth, 2010-2020	+9.0%	+6.1%	+6.7%
Prime age population growth, 2010-2020	+3.6%	+0.6%	+1.1%
Median household income	\$55,500	\$52,900	\$62,800
Median home value	\$156,400	\$136,800	\$217,500
Poverty rate	15.0%	15.7%	13.4%
Share of residents 25 or older with a college degree	31.8%	25.5%	32.1%
Employment growth, 2010-2019	+10.4%	+9.2%	+15.9%
Share of private employment in industries well-suited for remote work	14.3%	13.2%	16.5%

Sources: U.S. Census Bureau Population Estimates Program, 2020; U.S. Census Bureau American Community Survey 5-year Estimates, 2015-19; U.S. Bureau of Labor Statistics



# Tulsa's Peers

Tulsa's peer cities were selected in consultation with the Tulsa Remote program. Data points are for the most populous county of each city's metropolitan area, unless otherwise noted.\* Regional peers like Wichita, Omaha, and Oklahoma City reflect shared qualities such as population size, geographic location, and economic characteristics, while Chattanooga and Spokane also provide a degree of geographic diversity. Austin's record of rapid, tech-driven economic growth provides an aspirational benchmark across measures.

In addition to economic factors, quality of life and cost of living play similarly vital roles in the decision of where to live and work. These are often less tangible and harder to measure or compare, since individuals have different preferences and trade-offs they are willing to make when choosing where to live. Some of the most salient considerations include tax burden, school performance, social cohesion, traffic, and access to recreation facilities. In general, Tulsa residents benefit from the lowest cost of living relative to its peers, but otherwise the city tends to land in the middle of the pack on other quality of life aspects.

## Select Quality of Life Metrics for Tulsa and its Peers

City	Median Property Taxes Paid by County, 2019	Rank (Lowest = 1)	State-local tax burdens by state (effective tax rate), 2019	Rank (Lowest = 1)	Cost of Living Index (metro scale)	Rank (Lowest = 1)	Share of residents within a ten-minute walk of a park	Rank (Highest = 1)
Tulsa	\$1,769	3	8.2%	3	86.7	1	60%	4
Austin	\$5,843	7	8.0%	2	106.6	7	62%	3
Chattanooga	\$1,585	1	7.0%	1	91.2	4	38%	7
Oklahoma City	\$1,643	2	8.2%	4	87.3	3	38%	6
Omaha	\$3,413	6	10.3%	7	92.9	5	82%	2
Spokane	\$2,478	5	9.8%	5	100.4	6	87%	1
Wichita	\$1,816	4	10.1%	6	86.8	2	54%	5

City	Average grade-level performance for 3rd graders on math standardized tests	Rank (Highest = 1)	Average grade-level performance for 3rd graders on reading standardized tests	Rank (Highest = 1)	Index of white/non-white residential segregation	Rank (Lowest = 1)	Average number of hours wasted in traffic per commuter	Rank (Lowest = 1)
Tulsa	2.8	4	2.8	4	29	2	27	5
Austin	3.2	1	3.0	1	36	4	41	7
Chattanooga	2.8	4	2.8	4	50	7	15	1
Oklahoma City	2.7	6	2.7	7	29	3	35	6
Omaha	3.1	2	3.0	1	43	6	19	2
Spokane	2.9	3	3.0	1	28	1	20	3
Wichita	2.7	6	2.8	4	42	5	25	4

Sources: Varied, see sourcing at the end of this section

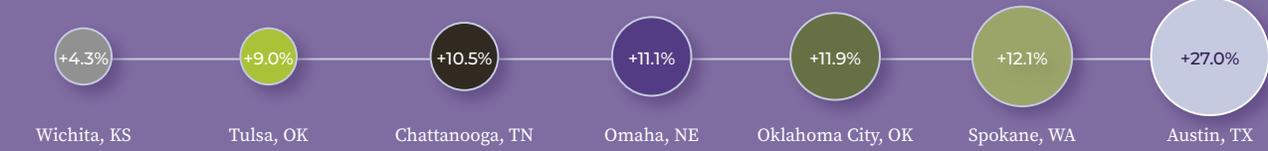
\* Core counties are: Tulsa County, OK; Douglas County, NE; Hamilton County, TN; Oklahoma County, OK; Sedgwick County, KS; Spokane County, WA; and Travis County, TX.

## Select Economic and Demographic Metrics for Tulsa and its Peers

### Population



### Total population growth, 2010-2020



### Prime age population growth, 2010-2020



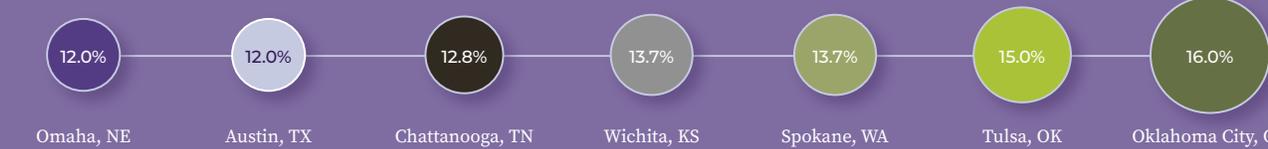
### Median Household income



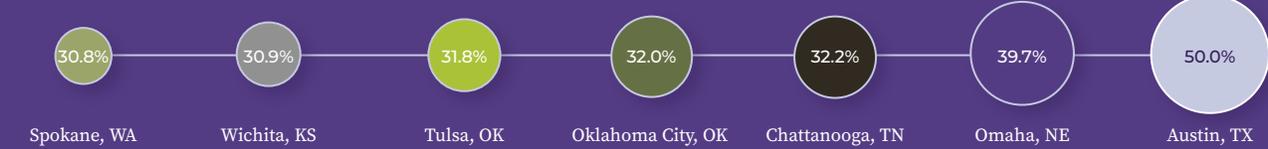
### Median home value



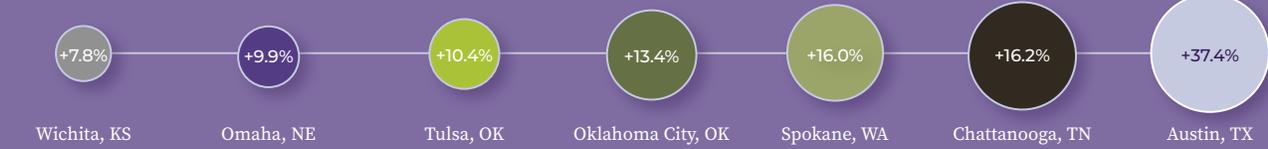
### Poverty Rate



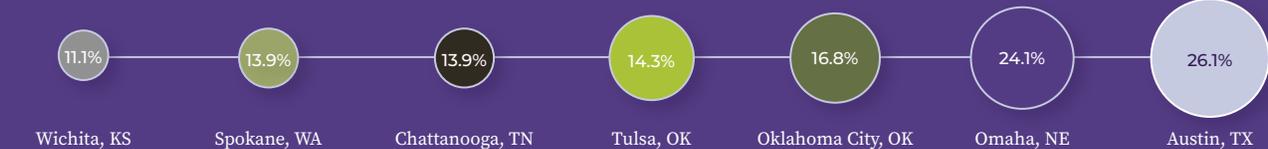
### Share of residents 25 or older with a college degree



### Employment growth, 2010-2019



### Share of private employment in industries well-suited for remote work



## Sources for Quality of Life Metrics:

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### Median Property Taxes Paid by County, 2019

Janelle Cammenga, "[Where Do People Pay the Most in Property Taxes?](#)" The Tax Foundation, September 2021, 5-year estimate from the U.S. Census Bureau, 2019 American Community Survey, dataset B25103.

### Combined State-Local Effective Tax Rate by State, 2019

Erica York and Jarec Walczak, "[State and Local Tax Burdens, Calendar Year 2019](#)," The Tax Foundation, March 2021.

### Cost of Living Index

Adrian Mak, "[AdvisorSmith City Cost of Living Index](#)," AdvisorSmith, March 2021. Note: The cities are indexed to 100, with 100 being the average cost of living for the United States. Index values above 100 indicate that the city has a cost of living above the average, while values below 100 indicate a cost of living below the average.

### Average Grade-level Performance for 3rd Graders on Math Standardized Tests

County Health Rankings and Roadmaps, [County Health Rankings 2021](#), Math Scores. Note: Math Scores is the average grade level performance in the county for 3rd graders on math standardized tests. For example, a score of 3.5 indicates that the 3rd graders are performing half a grade level better than expected for 3rd graders.

### Traffic Delays per Auto Commuter, 2021

Texas A&M Transportation Institute, [Urban Mobility Report 2021](#). Note: The yearly delay for auto commuters who travel in the peak period (6 to 10 a.m. and 3 to 7 p.m.).

### White/Non-White Residential Segregation

County Health Rankings and Roadmaps, [County Health Rankings 2021](#), Residential segregation - non-white/white. Note: The residential segregation index ranges from 0 (complete integration) to 100 (complete segregation), where higher values indicate greater residential segregation between non-White and White county residents.

### Share of Residents within a Ten-Minute Walk of a Park, 2021

The Trust for Public Land, [2021 ParkScore Index](#).

## Endnotes

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<sup>1</sup> U.S. Census Bureau, Population Estimates Program, 2020.

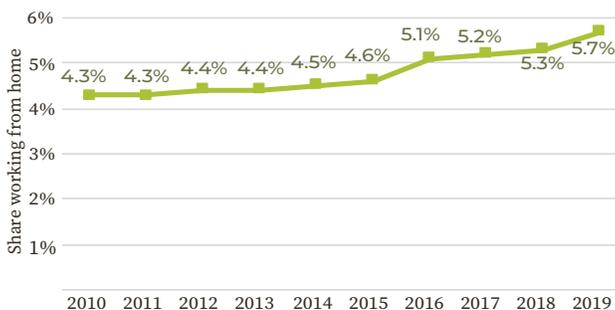
<sup>2</sup> U.S. Census Bureau, American Community Survey 5-year Estimates, 2015-19.

<sup>3</sup> [Fortune 500 Companies, 2020](#)

# Section II. The Evolving Nature of Remote Work

Since the dawn of the digital age, expectations have been high for technology's potential to transform how and where people work. Yet in many ways, the bonds of face-to-face communication and uncertainty about the practical elements of remote work remained strong enough to hold back its expansion. In 2019 just under 6 percent of workers performed their duties from home,<sup>1</sup> and not until the COVID-19 pandemic—when many employers were forced to embrace the remote work model—did working from home truly become widespread for the first time.<sup>2</sup>

**Share of Employed People Working from Home 2010-19**



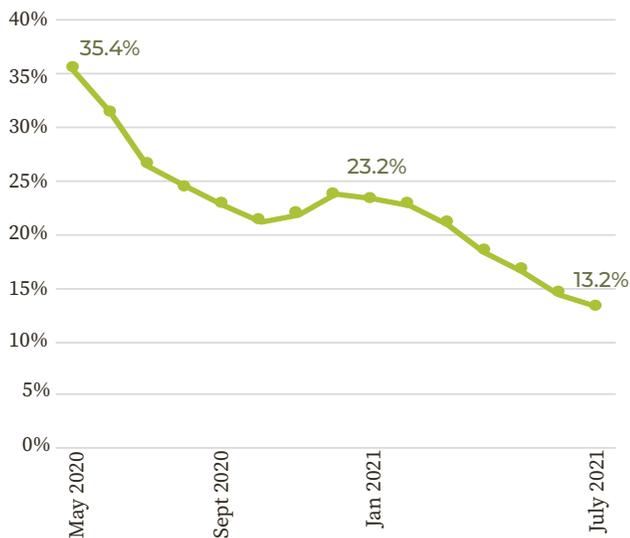
Source: U.S. Census Bureau American Community Survey 1-Year Estimates

The once-in-a-lifetime shock of the pandemic reshuffled many employers' standard operating procedures, unleashing a watershed moment for remote work and its potential impacts on the economy—one that Tulsa Remote was uniquely positioned to take advantage of.

The once-in-a-lifetime shock of the pandemic reshuffled many employers' standard operating procedures, unleashing a watershed moment for remote work and its potential impacts on the economy—one that Tulsa Remote was uniquely positioned to take advantage of. Suddenly around 35 percent of the workforce was working remotely, upending expectations and opening up new potential for remote workers to become a more durable part of the modern economy. As of July 2021, just over 13

percent of all workers were still largely remote because of the pandemic—roughly double where the figure stood in 2019.<sup>3</sup> Now, a growing number of programs that facilitate or support remote work are taking root in communities across the United States and boosting the profile of nontraditional work arrangements.

### Share of Employed People Working from Home because of COVID-19



Source: U.S. Bureau of Labor Statistics Current Population Survey, May 2020–July 2021

## How Many People Work Remotely?

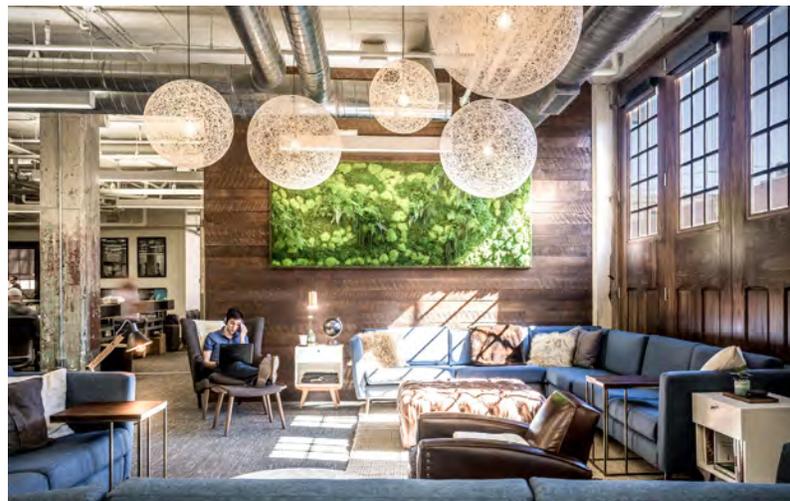
Before the pandemic, remote workers represented a small but growing segment of the contemporary workforce. Approximately 36 million wage and salary workers—around one in four nationally—worked at home at least occasionally in 2017-18, according to the U.S. Bureau of Labor Statistics (BLS).<sup>4</sup> The share of people who reported working exclusively from home at least one day per week was a more modest 14.7 percent of wage and salary workers on average.

Even more limited was the share of remote workers who were out of the office multiple days per week—the pool from which a program like Tulsa Remote draws. Only about one in every seven remote workers, or just about 3.1 million people, worked away from an office at least five days per week prior to the pandemic. That translates to just over 2

percent of the total workforce that was fully remote most or all of the time. Notably, this figure focuses solely on wage and salary workers and excludes self-employed workers, who typically work remotely at higher rates than salary or wage employees—implying that the actual share of full time remote workers is likely a few percentage points higher.

The buzz around remote work and its role in the U.S. workplace has only grown louder since 2020, as millions of people were thrust into the unfamiliar position of working from their own makeshift offices across the country. In May 2020, 48.7 million workers—or just over 35 percent of the employed population—were working remotely specifically because of the coronavirus pandemic.<sup>5</sup> That is similar to the rate estimated by an academic study suggesting that 31-37 percent of all U.S. jobs could feasibly be done entirely from home.<sup>6</sup>

Ultimately, up to half of the labor force had experience working remotely at some point in 2020 due to the pandemic, and about half of all paid working hours were performed at home between April and December 2020. Among those employed prior to the onset of the pandemic, a survey conducted in May 2020 found that just over 35 percent switched from commuting to working from home. Combined with the 15 percent in the survey that already reported working remotely, about half of all workers were at home in the early stages of the pandemic.



## Comparing Estimates of Remote Work

Pinpointing the true extent of remote work in the United States is difficult due to various survey formats and the degree of flexibility in how frequently an employee works outside a traditional office environment. Recent surveys have provided a range of estimates that complement the work from home figures provided by the U.S. Bureau of Labor Statistics (BLS) for 2017-18.

The share of Americans working exclusively from their home was 5.7 percent in 2019, based on survey data on commuting habits from the U.S. Census Bureau.<sup>10</sup> That share increased from 4.3 percent of workers in 2010, although it is important to note that the survey only captures workers at home and not those who may have commuted to a non-office location outside the home.

Other researchers estimated the share of full workdays conducted from home to be 4.8 percent, based on extrapolations of the BLS estimates in the 2017-18 time frame.<sup>11</sup>

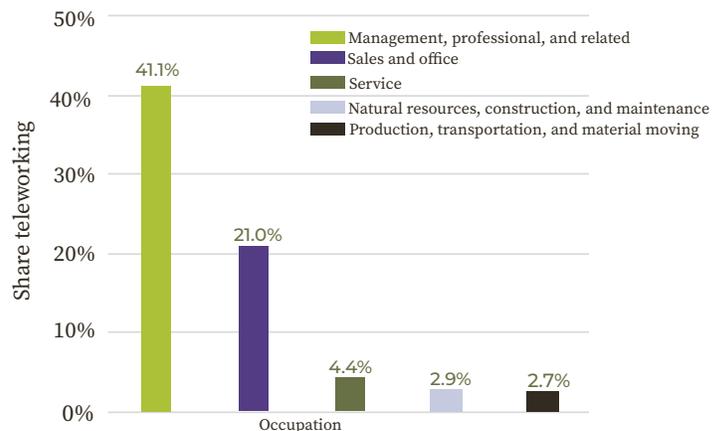
Approximately 9.5 percent of workers claimed to work remotely full time in the Freelancing in America survey conducted in 2019 by Upwork and Freelancers Union. An additional 26.6 percent claimed to work remotely at least some of the time, either at home or some third space like a coffee shop or co working space.<sup>12</sup> Just over 5 percent of workers were remote full time from home, which is in a similar range as reported by the Census Bureau.

## What Types of Employees Can Typically Work Remotely?

Many of the workers who can operate successfully in a remote work model are part of the so-called knowledge economy, encompassing industries and occupations that require college degrees or highly technical skills. Households with above-average incomes and higher educational attainment are much more likely to have the flexibility to work remotely than others,<sup>13</sup> while self-employed workers are among the most likely to be fully remote.<sup>14</sup> Younger workers and business owners also tend to exhibit more comfort with remote work.<sup>15 16</sup>

These cleavages were reinforced during the pandemic, leading to a stark difference in remote work uptake by occupation. Just over 41 percent of the nearly 63.9 million employed people working in management, professional, and related occupations reported teleworking at some point in January 2021 when remote work was at a relative high point (although that figure had declined to 24.6 percent by July 2021).<sup>17</sup> At both points in time, that was approximately double the share of workers who reported teleworking in the next largest bucket of occupations: sales and office. Meanwhile, fewer than five percent of service workers were working remotely.

### Share of Employed People Working from Home because of COVID-19 by Occupation



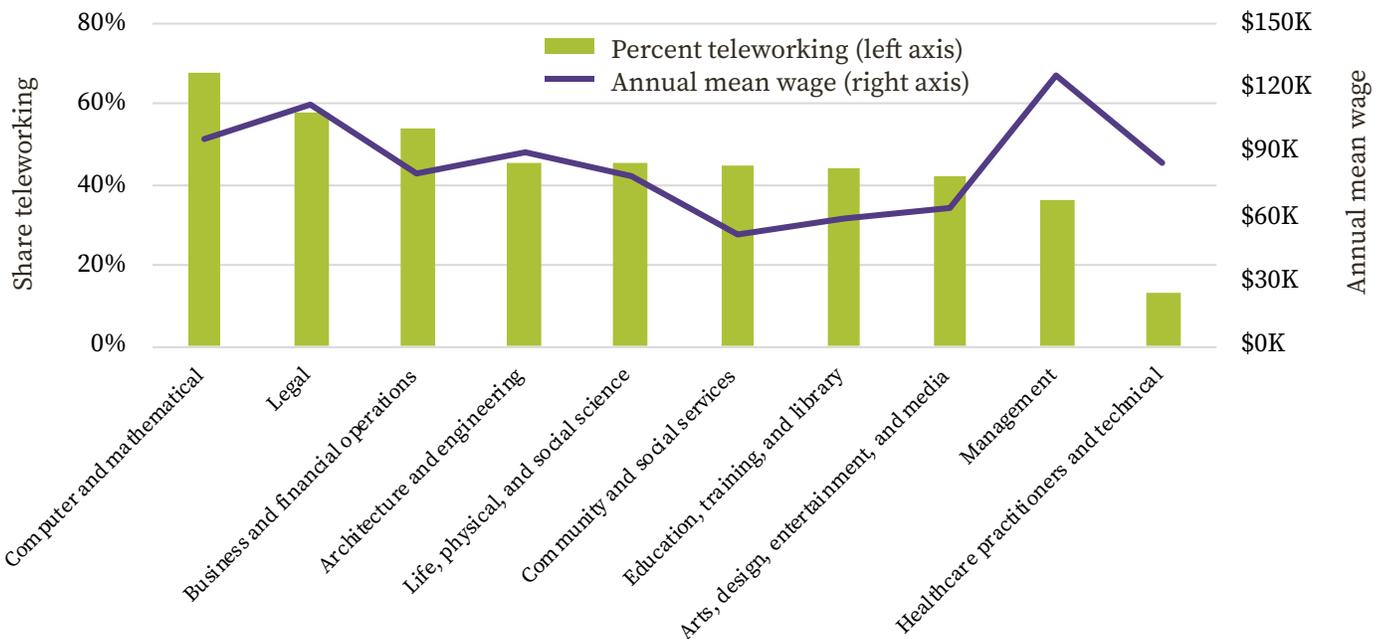
Source: U.S. Bureau of Labor Statistics Current Population Survey, Jan 2021

Similar figures from a Gallup survey that tracked remote workers found even higher levels of remote work among white collar workers who typically work in offices or use a computer. In April 2021, 72 percent of white collar workers were at home, while just 14 percent of blue collar workers (occupations involving manual or physical labor) were doing the same.<sup>18</sup>

remotable jobs tend to pay more than average and are estimated to account for about 46 percent of all wages in the United States.<sup>21</sup>

The prevalence of remote work also varies widely among metro areas depending on the dominant industries in the local labor market. Local economies with greater shares of workers in industries like information; finance and

**Share of Employed People Working from Home because of COVID-19 by Occupation and Wage**



Source: BLS Current Population Survey, Jan 2021, and QCEW, 2020

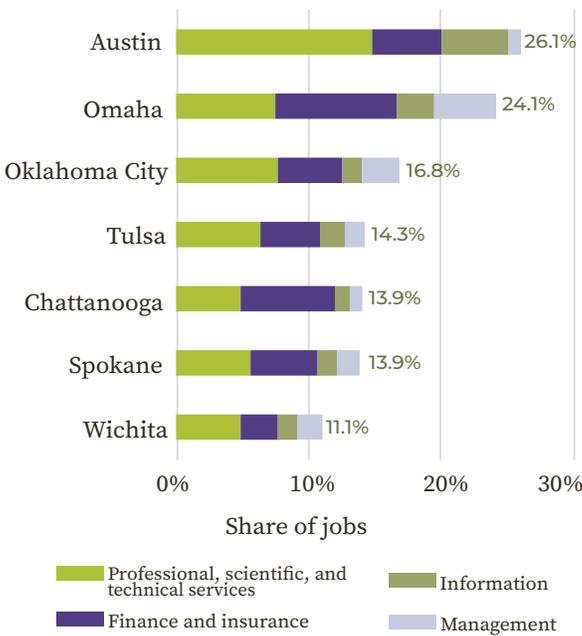
It is also clear that certain occupations within the larger class of management, professional, and related occupations are much more likely to have the flexibility to work from home given their occupational duties. Greater than half of workers in computer and mathematical occupations as well as legal and business and financial operations were remote in January 2021 as a result of the pandemic.<sup>19</sup> The Gallup survey similarly found that at least 80 percent of workers in several occupations were working remotely, including computer-oriented or mathematical fields; the life, physical or social sciences; the arts, design, entertainment or media; and financial services, insurance, real estate or consulting.<sup>20</sup> Other occupations that have outsized potential to work from home include education and training, and office and administrative support occupations. All together,

insurance; management; and professional, technical, and scientific services currently tend to have more people who work from home, since those employers typically offer more flexibility for workers. Among Tulsa’s peers, Austin has far and away the largest share of employment in the top four most remotable sectors.

In Tulsa, the share of total employment in industries that have a higher likelihood of offering remote work has actually declined by nearly three percentage points since 2001, in contrast to some of its peers.<sup>22</sup> The growing relevance of the tech sector in Austin translates to an increasing share of jobs in the most remotable industries over time—up by more than five percentage points over the same time period. Omaha also stands out as having a consistently large share of

employment in the top four remotable sectors. The decline in Tulsa underscores how an initiative like Tulsa Remote that disrupts the current trajectory and catalyzes growth in these sectors could prove useful for the local economy.

**Share of Jobs in the Top Four Industries Most Suitable for Remote Work**



Source: U.S. Bureau of Labor Statistics Quarterly Census of Employment and Wages, 2019

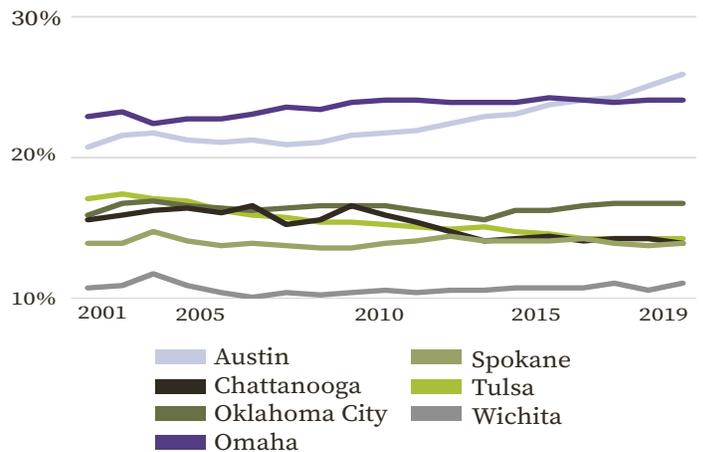
**What are the Prospects for Remote Work’s Growth?**

While there is still much uncertainty about the future of teleworking, the share of the population working remotely in a post-COVID economy is likely to land somewhere between the elevated rates of working from home experienced in 2020-21 and the much lower rate before the pandemic hit. The sheer volume of experience with remote work since 2020 has altered many preconceptions about what it means to work from home, and one study estimates that about 22 percent of all work days will be done away from the office in the post-pandemic economy.<sup>23</sup> In a survey on employee attitudes towards remote work during the pandemic, two-thirds of respondents said there are now more positive views of working from home relative

to before the pandemic, and many stigmas associated with remote work have diminished with its large-scale adoption.<sup>24</sup>

Some optimism has been recorded on the employer side, as well. A survey of hiring managers conducted in 2020 found that just under two-thirds of employers are planning for remote work to grow in the coming years.<sup>25</sup> Ultimately, hiring managers indicated that about one-fifth of their workers could be completely remote in five years, a 65 percent increase compared to pre-pandemic expectations.<sup>26</sup>

**Share of Jobs in the Top Four Industries Most Suitable for Remote Work, Tulsa and its Peers 2001-19**



Source: U.S. Bureau of Labor Statistics Quarterly Census of Employment and Wages, 2001-19

In a crucial development, the pandemic forced companies and employees to make investments in infrastructure to support remote work and make their time at home more efficient and productive. In 2020, researchers estimated that the typical remote worker spent around \$561 on equipment and 15 hours of their time on setting up a remote office.<sup>27</sup> On the employer side, many firms also had to invest in information technology improvements to enable smooth performance. The same researchers estimated that business investment in related technologies including information processing equipment and software increased by more than 10 percent as a share of GDP, growing from 3.8 percent in 2019 to 4.2 percent at the height of lockdowns in mid-2020.

In addition to setting up infrastructure for near-term success, the pace of innovation around technologies that support remote work greatly accelerated in the wake of the pandemic, likely expanding the ability to effectively work outside of the office in the coming years. Researchers calculated that the share of new U.S. patent applications related to technologies supporting telework more than doubled from January to September 2020, concluding that the flurry of patent filings will “raise the quality and efficiency of remote work, thereby reinforcing a shift to working from home even after the pandemic ends.”<sup>28</sup> As a result of these investments, many workers are likely to have much greater flexibility to operate remotely in the future, leading some researchers to bet that “the post-COVID-19 era will likely be the era of telework.”<sup>29</sup>



These factors appear to be reflected—at least temporarily—in the overall number of job positions offering the flexibility of working from home. An analysis of job postings that specify full- or part-time remote work in the job description shows a significant increase in the willingness of employers to offer positions with a remote work component since the pandemic.<sup>30</sup> In 2019, there were a total of 494,000 job postings nationwide indicating some form of remote work. For the 12-month period ending in April 2021, the number

of similar postings had nearly doubled. Whether the level of employer interest in remote work options will continue after the pandemic remains to be seen, but job openings throughout 2021 have been at record high levels, offering more leverage to employees over their potential employers. As long as labor shortages continue to tilt the scales in favor of workers, many may seek out newfound flexibility to work remotely, a shift that could benefit the communities offering a remote worker incentive like Tulsa Remote.

Many workers are likely to have much greater flexibility to operate remotely in the future, leading some researchers to bet that “the post-COVID-19 era will likely be the era of telework.”

## Who Stands to Benefit from the Growth in Remote Work?

Remote work has the potential to benefit both employers and workers, particularly when it comes to boosting productivity. While the jury is still out to some degree, early indicators suggest that the pandemic-induced surge in remote work may have resulted in increased productivity to varying degrees across different sectors of the economy. In a survey conducted for the freelancer platform Upwork, the most commonly cited benefits of the remote work model among employees were the lack of a commute along with a reduction in meetings and in-office distractions.<sup>31</sup> The same survey found that more hiring managers believed that productivity had increased following the pandemic-induced shift to remote work than believed it had decreased.

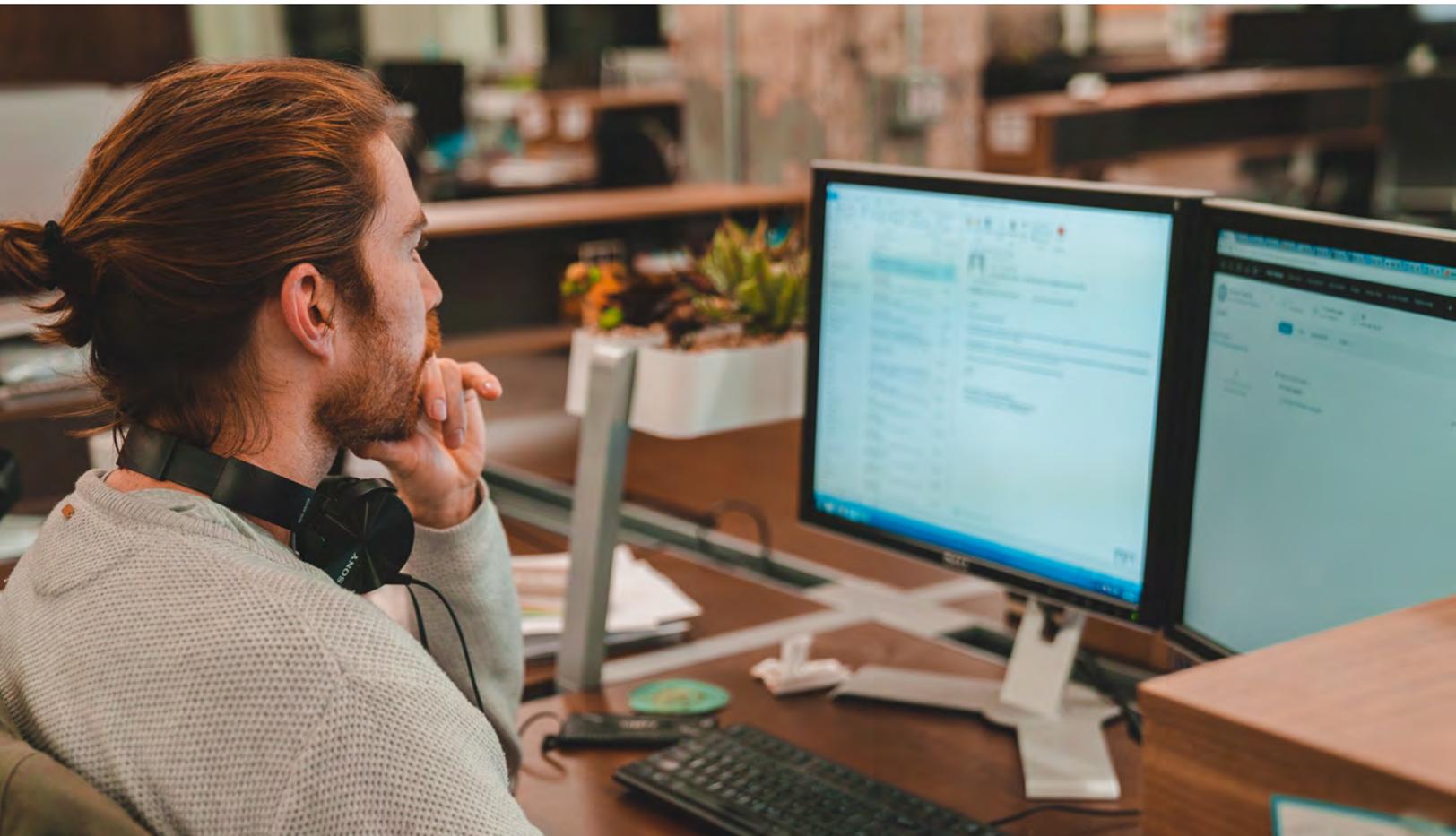
Increased productivity is a potentially critical outcome, as growth in overall labor productivity levels has slowed

dramatically over the past decade.<sup>32</sup> Many people reported being more productive at home during the pandemic, and one estimate suggests there is potential to further raise productivity as much as 4.6 percent,<sup>33</sup> particularly if workers are allowed to self-select into working from either home or the office depending on individual preferences and the elimination of pandemic-related concerns (e.g., temporary at-home schooling).<sup>34</sup>

More broadly, there is a budding opportunity for the remote work model to benefit entire local communities. While much of the country's workforce may experience the shift to remote work in the form of several flex days per week, a greater share of the country's workforce will now work completely remotely than ever before, opening up potential changes to the geography of talent and human capital in the United States. The possibility of the remote work model succeeding in a broader set of localities will depend on the scale of the shift to full-time remote work, as well as the intensity of competition between places and preferences for certain

types of locales among remote workers themselves. But the likelihood is almost certainly greater that the arrival of 50 new jobs to a community could look very different going forward—rather than a ribbon cutting for a company's relocation, it could become more common to have a welcome event for new remote workers.

In those places that ultimately gain skilled remote workers, local communities benefit from increased tax revenue, an energized housing market, and additional local jobs created by new spending.<sup>35</sup> Places that typically struggle to compete and attract new industries or anchor employers can leverage the remote worker model to gradually build up their pool of skilled workers outside of the traditionally pricey method of incentivizing employers to relocate. By bringing in many independent remote workers, communities can work around the “chicken and egg” problem of having to attract skilled workers without a major employer since the local employer is no longer a prerequisite.<sup>36</sup>



The connection between a community and a remote worker is distinct compared to a traditional worker in that a physical location does not tie one to the other. This grants individual workers more agency in choosing where they want to live, potentially allowing for a better match between individual preferences and location characteristics while also enabling employers to broaden their talent searches. At the same time, however, the employment relationship doesn't act as a bond between the worker and the place like it otherwise would. The implications of this are unclear, as it could mean that a worker simply moves to a more affordable or desirable community further from the office—but still in the same metro area—or that a worker is now able to move to an entirely different part of the country.

By bringing in many independent remote workers, communities can work around the “chicken and egg” problem of having to attract skilled workers without a major employer.

If remote workers are truly set to become a greater part of the U.S. labor force, the underlying geography of the economy could be fundamentally transformed. The changes could potentially help spread economic benefits of knowledge economy work that are currently concentrated in the most expensive job and housing markets to other metro areas throughout parts of the country that have increasingly been left behind over the past several decades. Local economies with relatively affordable housing markets and strong connections to major job centers—particularly those with good multimodal infrastructure, including rail connections, highway infrastructure, internet access, and direct flights to major economic hubs—could be primed to take advantage of more remote workers. The remote work model also has the potential to create new clusters of skilled workers in these formerly overlooked

communities, spreading agglomeration benefits throughout the heartland and legacy cities.<sup>37</sup>

Much of that possibility stems from the fact that remote work offers many the freedom to choose to live in the types of communities that best meet a worker's needs while also eliminating the burden of time-consuming commutes and exorbitant housing costs that plague the country's priciest metros. Research has repeatedly shown that workers rank the ability to choose where and how they work as one of the most valuable perks,<sup>38</sup> and the average employee values the ability to work remotely at around 7-8 percent of earnings.<sup>39</sup>

Yet there are limitations to the remote work model, chief among them the fact that it is not equally possible in all places, occupations, or industries. There must also be sufficient infrastructure to support remote work, such as widely available broadband internet or alternative work spaces. Even if a community has this infrastructure in place, attracting and retaining remote workers is not a panacea for broader issues of inclusive economic growth. Policymakers must be aware that a sudden or disproportionate influx of high-income, highly-educated workers could lead to push back from local residents wary of potential housing price increases and the use of resources to support newcomers.

Even at this early stage of the initiative, it is clear that the Tulsa area is fully leaning into the broader trend towards remote work. While it seems likely that most remote workers will remain within extended driving distances of their employer, a significant portion of the country's workforce—primarily white collar and digital workers—have been made durably more footloose, giving locations with ample resources and commitment like Tulsa a chance to attract a new class of workers with in-demand skills to diversify and strengthen the local economy. Future evaluation of how Tulsa is able to navigate many of the associated challenges and establish the durability of its model will be key to understanding the value of a remote worker incentive program.

## Endnotes

- <sup>1</sup> U.S. Census Bureau, American Community Survey 1-Year Estimates, 2019.
- <sup>2</sup> Sabrina Wulff Pabilonia and Victoria Vernon, “[Telework and Time Use in the United States](#),” May 2020.
- <sup>3</sup> U.S. Bureau of Labor Statistics, [Current Population Survey, supplemental data measuring the effects of the coronavirus \(COVID-19\) pandemic on the labor market](#).
- <sup>4</sup> U.S. Bureau of Labor Statistics, American Time Use Survey, 2017-18, “[Workers who worked at home and how often they worked exclusively at home by selected characteristics, averages for the period 2017-2018](#).”
- <sup>5</sup> U.S. Bureau of Labor Statistics, [Current Population Survey, supplemental data measuring the effects of the coronavirus \(COVID-19\) pandemic on the labor market](#).
- <sup>6</sup> “[How Many Jobs Can Be Done at Home?](#),” April 2020. The range decreases to 31 percent based on classification that “codes 98 percent of the 8.8 million teachers in the United States as able to work from home, which seems sensible given the large number of schools currently employing remote learning. Re-coding these teaching jobs as unable to be performed from home would, in the aggregate, reduce our estimate of the share of jobs that can be done at home by about six percentage points.”
- <sup>7</sup> Adam Ozimek, “[The Future of Remote Work](#),” May 2020.
- <sup>8</sup> Jose Maria Barrero, Nicholas Bloom, and Steven J. Davis, “[Why Working From Home Will Stick](#),” April 2021.
- <sup>9</sup> Erik Brynjolfsson, John J. Horton, Adam Ozimek, Daniel Rock, Garima Sharma, and Hong-Yi TuYe, “[COVID-19 and Remote Work: An Early Look at US Data](#),” June 2020.
- <sup>10</sup> U.S. Census Bureau, American Community Survey 1-year Estimate, 2019.
- <sup>11</sup> Jose Maria Barrero, Nicholas Bloom, and Steven J. Davis, “[Why Working From Home Will Stick](#),” April 2021. “According to the tabulations at <https://www.bls.gov/news.release/flex2.t03.htm>, only 14.7 percent of employees performed any full workdays from home before the pandemic. Among those who did, the frequency distribution of full WFH days is as follows: Less than once a month (18.4%), once a month (13.5%), once every two weeks (13.1%), at least 1 day per week (10.2%), 1 to 2 days per week (17.4%), 3 to 4 days per week (12.8%), and 5 or more days per week (14.5%). Thus, we estimate the share of full workdays at home before the pandemic as 4.8 percent.”
- <sup>12</sup> Adam Ozimek, “[Overboard on Offshore Fears](#),” September 2019.
- <sup>13</sup> Joey Marshall, Charlynn Burd, and Michael Burrows, “[Those Who Switched to Telework Have Higher Income, Education and Better Health](#),” March 2021.
- <sup>14</sup> David Beckworth, “[Adam Ozimek on the Past, Present, and Future of Remote Work in the Face of COVID-19](#),” November 2020.
- <sup>15</sup> Erik Brynjolfsson, John J. Horton, Adam Ozimek, Daniel Rock, Garima Sharma, and Hong-Yi TuYe, “[COVID-19 and Remote Work: An Early Look at US Data](#),” June 2020.
- <sup>16</sup> Adam Ozimek, “[Overboard on Offshore Fears](#),” September 2019.
- <sup>17</sup> U.S. Bureau of Labor Statistics, [Current Population Survey, supplemental data measuring the effects of the coronavirus \(COVID-19\) pandemic on the labor market](#).
- <sup>18</sup> Lydia Saad and Jeffrey M. Jones, “[Seven in 10 U.S. White-Collar Workers Still Working Remotely](#),” May 2021.
- <sup>19</sup> U.S. Bureau of Labor Statistics, [Current Population Survey, supplemental data measuring the effects of the coronavirus \(COVID-19\) pandemic on the labor market](#).
- <sup>20</sup> Lydia Saad and Jeffrey M. Jones, “[Seven in 10 U.S. White-Collar Workers Still Working Remotely](#),” May 2021.
- <sup>21</sup> Jonathan I. Dingel and Brent Neiman, “[How Many Jobs Can Be Done at Home?](#),” April 2020.
- <sup>22</sup> U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages, 2001-2019.
- <sup>23</sup> Jose Maria Barrero, Nicholas Bloom, and Steven J. Davis, “[Why Working From Home Will Stick](#),” April 2021.
- <sup>24</sup> Jose Maria Barrero, Nicholas Bloom, and Steven J. Davis, “[Why Working From Home Will Stick](#),” April 2021.
- <sup>25</sup> Adam Ozimek, “[The Future of Remote Work](#),” May 2020.
- <sup>26</sup> Adam Ozimek, “[The Future of Remote Work](#),” May 2020.
- <sup>27</sup> Jose Maria Barrero, Nicholas Bloom, and Steven J. Davis, “[Why Working From Home Will Stick](#),” April 2021.
- <sup>28</sup> Nicholas Bloom, Steven J. Davis, and Yulia Zhestkova, “[COVID-19 Shifted Patent Applications Toward Technologies that Support Working from Home](#),” January 2021.
- <sup>29</sup> Sabrina Wulff Pabilonia and Victoria Vernon, “[Telework and Time Use in the United States](#),” 2021.
- <sup>30</sup> EIG analysis of Burning Glass Technologies, [Labor Insight™ Real-Time Labor Market Information Tool](#), accessed May 2021.
- <sup>31</sup> Adam Ozimek, “[The Future of Remote Work](#),” May 2020.
- <sup>32</sup> U.S. Bureau of Labor Statistics, “[The U.S. productivity slowdown: an economy-wide and industry-level analysis](#),” April 2021.
- <sup>33</sup> Jose Maria Barrero, Nicholas Bloom, and Steven J. Davis, “[Why Working From Home Will Stick](#),” April 2021. According to the report authors, “productivity gain figures might be underestimates, because we ask about WFH productivity during COVID, which involves negative effects of pandemic-related stress and kids at home due school closures. Alternatively, our productivity gain figures could be overestimates if workers fail to internalize the benefits of in-person interactions that contribute to firm-level productivity.”
- <sup>34</sup> Jose Maria Barrero, Nicholas Bloom, and Steven J. Davis, “[Why Working From Home Will Stick](#),” April 2021.
- <sup>35</sup> Michael McGeary and Adam Ozimek, “[Policy Opportunities for the Remote Economy](#),” June 2021.
- <sup>36</sup> Michael McGeary and Adam Ozimek, “[Policy Opportunities for the Remote Economy](#),” June 2021.
- <sup>37</sup> J. Brown and Colton Tousey, “[Population Turnover and the Growth of Urban Areas](#),” 2020.
- <sup>38</sup> Sabrina Wulff Pabilonia and Victoria Vernon, “[Telework, Wages, and Time Use in the United States](#),” 2020.
- <sup>39</sup> Jose Maria Barrero, Nicholas Bloom, and Steven J. Davis, “[Why Working From Home Will Stick](#),” April 2021.

# Section III.

## Structural Barriers to Tulsa's Economic Competitiveness



As a midsize metro area with a strong industrial legacy, Tulsa's path forward in the modern economy can be challenging. Even though it benefits from a strong network of formal and informal local institutions, the region must contend with structural barriers holding it back from becoming more dynamic and economically competitive. Several leading factors that influence Tulsa and its economy are:

- **Inconsistent population growth slower than many peers:** Driven in large part by poor domestic migration rates, Tulsa suffers from lackluster population growth relative to its peers, especially in the economically critical cohort of prime-age workers. Tulsa's levels of net migration are also inconsistent, partially due to the economic volatility of the state's legacy industries.
- **Difficulty retaining and attracting highly educated workers:** Despite strong associate's

degree attainment, Tulsa's share of adults with at least a four-year college degree trails the U.S. and several peer cities. Outmigration, a lack of a public four-year university, and a relative dearth of entry-level jobs for college graduates all contribute to this challenge.

- **Lagging growth in high-tech, high-wage industries and occupations:** Tulsa has been slow to transition beyond its legacy sectors and add new jobs in high-growth, high-tech industries and occupations. It also lags behind in adding new start-up businesses, a key driver of employment gains and broader economic growth.

All three constraints are tied to Tulsa's classic "chicken or egg" dilemma observed by many local economic development practitioners: Without dynamic, high-tech businesses, it is difficult to attract the relevant skilled workers, but without enough skilled workers, it can be difficult to attract high-

tech businesses. “It’s like the silver bullet we’re seeking in economic development,” said Jennifer Hankins, Head of Partnerships at Tulsa Innovation Labs, “The silver bullet is workforce, but you can’t create a workforce if you don’t have the employment. It’s tough.”

In many ways, the Tulsa Remote program is designed to chip away at these challenges and is likely to benefit from one of Tulsa’s key strengths:

- **A strong support network of local formal and informal institutions:** The strength and support of local institutions are key mediators of the success of any economic development intervention. While continued community outreach efforts will be needed to ensure the program maintains strong grassroots buy-in, the early support for the Tulsa Remote initiative from a wide variety of stakeholders bodes well for the program’s long term success.

Structural challenges and local assets coexist in every community, and successful interventions honor both. The Tulsa Remote program was designed with Tulsa’s challenges and strengths in mind, and responds to those challenges by attracting a key ingredient for growth: skilled, well-educated, and oftentimes entrepreneurial residents.

The remote workers targeted by the program offer highly valued skills along with the flexibility required to move to the region without the traditional employer-based support network, potentially providing a much-needed jumpstart to the region’s economic transformation. The freedom to work from anywhere enables these workers to integrate their knowledge and technical skills into the local economy where they otherwise would not exist, while simultaneously bolstering an important demographic in Tulsa: young and mid-career professionals, typically in their prime earning years. Lured by the monetary incentive of Tulsa Remote, a desire to experience a lifestyle change,

or some other driving factor, Remoters have the ability to boost population growth, add to the local skilled labor pool, and help develop the region’s high-tech sector. Only a couple years into the program, it is clear they have the potential to leave a meaningful impact on Tulsa’s economy.

## Inconsistent Population Growth

Tulsa’s recent population growth has been inconsistent and slower than most of its peers, even as it performs better than national and state-level growth. Part of the inconsistency stems from the economic volatility of the region’s legacy industries, as outmigration usually follows local oil- and gas-driven economic downturns (oil prices crashed in late 2014 as the oil bust of 2015-16 took hold). Tulsa has not been able to attract new residents to the region at the same rate as many other booming metro areas, in part because employment sectors that are rapidly growing nationwide are sparse in Tulsa. As a result, the most economically productive segment of the workforce—prime-age population in the 25-54 age range—has been growing especially slowly relative to its peers.

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Lackluster population growth poses a challenge to the local economy, as a growing population can drive up local demand for goods and services, expand the pool of workers available to businesses, and maintain a dynamic labor force. Tulsa Remote partially addresses these challenges

by bringing in new, prime working-age residents to bolster the local population and potentially spur future growth.

### Population Growth in Tulsa and Peers

Tulsa has experienced a modest population increase in recent years, although its performance generally lags behind its peer cohort. From 2010 to 2020, Tulsa added a net total of just over 54,000 residents, which amounted to a 9 percent increase in population over the decade. However, Tulsa's population growth varied over the period: Strong in-migration from 2011 to 2015 was followed by a dramatic pullback in the wake of the oil bust of 2015-2016 before a modest recovery took hold at the end of the decade.

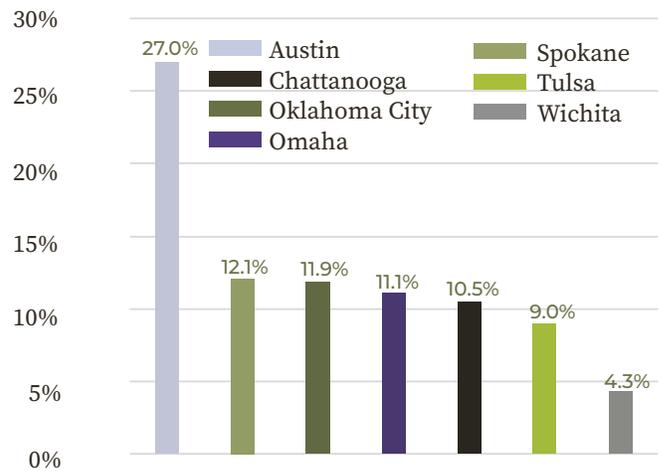
### Annual Net Population Change in Tulsa, 2011-2020



Source: U.S. Census Bureau Population Estimates Program, 2010-2020

Among its peer metro areas, Tulsa bested only Wichita in terms of the percentage increase in population over the past decade. Fast-growing Austin led the pack, swelling its population by 27 percent. This growth rate gap is critical, as just a couple additional percentage points of growth can result in thousands more new residents. For instance, Oklahoma City's population grew by 11.9 percent over the decade, nearly three percentage points faster than Tulsa. While that figure may not seem substantial, Tulsa would have over 17,600 more residents than it currently does if it had grown at the same pace.

### Percent Change in Population, Tulsa and Peers 2010-2020



Source: U.S. Census Bureau Population Estimates Program, 2010-2020

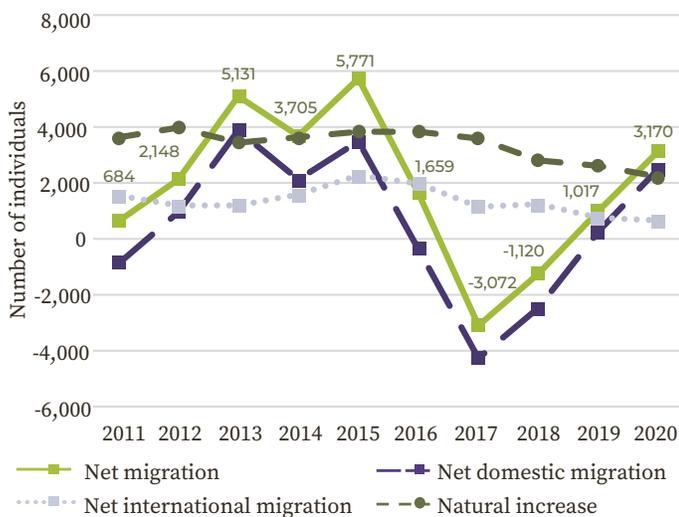
### Components of Population Change in Tulsa

Variation in domestic migration numbers are the leading force influencing Tulsa's net migration rate: In four of the last ten years, more people moved away from Tulsa to other parts of the United States than moved to Tulsa from other parts of the country. At its most recent low point in 2017, nearly 3,100 people moved away on net. Typical of many natural resource-dependent economies, this trend is at least partially tied to booms and busts in the prominent local oil industry, and outmigration tends to spike following oil busts, the most recent of which occurred in the mid 2010s.<sup>1</sup> Analysis from the Federal Reserve Bank of Kansas City noted that the worsening economic situation in the state led to lower government revenues and large cuts to government services, which may have further accelerated outmigration.<sup>2</sup>

Many of the underlying population concerns in Tulsa mirror national and state-level patterns, such as low birth rates and dwindling international migration, although these trends have had a more modest effect on Tulsa's net population change relative to the volatile impacts of domestic migration. Natural population growth—the net

new population as a result of births and deaths alone, excluding migration—has generally slowed over the course of the decade. At its peak over the decade, the natural increase in population was around 4,000 people in 2012, yet by 2020 the natural increase had dwindled to just over 2,200. The local decline in international migration is also clear, as the lowest numbers of new international residents moving into Tulsa were recorded in 2019 and 2020.

### Components of Population Change in Tulsa, 2011-2020



Source: U.S. Census Bureau Population Estimates Program, 2011-2020

By the end of 2021, Tulsa Remote will have brought over 1,200 new residents to the community—the equivalent to adding more people than work in the entire local broadcasting industry, or nearly 20 percent larger than employment in Tulsa’s air transportation industry.<sup>3</sup> Of those considered alumni as of July 1, 2021, 88 percent have elected to stay beyond their one-year timeline required by the program. If the total number of Remoters expected to relocate to Tulsa in 2021 (900 individuals) had instead arrived in 2020, they would have increased net migration by 28.4 percent.

\* County-level migration trends can vary significantly in the IRS data from year to year, as evidenced by the two most recent years of data. From 2017 to 2018, Tulsa had a relatively large net outflow of around 1,240 people to counties outside Oklahoma. Yet from 2018 to 2019, that trend reversed, as the county boasted a net gain of around 760 people from outside the state. Tulsa lost population to other counties in Oklahoma across both time periods (although the size of the deficit shrunk significantly, with the 2018-19 deficit only 27 percent the size of the 2017-18 deficit).

### Domestic Migration to and from Tulsa

Domestic transplants to Tulsa County come from a broad swath of places across the United States, but the largest source is from within Oklahoma. The top eight counties of origin for Tulsa transplants from 2018 to 2019 were in Oklahoma, according to data on domestic moves provided by the Internal Revenue Service (IRS).<sup>4</sup> Among the estimated number of new residents, 54 percent moved from another county within the state.

#### Top 10 Counties of Origin for Movers to Tulsa from Within Oklahoma, 2018-19 – Non-Tulsa Metro Area Counties

County	Inflow: Number of people relocating to Tulsa	Outflow: Number of people relocating from Tulsa	Net Number
Oklahoma County	1096	1080	16
Muskogee County	609	413	196
Washington County	463	390	73
Payne County	385	247	138
Cleveland County	349	321	28
Cherokee County	300	158	142
Mayes County	292	317	-25
Delaware County	159	178	-19
Canadian County	156	188	-32
Garfield County	120	82	38
All counties in OK	15039	15345	-306

Source: Internal Revenue Service Statistics of Income, 2019

Among those coming from outside Oklahoma, some of the biggest feeders tend to be neighboring states, with at least 13 percent of all new residents from 2018 to 2019 coming from the state’s six immediate neighbors. Tulsa’s significant net losses in residents are to the booming Sunbelt metros of Houston (Harris County, TX), Plano (Collin County, TX), and Phoenix (Maricopa County, AZ), while there were net gains from large, coastal, expensive metros like Los Angeles and San Diego.\*

## Top 20 Counties of Origin for Movers to Tulsa from Outside Oklahoma, 2018-19

County	Inflow: Number of people relocating to Tulsa	Outflow: Number of people relocating from Tulsa	Net number
Tarrant County, TX	425	372	53
Dallas County, TX	374	369	5
Harris County, TX	318	376	-58
Los Angeles County, CA	263	133	130
Maricopa County, AZ	227	248	-21
Benton County, AR	190	185	5
Washington County, AR	177	105	72
Sedgwick County, KS	166	118	48
Clark County, NV	163	87	76
Bexar County, TX	153	121	32
San Diego County, CA	151	112	39

County	Inflow: Number of people relocating to Tulsa	Outflow: Number of people relocating from Tulsa	Net number
Denton County, TX	141	195	-54
Collin County, TX	131	285	-154
Sebastian County, AR	113	87	26
Riverside County, CA	112	40	72
Cook County, IL	110	119	-9
Jackson County, MO	103	96	7
El Paso County, CO	96	108	-12
Fort Bend County, TX	94	52	42
Montgomery County, TX	90	83	7
Total(non-OK counties)	12878	12116	762

County-to-county migration trends can vary significantly from year to year, and the data shows how that is particularly true in the two most recent data periods. From 2017 to 2018, Tulsa had a relatively large net outflow of around 1,240 to counties outside Oklahoma. From 2018 to 2019, that trend reversed, with Tulsa County boasting a net gain of approximately 760 people in the exchange of population with all counties outside Oklahoma. By contrast, Tulsa County had a net outflow of migration *within* the state of Oklahoma in both periods, largely due

to losses to suburban counties in the metro area. Despite the negative top-line statistic, there was good news for the county even on this metric as the size of the deficit shrunk significantly—the deficit from 2018 to 2019 was only 27 percent of the deficit from 2017 to 2018. In terms of county-level trends, one pattern did remain relatively consistent across both periods: Tulsa typically enjoys net gains in population through its exchange with residents in expensive coastal metros.



## Sources of Migration Among Tulsa Remote Program Members

Tulsa Remote program members seem to reinforce some county-level migration trends while shaking up others. Prior to moving to Tulsa, Remoters lived in more than 300 communities across the country, although well over half moved from just 15 of the country's largest metropolitan areas.\* Major coastal economic engines such as New York, Los Angeles, San Francisco, and Washington, D.C. are major sources for program participants. Other large metro areas that are geographically closer to Tulsa are also major contributors, particularly the big three in Texas: Dallas, Austin, and Houston.

### Top 15 Metro Areas of Previous Residence for Tulsa Remote Program Members

Metro Area	Share of all Movers
New York-Newark-Jersey City, NY-NJ-PA	9.9%
Los Angeles-Long Beach-Anaheim, CA	9.6%
Dallas-Fort Worth-Arlington, TX	7.2%
San Francisco-Oakland-Haward, CA	4.9%
Washington-Arlington-Alexandria, DC-MD-VA	4.9%
Denver-Aurora-Lakewood, CO	4.1%
Atlanta, Sandy Springs-Roswell, GA	2.9%
Austin-Round Rock, TX	2.9%
Houston-The Woodlands-Sugar Land, TX	2.7%
San Diego-Carlsbad, CA	2.6%
Chicago-Naperville-Elgin, IL-IN-WI	2.4%
Boston-Cambridge-Newton, MA-NH	2.1%
Kansas City, MO, KS	1.9%
Portland-Vancouver-Hillsboro, OR-WA	1.8%
Phoneix-Mesa-Scottsdale, AZ	1.3%

Source: Analysis of EIG-HBS survey data

Some metro areas of origin for Remoters represent a significant change in current county-level migration trends as measured by IRS data. The influx of Remoters

Source: Analysis of EIG-HBS survey data

from the New York metro area, for instance, will shake up migration patterns significantly: In 2018 to 2019, fewer than 20 tax returns were filed by households who had moved to Tulsa from any county in the New York City metro area, so the data did not indicate the arrival of any new residents from that metro area.† The sizable number of program members who are former residents of the Washington, D.C. metro area may also represent a significant increase in the number of Tulsa transplants from that region.‡ Remoters are also poised to strengthen the pre-existing net inflow of residents to Tulsa from other expensive coastal metros, such as Los Angeles, San Diego, and San Francisco.

At the state level, more than 45 percent of Remoters arrived from just three states: California, Texas, and New York. California is the number one state of previous residence, as over one in five Remoters (21.9 percent) moved from the Golden State, followed by Texas (14.5 percent) and New York (8.8 percent).

### Top 15 States of Previous Residence for Tulsa Remote Program Members

State	Share of all Movers
California	21.9%
Texas	14.5%
New York	8.8%
Colorado	5.4%
Florida	3.6%
Illinois	2.8%
Virginia	2.6%
Massachusetts	2.2%
Missouri	2.2%
Washington	2.2%
D.C.	2.1%
New Jersey	1.9%
Arizona	1.8%
Oregon	1.8%

\* Analysis in this section relies on administrative data provided by Tulsa Remote on the first 780 program members to move to Tulsa.

† IRS data only reports migration flows for individual counties with 20 or more returns. Returns are distinct from exemptions, with exemptions being used as a proxy for the actual number of movers. The lack of reported migration from New York occurred from 2018-2019, while from 2017-2018 there was a small but observable migration from New York County (Manhattan) of 38.

‡ Because the Washington, DC metro area covers many counties across different jurisdictions and the absolute number of program members is close to the 20 return threshold, the moves may not appear in the IRS data. A similar issue could appear across New York's constituent counties, although the relative higher number of movers makes a complete lack of visible change in the data less likely.



## The Beneficial Effects of Population Churn

While a stagnant or declining population can hinder economic growth, population turnover—meaning churn in the composition of residents of an area—has been shown to have positive effects for the local economy. A shifting mix of residents can act as an adjustment mechanism through which local labor markets respond to economic shocks and become more dynamic as new workers bring new ideas.<sup>5</sup>

These benefits are often brought by workers arriving from medium-to-large metro areas, since they bring knowledge and expertise

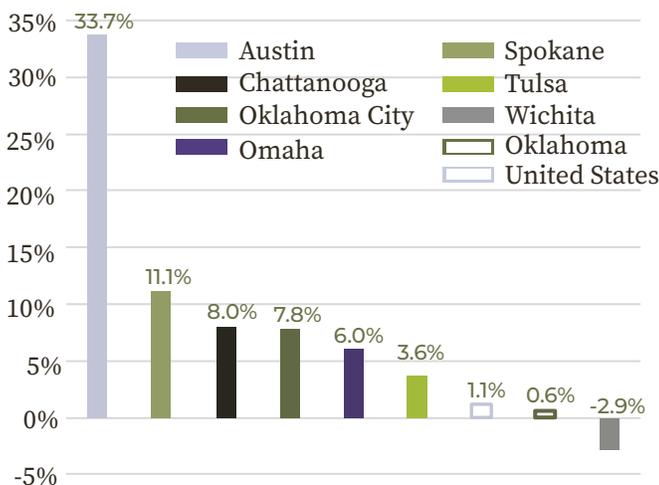
associated with many knowledge-intensive sectors concentrated in certain metro areas, such as tech in the Bay Area or finance in New York.<sup>6</sup> These high-productivity transplants help spread skills and offer the potential for greater entrepreneurship than workers coming from less densely populated parts of the country. Tulsa Remote has contributed to these positive spillover effects, as 45.5 percent of Remoters are in the knowledge-intensive professional, scientific, and technical services sector or the information sector, and well over half moved from just 15 of the country's largest metropolitan areas.<sup>7</sup>

## Prime Working-Age Population

The prime working-age population, encompassing 25- to 54-year-olds, includes those in their most productive and best-earning years of employment and represents the core of the labor force. Most workers enter their peak earning years in their 40s and 50s (although this varies depending on demographic, occupational, and industry factors), making prime working-age residents a critical local economic force.<sup>8</sup> Compared with retirees who typically have a fixed income and much different consumption patterns than young or middle-aged people, the prime-age demographic tends to produce outsized economic contributions to the local area through its greater consumption of goods and services and higher tax revenues.

Since 2010, Tulsa's prime working-age population has increased by 3.6 percent, besting the state of Oklahoma's expansion of 0.6 percent and the national increase of 1.1 percent, yet lagging behind nearly every other peer metro. Despite poor growth recently, the overall share of Tulsa's workforce that is of prime working age (39.3 percent) is on par with most of its peers. An outlier that proves just how distinct the population dynamics in many tech-fueled economies are is Austin, where nearly half (49.3 percent) of the population is of prime working-age.

### Percent Change in Prime Age Population, 2010-2020



Source: U.S. Census Bureau Population Estimates Program, 2010-2020

Since 2010, Tulsa's prime working-age population has increased by 3.6 percent, besting the state of Oklahoma's expansion of 0.6 percent and the national increase of 1.1 percent, yet lagging behind nearly every other peer metro.

Tulsa Remote attracts a range of ages into its program, but 90 percent fall into the prime working age bracket.<sup>9</sup> With a median age of 35, this demographic is Tulsa Remote's core age cohort. These new Tulsans are in the stage of their careers when their earnings, experiences, and networks are still ramping up, meaning that they can potentially contribute to the Tulsa economy for years to come.<sup>10</sup> While the program cannot be the sole solution to the prime age deficit in Tulsa, it is working to close the gap and move the city closer to its peers by attracting new residents from this productive cohort.

The promise of Tulsa Remote to attract new, prime working-age residents to the region could bring many benefits to the local economy. Remoters themselves are a boon, functioning as a sort of regional "export" by bringing money into the Tulsa economy for services performed in the city but sold elsewhere. Locally, Remoters add new demand for goods and services, and those who elect to remain in the community may also start families or encourage other people in their professional or personal networks to relocate, possibly leading to further population increases. These knock-on reputational effects may extend beyond just personal networks and improve broader awareness or perception of the region, thus exposing more people to the community who might not otherwise have considered residing in northeast Oklahoma. The fundamental premise of Tulsa Remote—bringing new residents to the city—is simple, but has many spillover effects in the local economy.

## Tulsa’s National Reputation

While Tulsa once was known throughout the country as an oil and gas hub, the city has struggled to develop a consistent “brand” in more recent decades. In conversations with EIG, locals active in Tulsa’s business and economic development communities frequently raised concerns about the city’s lack of a readily recognizable identity. “If you ask 10 people about Tulsa, you’d probably get 10 different answers,” suggested Aaron Whigham, a recent transplant to Tulsa and program director at the investment firm Atento Capital. A community’s positive reputation and brand has been shown to produce benefits for economic activity and unemployment, and greater awareness stemming from the Tulsa Remote program has the potential to introduce the city to new audiences and reshape Tulsa’s mixed reputation in other parts of the country.<sup>11</sup>

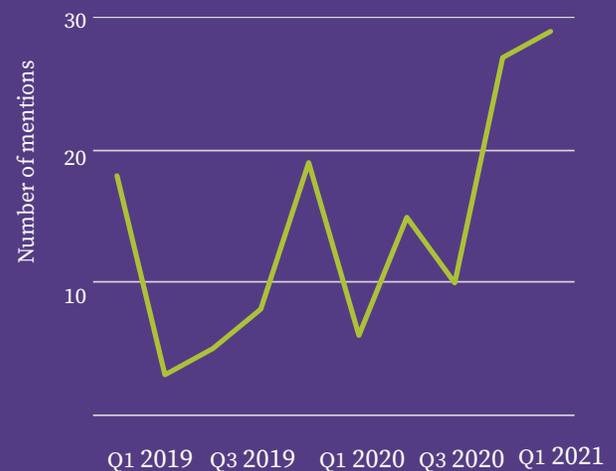
In order to attract people, “the first thing you have to do is defy expectations about a place like Tulsa or the state of Oklahoma, generally,” said Nick Doctor, a former chief of community development and policy for the City of Tulsa. In many ways, the Tulsa Remote program is helping to do just that. Even as Tulsa remains relatively unknown to the average person, national media stories about urban flight during the pandemic helped renew interest in the Tulsa Remote program nearly three years after its kick off in 2018.

National media coverage of Tulsa tends to be dominated by special topics such as extreme weather events or politics, but a notable brightspot surrounds media coverage of the local economy. A significant proportion of news articles mentioning economic topics in Tulsa tend to exude a positive tone based on an analysis of more than 97,000 media stories covering

Tulsa between January 2017 and February 2021.<sup>12</sup> Terms describing economic growth and prosperity, including “opportunity,” “growth,” “rejuvenate,” “development,” “thriving,” and “diverse” appeared in more than 38,000 news stories—over three times more than terms describing economic decline, and including words such as “layoff,” “job loss,” or “unemployment.”

Tulsa boosters have other reasons to be optimistic about what locals and the rest of the country are hearing about the city as well. From early 2017 to February 2021, there were at least 140 online and print media stories mentioning Tulsa Remote, peaking on a quarterly basis in early 2021. Outside of Oklahoma, the incentive program garnered the most state and local media attention in California, the home of Silicon Valley and a hotspot for potential remote workers. While several similar remote work incentives have popped up in places across the United States in recent years, around one-third of national media stories mentioning Tulsa Remote were exclusively focused on Tulsa Remote, while the remainder also included references to other remote work programs or broader topics.

**Tulsa Remote Media Mentions by Quarter**



Analysis by Hamilton Place Strategies for EIG, March 2021.

## Retaining a Highly Educated Workforce

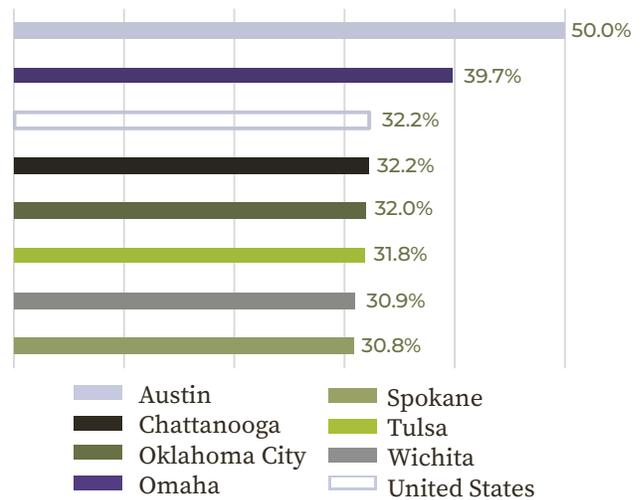
New residents add to the local labor supply and spur demand for goods and services while also bringing their education and unique employment experience into the local economy. Skilled workers—defined here as those with at least a four-year college degree—tend to bring greater economic benefits due to higher wages, distinct consumption patterns, and sizable contributions to the local tax base. The unique skill sets and new-to-the-area knowledge of highly educated newcomers also augment the local labor market with specific expertise that was missing or in short supply.

Thus far, the Tulsa Remote program has attracted a highly educated contingent of workers to the city. Nearly 88 percent have completed a bachelor's degree or higher (48.8 percent hold a bachelor's degree, while approximately 38.6 percent hold some kind of additional advanced degree). For one in ten, the highest level of education is some college experience, while just under 2 percent have received a high school diploma or less. For a region that routinely sees more college graduates leave than arrive, bringing in residents with this degree of educational attainment is a meaningful outcome on its own. Remoters who stay long term could further deepen the pool of skilled workers in the area, benefitting local employers who may go on to hire program alumni.

### Educational Attainment in Tulsa

A highly educated and technically skilled workforce is the primary means by which places achieve economic success in the 21st century. Tulsa County's share of residents with at least a four-year college degree (31.8 percent) is substantially higher than the statewide percentage (25.5 percent) and comparable to the country overall (32.2 percent). Nevertheless, some leading peers have relatively higher shares of this coveted demographic.

### Share of Residents with at Least a 4-Year College Degree



Source: U.S. Census Bureau American Community Survey 5-year Estimates, 2015-19

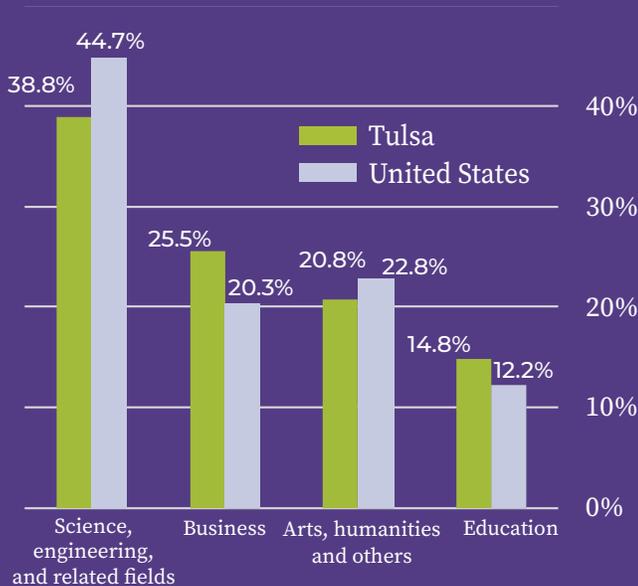
Tulsa boasts a large share of residents who have attained a two-year associate's or technical degree: The share of residents with college experience jumps to 64.1 percent—above the national percentage of 61.0 percent—when including the population that has an associate's degree or at least some college education.<sup>13</sup> The local Tulsa Achieves program, which guarantees to pay for all tuition and fees at Tulsa Community College for graduating high school seniors who enroll in the fall after they receive their diploma, has contributed to the high rate of community college completion in the region. “That’s been an ongoing success,” according to Pete Selden, Vice President of Workforce Development at Tulsa Community College. “It gets people into the pipeline, it gets them the associate’s degree, but then the big question mark has been, what happens to them after that?”



## Types of College Graduates in Tulsa

Among residents with at least a bachelor's degree living in Tulsa, there is a higher share of people whose primary college degree was in business or education relative to the country overall. Just over one in four college degree holders had a first degree in business compared to one in five nationwide. That concentration of business degrees is balanced out by a smaller share of residents with science and engineering expertise. The share of degree holders in Tulsa whose first undergraduate degree was in science, engineering, or a related field is 38.8 percent, nearly six percentage points lower than the country overall.<sup>14</sup>

### Field of Primary Bachelor's Degree Among College Graduates

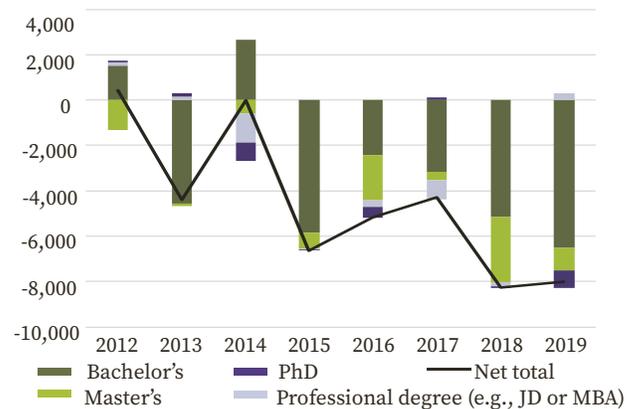


Source: U.S. Census Bureau American Community Survey 5-year Estimates, 2015-19

## Migration Trends Among College Graduates in Oklahoma

In recent years, Oklahoma has generally struggled to attract and retain working-age residents with a college degree, recording a net loss of working-age adults (18-64 year olds) with a college degree every year since 2013.<sup>15</sup> From 2015 to 2019, the state averaged a net loss of nearly 5,300 working-age college degree holders per year—more than the annual number of bachelor's degrees granted annually at either the University of Oklahoma or Oklahoma State University.<sup>16</sup> The losses have become more stark over the past decade, and in 2019 alone the state had a net loss of nearly 8,000 working-age adults with a college degree.

### Oklahoma Net Domestic Migration for People Ages 18 to 64 with a College Degree, 2012-19



Source: U.S. Census Bureau American Community Survey 1-year Sample Public Use Microdata, 2012-19, IPUMS-USA; and EIG analysis of domestic migrants ages 18-64 not enrolled in school

While Tulsa is home to two large private universities, it lacks a major *public*, four-year higher education institution, which puts it at a disadvantage for educating, attracting, and retaining young, college-educated workers. This is a challenge for Tulsa's labor force development and worker attraction according to Aaron Miller, head of partnerships at inTulsa, an organization that connects companies with local labor talent: "We don't have a major four-year research institution in the city, and I think that has been a challenge as Tulsa has grown. We struggle to retain and grow our bachelor's degree population here in town, making it hard for innovative companies to feel fully secure investing in Tulsa."

Public colleges and universities frequently provide several advantages over private institutions for the local population and the students who attend them. The vast majority of college graduates nationwide attend a public university and benefit from much lower tuition than their counterparts at private institutions.<sup>17</sup> According to a study from the Brookings Institution, “public four-year colleges are the workhorses of upward mobility, accounting for large shares of enrollment, spending, and upward mobility,” in part because they enroll more students at lower cost.<sup>18</sup> This holds true not only for middle class attendees, but also for those at the lower end of the socioeconomic ladder who are underrepresented at elite or private institutions.<sup>19</sup> The benefits to the local economy are also well-documented, including their role in supporting small businesses, workforce development, placemaking, and the ability to attract major sources of public and private funding.<sup>20</sup>

While it is better to have students in the city for some period of time rather than not at all, most recent graduates from local institutions leave the Tulsa region after graduation. In the ten years prior to May 2018, approximately 38 percent of graduates from the University of Tulsa remained in the metro area after graduation. Just under 24 percent of graduates from Oral Roberts University, the other major local four-year institution, stayed in the area. The region struggles even more to attract graduates from other colleges in the state. Among the state’s large public universities, which are located outside of the Tulsa region, the shares are even lower. Only about one-fifth of Oklahoma State’s alumni from the previous 10 years moved to the Tulsa region, while just under 9 percent of graduates from the University of Oklahoma chose the region.<sup>21</sup>

These stats are echoed in a 2018 survey of Oklahoma undergraduate students which found that 73 percent of respondents preferred to leave the state after graduation. Compounding that issue for Tulsa is the fact that the region scores lower on desirability and perceived post-graduation job opportunities relative to its larger in-state peer city, Oklahoma City.<sup>22</sup>

The Tulsa economy seems to have adapted to low inflows of college graduates by offering a commensurately low number of skilled entry level jobs. According to Jennifer Hankins at Tulsa Innovation Labs, a local organization seeking to develop the city’s tech sector, “Our biggest fear is creating all these fancy certificates and degree programs and then folks graduate or complete a course, and then they don’t have a career at the other end.” That fear has panned out in recent years, as the youngest college degree holders—those aged 20 to 25—made up 45 percent of the net loss of degree holders in 2019.<sup>23</sup> As college graduates in their prime working and earning years seek out better opportunities, many of them are voting with their feet and finding that the proverbial grass may be greener outside of Green Country, Oklahoma. The booming economy in Texas has been the biggest draw for college graduates leaving the state.<sup>24</sup>

While Tulsa is home to two large private universities, it lacks a major *public*, four-year higher education institution, which puts it at a disadvantage for educating, attracting, and retaining young, college-educated workers.

The failure to attract and retain a greater share of college graduates is a major headwind for Tulsa and the state. While Tulsa Remote may not directly address the lack of entry-level jobs for local college graduates, it can help to build up a network of skilled workers that sets the stage for future business opportunities and seed the expansion of industries that might one day provide the demand-side pull needed to break the local economy out of its “chicken and egg” dilemma. Tulsa Remote is potentially laying the groundwork for a future in which skilled workers have more job opportunities, creating a reinforcing effect that helps attract even more educated professionals and opens up positions for skilled locals to remain in the Tulsa job market.

# Job Postings in Tulsa:

## Fewer jobs for recent graduates, lower wages for tech workers

Recent college graduates have fewer job opportunities in Tulsa than in many other peer metros, based on an analysis of job postings collected by Burning Glass Technologies Labor Insight™ tool. In particular, there is a relative lack of postings in Tulsa for jobs requiring a bachelor's degree and less than two years experience (referred to here as “entry level”) relative to its peers.<sup>25</sup> Between May 1, 2020 and April 30, 2021, there were roughly 5,200 entry level job

share of job postings requiring a bachelor's degree.

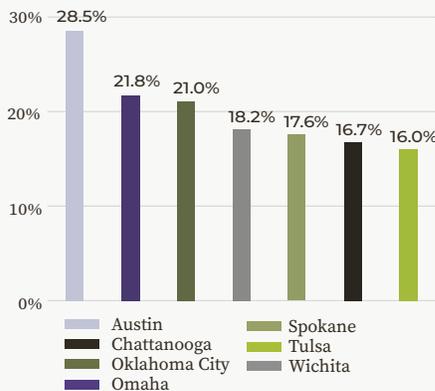
In Tulsa, 16 percent of jobs posted from May 2020 to April 2021 required a bachelor's degree, and only 4.3 percent of the total jobs posted in that period were explicitly for recent college graduates. Oklahoma City had roughly double Tulsa's number of job postings that require a bachelor's degree as well as roughly double the number of

Job Postings in Tulsa by Select Education and Experience Requirements, May 2020 to April 2021

City	Job postings	Job postings requiring a bachelor's degree	Share of postings requiring a bachelor's degree	Job postings requiring a bachelor's degree and 0-2 years of experience	Share of job postings requiring a bachelor's degree and 0-2 years of experience	Share of job postings requiring a bachelor's degree available to recent college graduates
Tulsa	120,899	19,313	16.0%	5,199	4.3%	26.9%
Austin	400,832	114,421	28.5%	24,910	6.2%	21.8%
Chattanooga	62,604	10,485	16.7%	2,813	4.5%	26.8%
Oklahoma City	183,765	38,627	21.0%	10,944	6.0%	28.3%
Omaha	159,455	34,737	21.8%	9,139	5.7%	26.3%
Spokane	67,985	11,935	17.6%	3,748	5.5%	31.4%
Wichita	83,308	15,136	18.2%	4,141	5.0%	27.4%

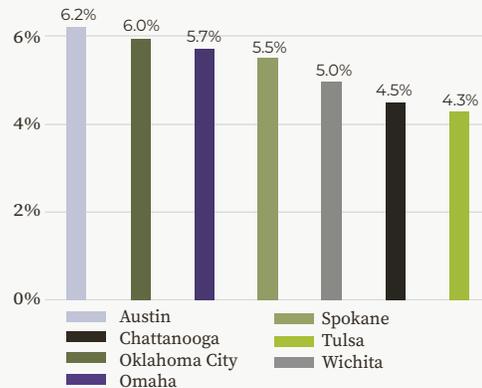
Source: Burning Glass Technologies, Labor Insight™ Real-Time Labor Market Information Tool, accessed May 2021

Share of Job Postings Requiring a Bachelor's Degree



Source: Burning Glass Technologies, Labor Insight™ Real-Time Labor Market Information Tool, accessed May 2021

Share of Job Postings Requiring a Bachelor's Degree and Less Than 2 Years of Experience



Source: Burning Glass Technologies, Labor Insight™ Real-Time Labor Market Information Tool, accessed May 2021

postings for college graduates in the Tulsa area. By raw numbers, that places Tulsa fourth among its peers for such opportunities; however, when that figure is expressed as a share of all job postings in a metro, Tulsa fares far worse. Tulsa had the smallest share of all job postings targeted at recent college graduates of any peer city and the lowest

recent grad jobs. Another way to consider the scale of the gap is to look at jobs for new grads relative to the population of the metro. Omaha's population is about 5 percent smaller than Tulsa's, but it had 76 percent more entry level jobs for recent graduates. Tulsa has fewer new grad jobs per capita than every peer metro area except for Chattanooga.

Source: Burning Glass Technologies, Labor Insight™ Real-Time Labor Market Information Tool, accessed May 2021

## Entry Level Job Postings for Recent College Graduates, May 2020 to April 2021

City	MSA Population	Number of fresh grad jobs, May 2020 - April 2021	Population relative to Tulsa	Fresh grad jobs relative to Tulsa	Fresh grad jobs per 10,000 residents
Tulsa	1,006,400	5,200	--	--	51.7
Austin	2,295,300	24,900	2.28	4.79	108.5
Chattanooga	569,900	2,800	0.57	0.54	49.4
Oklahoma City	1,425,400	10,900	1.42	2.11	76.8
Omaha	954,300	9,100	0.95	1.76	95.8
Spokane	574,600	3,700	0.57	0.72	65.2
Wichita	643,800	4,100	0.64	0.80	64.3

Source: Burning Glass Technologies, Labor Insight™ Real-Time Labor Market Information Tool, accessed May 2021

### Entry Level Jobs in the Tech Industry

Computer and mathematical occupations such as engineers, programmers, and software developers underpin much of the high-skill, high-paying jobs in the tech industry. From May 2020 to April 2021, Tulsa had fewer than 400 job postings for recent college grads looking to work in a computer or mathematical occupation. Despite having a lower total population, Omaha had well over double the number of entry level openings for new grads in computer and mathematical occupations. Unsurprisingly, Austin leads the pack among Tulsa's peers with 15 percent of fresh graduate job postings in computer and math occupations, amounting to over 3,500 job opportunities. (Tulsa's share of entry-level jobs in computer and mathematical occupations is near the middle of the pack among peers, however, because Tulsa has fewer total entry level jobs for recent grads.)

Young workers in Tulsa not only have fewer opportunities but also face the prospect of lower wages. While Austin tended to have the highest mean salary for most computer and mathematical occupations, Tulsa fell behind other peers as well. As of 2020, Tulsa had the second-lowest mean salary for workers in computer and mathematical occupations of all of its peers, meaning workers in occupations from

statisticians to web developers could usually expect to earn significantly less in Tulsa than in many other peer cities for the same type of high-skill, tech-oriented job. The mean salary across all computer and mathematical occupations in Tulsa was \$76,500, behind all peers except for Wichita and roughly on par with Oklahoma City.

### Average Salaries in Computer and Mathematical Occupations

City	Average salary: Computer and mathematical occupations	Gap relative to Tulsa
Tulsa	\$76,470	--
Austin	\$93,190	\$16,720
Chattanooga	\$81,060	\$4,590
Oklahoma City	\$76,640	\$170
Omaha	\$84,550	\$8,080
Spokane	\$81,130	\$4,660
Wichita	\$71,380	-\$5,090

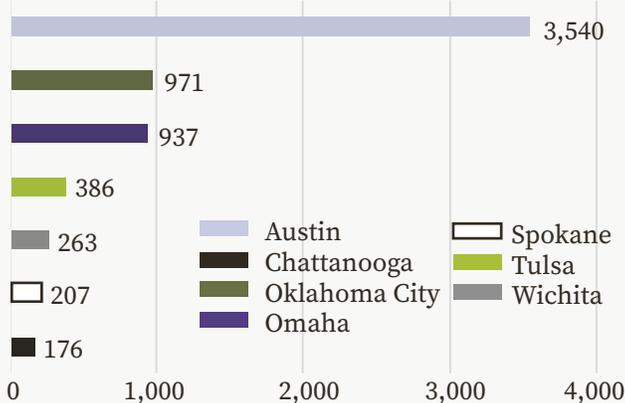
Source: U.S. Bureau of Labor Statistics Occupational Employment and Wage Statistics, 2020

### Critical Occupation Closeup: Software Developers

One particularly striking example of the tech worker gap is the demand for software developers. In 2019, software developers were the number one most in-demand occupation in Austin with more than 21,000 postings. In Omaha, by comparison, it was the 4th most in-demand occupation with over 3,800 advertised job postings. In Tulsa, it was the 10th most in-demand occupation with over 1,500 job postings.<sup>26</sup>

Tulsa has been unable to close these gaps with its peers, boasting fewer than 1,200 software developer postings from May 2020 to April 2021 compared to over 2,800 in Omaha. Software developers working in Tulsa can also expect to earn significantly less—the average salary for software developers in Tulsa was around \$89,400 in 2020, the lowest of all peer cities, ranging from \$860 less than in Oklahoma City up to nearly \$20,000 less than in Austin.

### Entry Level Job Postings in Computer or Mathematical Occupations for Recent College Graduates, May 2020 to April 2021



## Economic Structure, Competitiveness, and Dynamism

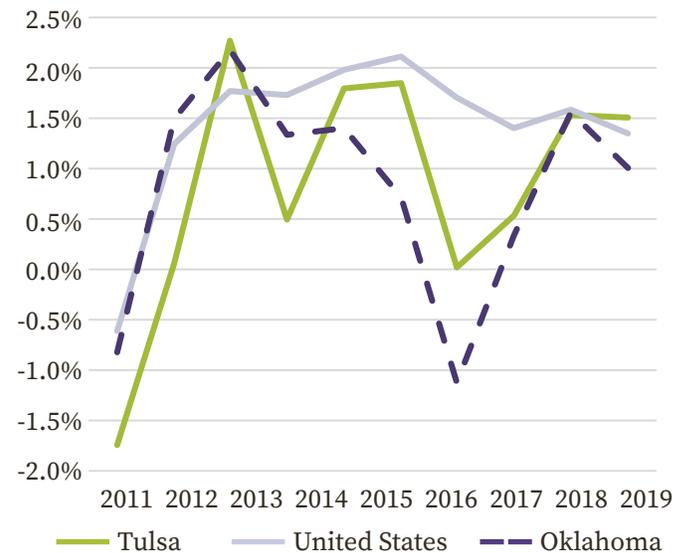
To better understand the economy Remoters are joining and the challenges it faces, this section explores Tulsa's employment and industrial orientation, economic resilience, occupation distribution, and relative economic dynamism. The various metrics broadly paint Tulsa as a traditionally production-oriented economy that has seen recent declines in the share of local employment in several critical high-skill, high-wage sectors. Additionally, while Tulsa has generally seen solid recent employment growth, its startup rate and resilience in the face of economic shocks show room for improvement. While certain adaptations and shifts may be needed to keep Tulsa competitive in the 21st-century economy, the city is not without a strong economic foundation.

Tulsa Remote has the potential to assist the local economy's long-term diversification by bringing in a group of workers who can begin to shift the local industrial composition. Remote workers act as a positive disruption, bringing their skills and technical expertise into the local labor force without the added cost or hassle of having to attract a firm to employ them. After relocating, these workers may provide their services to existing local businesses, start businesses of their own, or eventually transfer to a Tulsa-based job. While the inherent downside to the remote work model is that the workers are not strongly tied to the region (at least initially), early retention rates—88 percent for program alumni—look to be a promising start towards seeding a new cohort of local tech-oriented talent to assist in economic diversification efforts.

### Employment

Broadly, Tulsa County has experienced consistent employment growth in recent years that generally tracks Oklahoma's trend but slightly trails the U.S. economy as a whole. From 2010 to 2019, Tulsa County added 34,200 jobs and recorded a 10.4 percent increase in total employment.<sup>27</sup>

Annual Total Employment Growth Rates, 2010-19

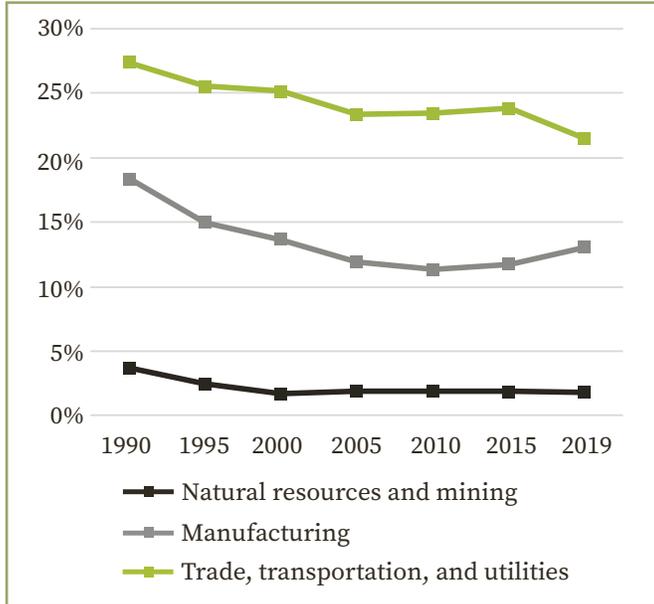


Source: U.S. Bureau of Labor Statistics Quarterly Census of Employment and Wages, 2010-2019

Tulsa's legacy industries—oil and gas, aerospace, manufacturing, and logistics—provide a strong base for the local economy, with several high-paying subsectors of Tulsa's dominant legacy industries requiring technical skills and expertise that are a distinct asset for the region. Indeed, Tulsa's employment levels are at least double the national share in four related high-tech STEM industry sectors:<sup>28</sup> oil and gas extraction; commercial and service industry machinery manufacturing; aerospace product and parts manufacturing; and pipeline transportation.<sup>29</sup> However, lackluster development of key growth sectors and occupations has hurt the city's competitiveness in recent years. In particular, the area's share of employment in such high-tech sectors as information and professional, scientific, and technical services lags behind key peer cities Oklahoma City, Omaha, and Austin.

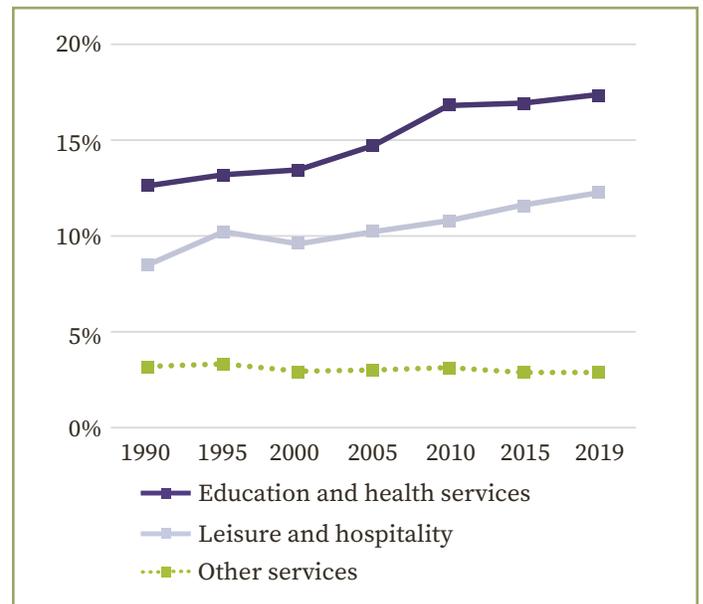
Since the 1990s, the share of workers in legacy industries such as natural resources and mining; manufacturing; and trade, transportation, and utilities has declined, while service-oriented sectors like education and health services as well as leisure and hospitality have grown. (Notably, however, there has been a slight uptick in the share of manufacturing employment over the past decade.) After making gains in the 1990s and early 2000s, Tulsa has

Share of Employment in Tulsa's Legacy Industries, 1990-2019



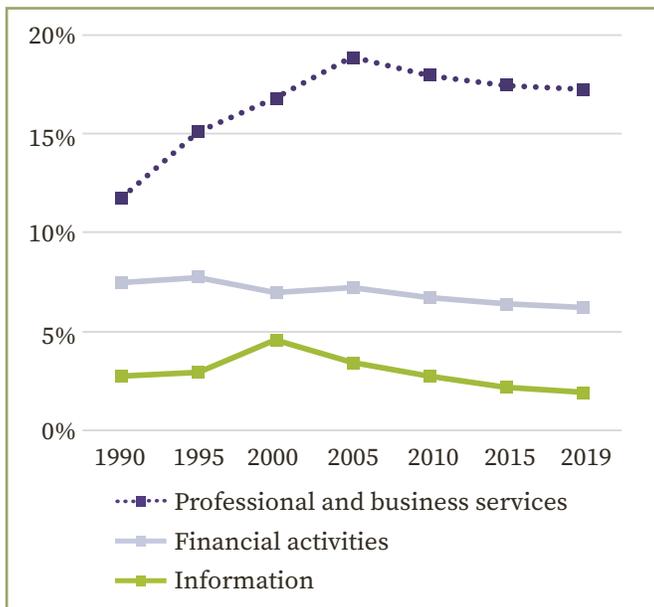
Source: U.S. Bureau of Labor Statistics Quarterly Census of Employment and Wages, 1990-2019

Share of Employment in Tulsa's Service Industries, 1990-2019



Source: U.S. Bureau of Labor Statistics Quarterly Census of Employment and Wages, 1990-2019

Share of Employment in Tulsa's Information, Financial, and Professional Services Industries, 1990-2019



Source: U.S. Bureau of Labor Statistics Quarterly Census of Employment and Wages, 1990-2019

Average Employment in Tulsa by Industry, 2019

Industry	Annual average employment 2019	Percentage change from 2010-2019
Total, all industries	328,182	12.3%
Trade, transportation, and utilities	70,424	2.9%
Education and health services	56,903	16.0%
Professional and business services	56,560	7.8%
Manufacturing	42,979	30.2%
Leisure and hospitality	40,145	27.7%
Financial activities	20,407	4.0%
Construction	19,019	22.9%
Other services	9,465	3.9%
Information	6,243	-22.5%
Natural resources and mining	6,038	8.4%

Source: U.S. Bureau of Labor Statistics Quarterly Census of Employment and Wages, 2019

## Comparative Resilience to Economic Shocks

One way to measure the health of a local economy is through its resilience to economic shocks. A community's economic resilience is a function of several forces, including the degree of economic diversification and the quality of government support for workers and businesses before, during, and after an economic shock.<sup>33</sup>

The Great Recession took an enormous toll on the country's economy, and some places were still dealing with the effects on the eve of the pandemic. Tulsa lost the greatest number of jobs of all its peers in absolute terms from 2008 to 2010 (although Wichita and Chattanooga had higher percent losses), and its total employment did not surpass its 2008 level until 2017, later than nearly all of its peers and five years behind in-state peer Oklahoma City.<sup>34</sup> Tulsa's steep losses and slow recovery signify that its economy was fundamentally less resilient in the face of that type of economic shock than other similar cities due to industry mix or other factors.

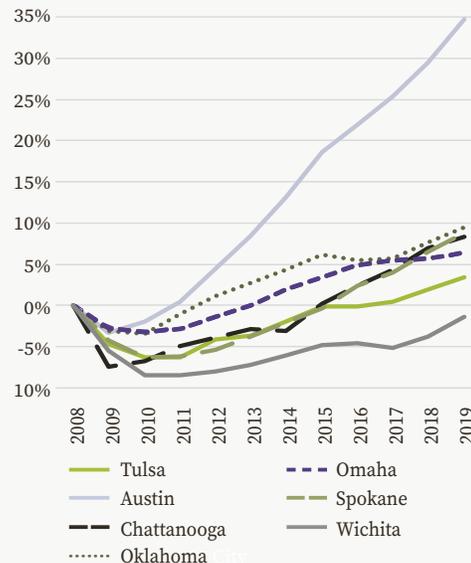
Early data on the nature of the COVID-19 recession suggests that the latest recovery might not be the same slow trudge as the previous recovery. Tulsa and its peers almost all outperformed the nation in terms of limiting job losses in 2020, a finding consistent with analysis that the hardest hit labor markets through the first year of the pandemic were those already struggling with broad decline, such as Wichita, and the nation's largest metros, such as New York. As the crisis wore on into early 2021, however, Tulsa and Oklahoma City seemed to drift more towards the nation's trajectory as Omaha, Austin, and Chattanooga continued to outperform the country.<sup>35</sup> As the pandemic wears on, the underlying structural economic factors that undermined its recovery in the wake of the Great Recession may leave Tulsa vulnerable to steeper employment losses than some of its peers.

### Select Great Recession Employment Recovery Statistics

City	Job losses from 2008 to 2010	Job losses from 2008 to 2010 as % of total employment in 2008	Year surpassed 2008 employment	Percentage change in employment from 2008 to 2019
Tulsa	22,055	6.3%	2017	3.5%
Austin	11,268	1.9%	2011	34.7%
Chattanooga	12,972	6.8%	2015	8.4%
Oklahoma City	14,631	3.4%	2012	9.5%
Omaha	10,188	3.2%	2013	6.4%
Spokane	13,089	6.2%	2016	8.8%
Wichita	22,033	8.5%	N/A	-1.3%

Source: U.S. Bureau of Labor Statistics Quarterly Census of Employment and Wages, 2008-2019

### Percent Change in Employment Since 2008



Source: U.S. Bureau of Labor Statistics Quarterly Census of Employment and Wages, 2008-2019

After making gains in the 1990s and early 2000s, Tulsa has struggled to expand its workforce in the traditionally high-wage professional and business services sector, which is a smaller share of employment now than 15 years ago.

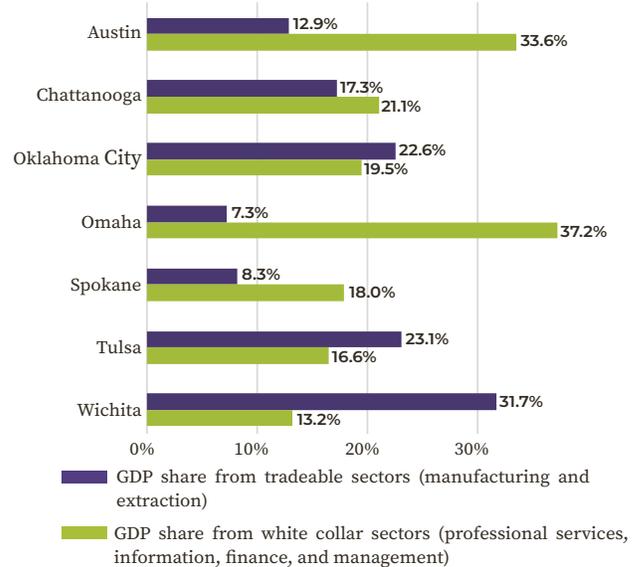
struggled to expand its workforce in the traditionally high-wage professional and business services sector, which is a smaller share of employment now than 15 years ago. The similarly high-paying information and financial activities sectors declined as a share of employment over that same time, with the share of county employment in the information sector decreasing by more than half.<sup>30</sup>

Tulsa's challenges are in part a consequence of the broader trends in a state like Oklahoma, which has generally struggled to build up many of its highly paid, knowledge-intensive employment sectors. Even as several high-paying professional and high-tech service industries grew rapidly in the state in recent years (such as computer systems design),<sup>31</sup> Oklahoma ranks 45th among all states on the Milken Institute's 2020 State Technology and Science Index, a broad measure of "each state's capacity for achieving prosperity through scientific discovery and technological innovation."<sup>32</sup> Further underscoring the challenge, the state ranks 35th on a measure of its technology and science workforce and ranks last in the nation on a metric that accounts for investments in science and technology human capital.\*

## GDP and Economic Orientation

Another way to examine Tulsa's economy and compare it to its peers is through the lens of gross domestic product, or GDP. In 2019, Tulsa's GDP topped \$49 billion, making up just

## Comparison of GDP from Select Tradable and White Collar Industry Sectors in Tulsa and Peers



Source: U.S. Bureau of Economic Analysis Gross Domestic Product by County, 2019

under one-quarter of Oklahoma's GDP, roughly on par with the broader metro area's share of the state population.<sup>36</sup> A large portion of Tulsa's GDP comes from "tradable" sectors that can be traded across significant distances and place the region solidly in the category of a "producer" economy. Indeed, Tulsa was responsible for 31.4 percent of the state's manufacturing GDP in 2019.

A few tradable sectors, namely transportation and warehousing; mining, quarrying, and oil and gas extraction; and manufacturing, are three of the top industries in Tulsa, comprising 35.7 percent of the county's GDP. (The overall share can vary significantly from year to year due to the volatility of the mining, quarrying, and oil and gas sector.) Tulsa had a higher GDP per capita across the combined manufacturing and natural resources sectors than any peer except for Wichita.<sup>37</sup>

A comparison of the share of local GDP coming from some white collar high-wage, high-tech sectors (information;

\*The technology and science workforce subindex of Milken's State Technology and Science Index measures "whether states have sufficient depth of high-caliber technical talent, represented by the share of workers in a particular field relative to total state employment" by looking at 49 occupations within computer and information sciences, engineering, and life and physical sciences. The human capital investment subindex is a composite measure of test scores, educational attainment of individuals, state spending on student aid, percentage of households with broadband and computers, and other related measures.

professional, scientific, and technical services; financial services; and management) relative to the share coming from more traditional production sectors (manufacturing and natural resource extraction) provides further insight into the differences between Tulsa and many of its peers. The comparison demonstrates Tulsa's advantage in production as well as its relative lag in the tech and white-collar sectors that drive high economic output in other cities. For instance, while Omaha has fewer people than Tulsa, its GDP across white-collar sectors was 2.2 times greater.<sup>38</sup>

These differences partly reflect the agglomeration of various economic activities in different cities, such as insurance in Omaha and aerospace in Wichita. Tulsa Remote will not dismantle Tulsa's existing agglomerations, nor is that the goal. Rather, it is intended to redirect some of the footloose workers away from the primarily coastal, runaway tech agglomerations and assist in a slow diversification by building out a bench of tech workers in the area as a supplement to the local labor force.

### Industrial Composition Across Tulsa and its Peers

Knowing that local specializations shape the broader employment distribution leads to a natural question: what does Tulsa specialize in? Location quotients—measures of industrial specialization expressed as an industry's local employment concentration relative to the country overall—provide insight into which industries are already firmly rooted in Tulsa and which are more tenuously established. For example, Tulsa's location quotient of 3.02 in the natural gas pipeline transportation sector means



that the sector's local concentration of employment is 3.02 times that of the sector's share of employment nationally. Put another way, the sector makes up a much larger share of Tulsa's employment than it does nationally. (A location quotient of 1.0 would mean that Tulsa and the country are equally specialized in a given industry.)

Tulsa's specializations mostly align with the city's legacy industries of oil and gas, aerospace, and manufacturing. Within the broader white collar sectors of information, professional, scientific, and technical services, and finance and insurance, the city is not as specialized in some of the biggest traditional tech subsectors such as software publishing, data processing, and computer systems design.<sup>39</sup> The chart below provides insight into how Tulsa fits in with peers across a variety of traditionally high-wage subsectors.

### Top 15 Industry Subsectors with the Highest Concentration in Tulsa Relative to the United States

Industry	Employment location quotient
Boiler, tank, and shipping container mfg.	13.2
Oil and gas extraction	11.0
Natural gas distribution	8.1
Aerospace product and parts mfg.	6.8
Commercial and service industry machinery	5.4
Other general purpose machinery mfg.	5.0
Nonscheduled air transportation	3.6
Ag., construction, and mining machinery mfg.	3.3
Pipeline transportation of natural gas	3.0
Support activities for air transportation	2.8
Metal and mineral merchant wholesalers	2.6
Automotive equipment rental and leasing	2.6
Business support services	2.5
Other support services	2.5
Architectural and structural metals mfg.	2.4

Source: U.S. Bureau of Labor Statistics Quarterly Census of Employment and Wages, 2019

## Local Concentration of Select Tech Industry Subsectors in Tulsa and its Peers

City	Software publishers	Data processing	Tech consulting	Computer systems design	Graphic design	Insurance carriers
Tulsa	0.19	0.27	0.57	0.58	0.81	0.82
Austin	2.45	3.89	2.46	3.08	1.87	0.68
Chattanooga	0.32	0.61	0.52	0.33	—	5.44
Oklahoma City	0.25	0.36	1.09	0.46	0.44	1.13
Omaha	0.22	4.59	0.45	1.16	0.89	3.79
Spokane	0.44	0.36	0.59	0.6	0.65	1.33
Wichita	0.1	0.16	0.63	0.37	0.61	0.29

City	Management of companies	Architectural and engineering services	Wired and wireless telecommunication carriers	Accounting and bookkeeping
Tulsa	0.87	1.22	1.62	1.82
Austin	0.53	1.73	1.82	0.87
Chattanooga	0.45	0.87	—	0.75
Oklahoma City	1.38	0.9	0.88	2.16
Omaha	2.5	1.12	0.48	1.41
Spokane	0.9	0.87	1.01	1.46
Wichita	1.03	0.81	—	1.18

Source: U.S. Bureau of Labor Statistics Quarterly Census of Employment and Wages, 2019



### Local Labor Market Demand

Labor market demand location quotients—statistics that compare local job openings relative to job openings nationally—show that the labor demand in Tulsa for some key high-wage, more tech-oriented sectors is below the national average.<sup>40</sup> (In this case, a location quotient of 1 indicates that the local demand for jobs in a particular sector is equal to the national average demand.) For the past five years, Tulsa has had lower than average demand for labor in the professional, scientific, and technical services sector, the information sector, and the finance and insurance sector.<sup>41</sup>

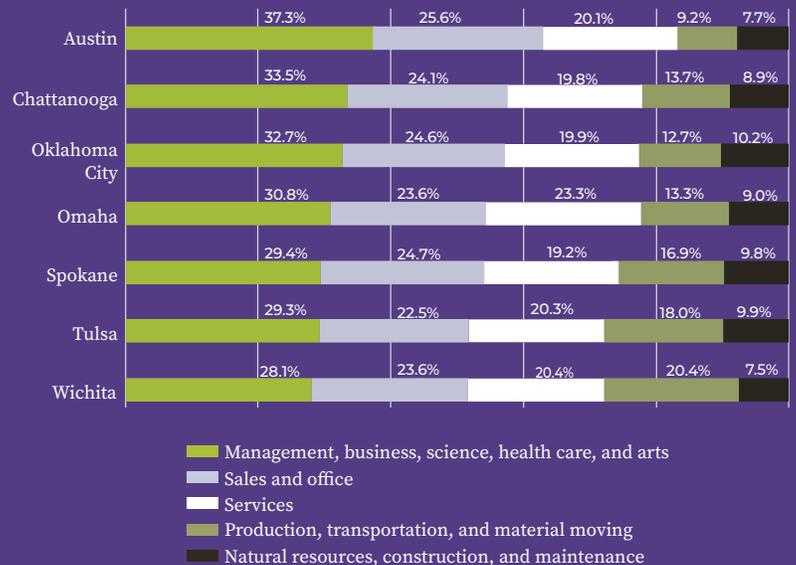
### Labor Market Demand Quotients for Select Industries in Tulsa, May 2016 to April 2021

Industry	Labor demand quotient for past 5 years
Mining, quarrying, and oil/gas extraction	3.5
Utilities	1.9
Construction	1.4
Arts, entertainment, and recreation	1.2
Transportation and warehousing	1.2
Accommodation and food services	1.1
Health care and social assistance	1.1
Wholesale trade	1.1
Management	1.0
Manufacturing	1.0
Other services	1.0
Retail trade	1.0
Admin, support, and waste management	0.9
Information	0.9
Real estate, rental, and leasing	0.9
Finance and insurance	0.8
Public administration	0.8
Educational services	0.7
Professional, scientific, and technical services	0.6
Agriculture, forestry, fishing and hunting	0.5

Source: Burning Glass Technologies, Labor Insight™ Real-Time Labor Market Information Tool, accessed May 2021

## Occupational Composition Across Tulsa and its Peers

Occupation data provides another window into a region's local labor force by capturing the type of work an individual does.\* Even as a plurality of Tulsa metro area employees work in professional occupations (management, business, science, healthcare, and arts occupations), the area lags behind several of its peers in the share of workers in that largely high-skilled occupation group.<sup>42</sup> Within that larger bucket, Tulsa's share of computer and mathematical occupations has room to grow: In 2019, the Omaha metro area had twice as many workers in computer and mathematical occupations as Tulsa did.



Source: U.S. Bureau of Labor Statistics Occupational Employment and Wage Statistics, 2019

\* For example, while the CEO of a large construction company would work in the construction industry, her occupation would fall under management because that captures her role in the organization. For more on the difference between industry and occupation, see the U.S. Census website.

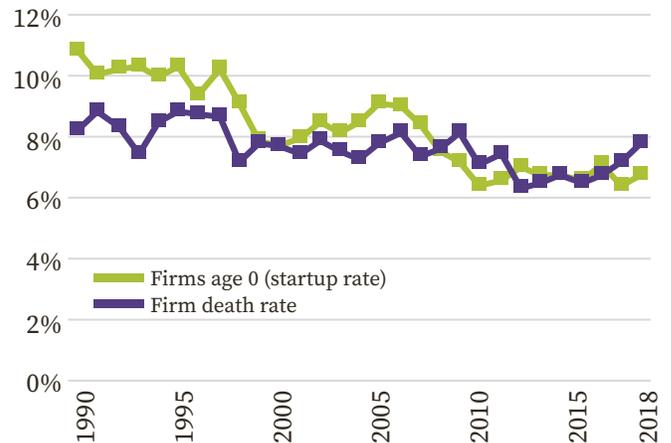
Taken together, the industrial composition and labor demand data suggest that Tulsa has far less current employment in several key tech-oriented segments of its economy as well as a tendency to hire less than the national average in the broader sectors of the economy that contain such positions. This stasis is driven by path dependency, essentially the idea that much of what has been in a particular place or economy will continue in the absence of a serious disruption. While Tulsa Remote will not transform the economy completely, it's goal is to be just such a positive disruption.

### Business Dynamism

Finally, it is useful to examine the vitality of the local economy by comparing Tulsa's relative business dynamism—meaning the extent of new business creation and destruction that occurs as an economy adapts—to its peers. Entrepreneurs taking risks and forming new local businesses are a vital component of any dynamic economy. Startups help revitalize the economic environment, replace declining industries or individual businesses, foster competition with incumbent companies, generate innovations, and produce new, higher-wage jobs. Since at least the early 1990s, Tulsa County's business startup rate has meandered downward, mirroring the nationwide trend in the same direction. Tulsa's firm death rate—the share of all existing firms that folded in a given year—exceeded the startup rate half of the time from 2009 to 2018, a worrisome sign for the area's dynamism. In 2018, the firm death rate in Tulsa stood at 7.8 percent, eclipsing the business startup rate of 6.7 percent. That death rate was slightly lower than

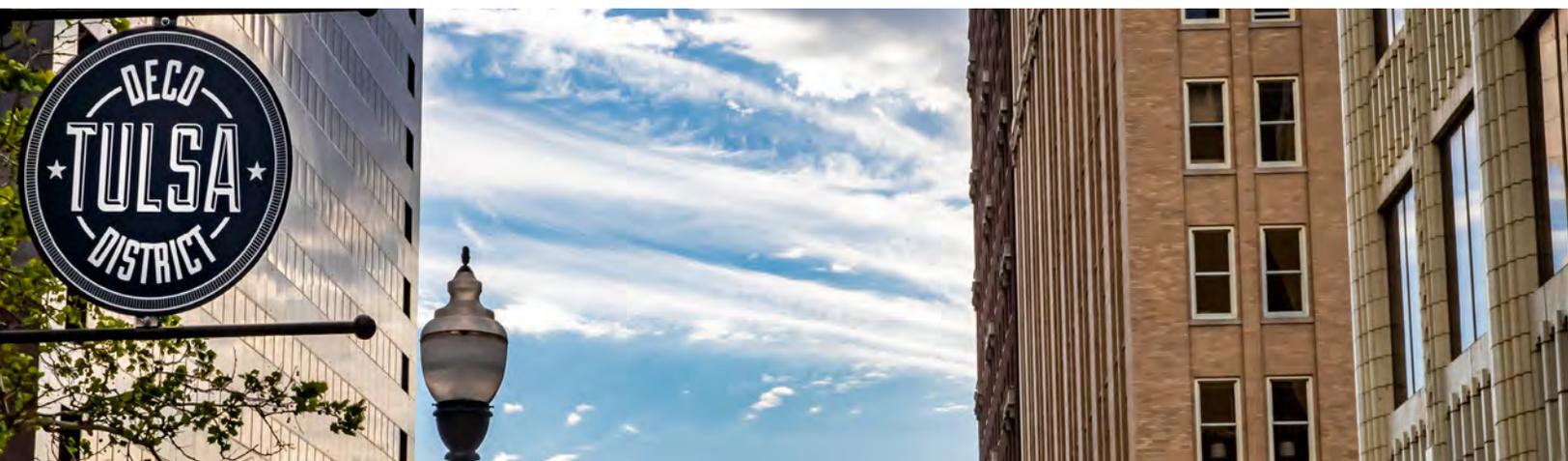
the U.S. rate (8.2 percent), while the national startup rate was higher at 8.1 percent, implying that while a smaller share of firms closed in Tulsa, a smaller share of new firms were born compared to national figures.<sup>43</sup>

### Firm Startup and Closure Rate in Tulsa, 1990-2018



Source: U.S. Census Bureau Business Dynamic Statistics, 1990-2018

A consequence of the slowing startup rate is that older incumbent firms—rather than younger, more dynamic ones—have been increasingly dominant across the country.<sup>44</sup> Since 1990, the average firm age in Tulsa has gone up: The share of firms 11 years or older climbed from 40.8 percent to 57.5 percent.<sup>45</sup> The percentage of employment in firms age 11 or older also increased from 70.5 percent to 83.6 percent over the period. Incumbent firms tend to shed more jobs than they add, while new businesses tend to be responsible for most of the new net jobs in the United States and local economies, too.<sup>46</sup>



## Share of Firms by Age in Tulsa and Peers, 2018

City	Startup rate	Share of firms 11 years or older	Share of employment in firms 11 years or older
Tulsa	6.7%	57.5%	83.6%
Austin	10.2%	42.8%	74.8%
Chattanooga	6.6%	59.5%	86.7%
Oklahoma City	6.9%	55.1%	80.5%
Omaha	7.2%	55.2%	84.9%
Spokane	7.8%	56.6%	82.2%
Wichita	6.7%	61.2%	86.0%

Source: U.S. Census Bureau Business Dynamic Statistics, 2018

There is some hope that Tulsa Remote will serve as its own local startup engine if it selects particularly entrepreneurial participants. Early evidence suggests that over one-third of Remoters in Tulsa (37 percent) have at least thought about starting a business in Tulsa in the near future. Even if far fewer Remoters end up actually founding new local businesses, the program will infuse fresh perspectives and tech expertise into the ecosystem, bringing a vital new supply of human capital and ideas into the metro area that other local startups can tap into. Therefore, it is highly likely that the Tulsa Remote program will help excite the startup ecosystem locally.

## Local Institutional Environment

In addition to the structural economic and demographic factors, the local institutional environment\*—the formal and informal structures that influence the economy, politics, and society in a given place—also mediates the success or failure of a policy initiative like Tulsa Remote.<sup>47</sup> A range of factors, including the quality of local government, the strength

of local professional networks, and even local customs around idea and resource sharing all play principal roles. When it comes to economic development interventions, the support of local institutions and the local community is key to program longevity, as well as maximizing economic and social impact.

Tulsa exhibits a strong network of formal economic development institutions.

Tulsa exhibits a strong network of formal economic development institutions, including government entities like the recently created Tulsa Authority for Economic Opportunity, and robust local commitment from the business community through its nationally recognized regional Chamber of Commerce and the Tulsa Economic Development Corporation. Further benefiting the region is a thriving philanthropic ecosystem anchored by George Kaiser Family Foundation and the Tulsa Community Foundation. A host of other entities—from organizations like Tulsa Innovation Labs, Atento Capital, and in Tulsa, to innovative educational institutions like the Holberton School and Tulsa County Community College—have also supported the idea of building an inclusive and economically vibrant city.

“There’s a concerted effort here; it’s one of the reasons I came to Tulsa,” said Devon Laney, President and CEO of 36 Degrees North, a non-profit economic development organization focused on supporting entrepreneurship in Tulsa. “There is greater alignment among the public, private, and philanthropic sectors around the understanding that we have to diversify the economy and diversify the workforce.” This level of buy-in, coordination, and integration across formal organizations bodes well for the success of Tulsa Remote.

\* This is by no means a comprehensive account of local institutions but instead a review of the institutional features most commonly discussed in interviews with community stakeholders (i.e., those locals identified as key distinguishing features).

Informal institutions and the local norms around resource and idea-sharing are also critical, as they mediate professional or personal interactions and determine the potential degree of cooperation. In interviews, several stakeholders indicated that Tulsa was a highly networked, collaborative place—a boon for community initiatives that is likely both a cause and consequence of broader integration of development efforts across the city. Even in a metro area of one million people, “it’s like you’re still one person removed from everyone,” said Mike Basch of Atento Capital. Tulsa Remote is intentional about how it goes about providing newcomers with the tools to integrate themselves into business and community networks and that is shaping up to be an essential ingredient to the success of the experiment, ensuring that these “digital nomads” put down roots and that their ideas, experiences, and insights filter into the rest of the economy.

While strong informal networks are often assets, they do come with the downside that certain communities or groups of people invariably tend to have weaker attachments to the initiative and its purported benefits. Thus to maximize the good inherent in the region’s strong social connections, there needs to be intentional efforts to mitigate this risk and proactively include community members with different backgrounds, divergent perspectives, or alternate priorities.

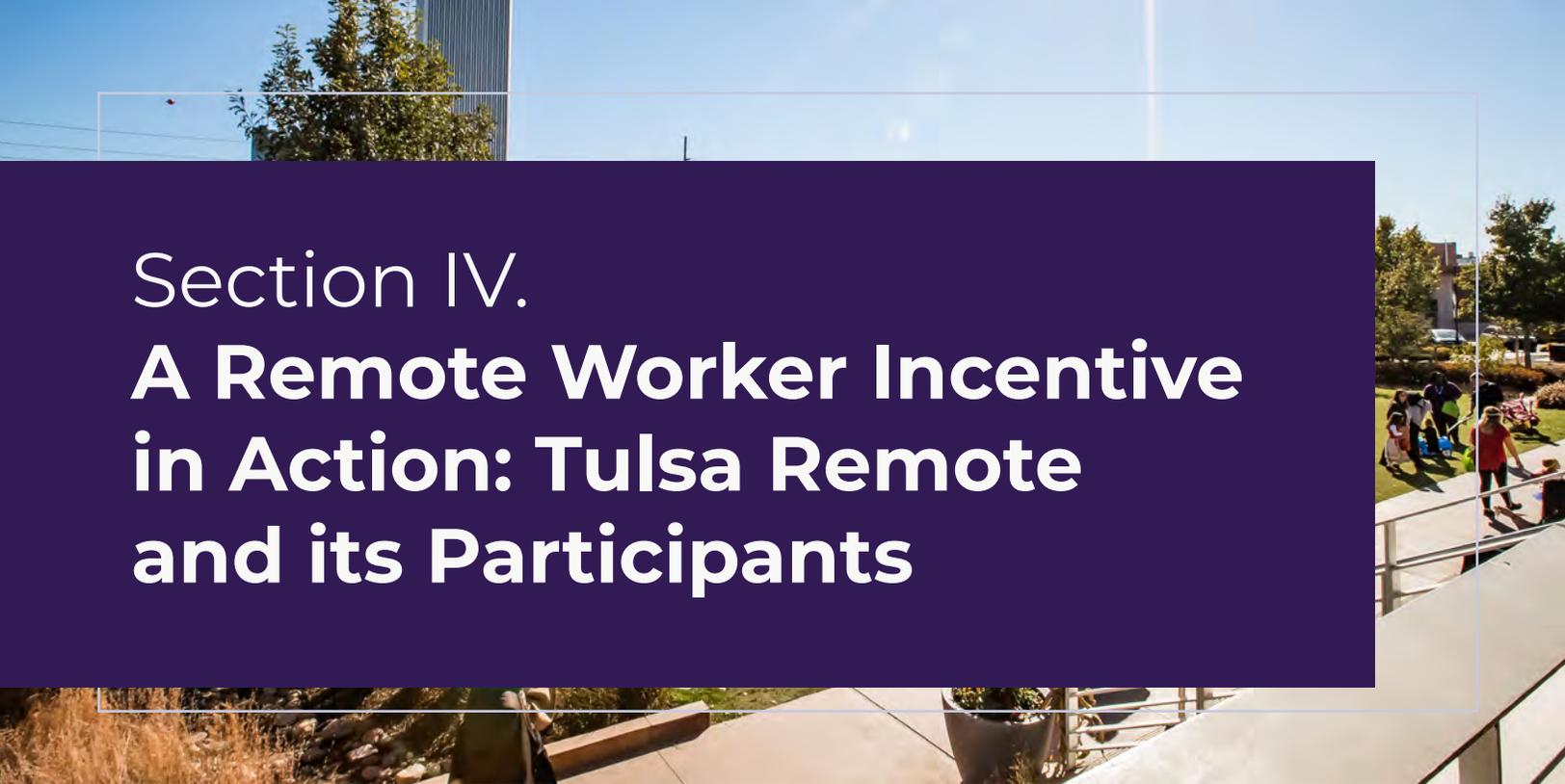
The potential downside of strong social connections is a tendency toward exclusion or groupthink. “One thing we know about Tulsa is that relationships are the most important thing, and so it’s really hard to advocate too hard for what’s not going right because if you create one bad relationship, then it can be a ripple effect throughout the entire ecosystem,” said Cioré Taylor, director of entrepreneurial development and education at the Tulsa Economic Development Corporation. Realities and perceptions of exclusion can undermine the ecosystem that is such an asset to Tulsa Remote. The degree of continued community engagement will thus be a key determinant of both the wider ecosystem’s health and the program’s long-term success.

Broadly, Tulsa’s strong formal and informal institutions make it more likely that Tulsa Remote will succeed as an economic and community development catalyst. The program enjoys strong support from the local business and civic communities, while its own community integration services work to effectively support Remoters and improve the chances they become active participants in their communities. As the program moves forward, it can lean into its strong base of support in formal institutions while staying aware that future success will likely require mindful integration of program participants into the community and significant community outreach and input.

## Endnotes

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- <sup>1,2</sup> Chad Wilkerson and Courtney Shupert, “[Who has been Leaving Oklahoma, and will the Trend Continue?](#),” March 2019.
- <sup>3</sup> U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages, 2019.
- <sup>4</sup> U.S. Internal Revenue Service, Statistics of Income, 2019.
- <sup>5, 6</sup> Jason P. Brown and Colton Tousey, “[Population Turnover and the Growth of Urban Areas](#),” March 2020.
- <sup>7</sup> Statistics are based on Tulsa Remote administrative data for place of residence prior to relocating.
- <sup>8</sup> Teresa Perez, “[Earnings Peak at Different Ages for Different Demographic Groups](#),” July 2019.
- <sup>9,10</sup> Analysis of EIG-HBS survey data.
- <sup>11</sup> Juan B. Delgado-García, Esther de Quevedo-Puente, and Virginia Blanco-Mazagatos, “[The impact of city reputation on city performance](#), *Regional Studies*,” 2018.
- <sup>12</sup> Analysis by Hamilton Place Strategies for EIG, March 2021.
- <sup>13,14</sup> U.S. Census Bureau, American Community Survey 5-year Estimates, 2015-19.
- <sup>15</sup> EIG analysis of U.S. Census Bureau, American Community Survey 1-year Sample Public Use Microdata, IPUMS-USA
- <sup>16</sup> Chad Wilkerson and Courtney Shupert, “[A Closer Look at Oklahoma's Recent 'Brain Drain'](#)” June 2019.
- <sup>17</sup> Debra Friedman, David Perry, and Carrie Menendez, “[The Foundational Role of Universities as Anchor Institutions in Urban Development](#),” 2014.
- <sup>18</sup> Sarah Reber and Chenoah Sinclair, “[Opportunity Engines: Middle-Class Mobility in Higher Education](#),” May 2020.
- <sup>19</sup> Raj Chetty, John N. Friedman, Emmanuel Saez, Nicholas Turner, and Danny Yagan, “[Mobility Report Cards: The Role of Colleges in Intergenerational Mobility](#),” December 2017.
- <sup>20</sup> Debra Friedman, David Perry, and Carrie Menendez, “[The Foundational Role of Universities as Anchor Institutions in Urban Development](#),” 2014.
- <sup>21</sup> Danny Dougherty, Brian McGill, Dante Chinni, and Aaron Zitner, “[Where Graduates Move After College](#),” May 2018.
- <sup>22</sup> Muneeb Ata, “[Labor Mobility Among Oklahoman Undergraduate Students](#),” 2018. Provided directly to EIG.
- <sup>23</sup> EIG analysis of U.S. Census Bureau, American Community Survey 1-year Sample Public Use Microdata, IPUMS-USA.
- <sup>24</sup> Chad Wilkerson and Courtney Shupert, “[A Closer Look at Oklahoma's Recent 'Brain Drain'](#)” June 2019; and EIG analysis of U.S. Census Bureau, American Community Survey 1-year Sample Public Use Microdata, IPUMS-USA.
- <sup>25</sup> Burning Glass Technologies, [Labor Insight™ Real-Time Labor Market Information Tool](#), accessed May 2021. All analysis in this section uses Burning Glass Labor Insights data for job postings in respective metro areas, not the reference county for each metro.
- <sup>26</sup> EIG analysis of Burning Glass Technologies, [Labor Insight™ Real-Time Labor Market Information Tool](#), accessed May 2021. All analysis in this section uses Burning Glass Labor Insights data for job postings in respective metro areas, not the reference county for each metro.
- <sup>27</sup> EIG analysis of private employment data from the U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages, 2010-19.
- <sup>28</sup> The Bureau of Labor Statistics categorizes certain industries as high-tech based on their high concentrations of STEM occupations.
- <sup>29</sup> U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages, 2019; and Brian Roberts and Michael Wolf, “[High-tech industries: an analysis of employment, wages, and output](#),” May 2018.
- <sup>30</sup> U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages, 1990-2019; Note: employment figures are through 2019 only to avoid COVID-related labor market effects that could distort some broader trends.
- <sup>31</sup> Chad Wilkerson and Courtney Shupert, “[Oklahoma Job Growth has Lagged in Recent Years, but some Industries have Thrived](#),” September 2019.
- <sup>32</sup> Milken Institute, “[State Technology and Science Index](#),” 2020.
- <sup>33</sup> For more on economic resilience, see the U.S. Economic Development Agency’s [discussion of the topic](#).
- <sup>34, 35</sup> U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages, 2008-2019.
- <sup>36</sup> This and all GDP statistics throughout this subsection come from the U.S. Bureau of Economic Analysis, [GDP by County, Metro, and Other Areas, 2019](#).
- <sup>37, 38</sup> U.S. Bureau of Economic Analysis, [GDP by County, Metro, and Other Areas, 2019](#); and U.S. Census Bureau, Population Estimates Program, 2020.
- <sup>39</sup> U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages, 2019.
- <sup>40, 41</sup> Burning Glass Technologies, [Labor Insight™ Real-Time Labor Market Information Tool](#), accessed May 2021.
- <sup>42</sup> U.S. Bureau of Labor Statistics, Occupational Employment and Wage Statistics, 2019
- <sup>43</sup> U.S. Census Bureau, Business Dynamic Statistics, 1990-2018.
- <sup>44</sup> Economic Innovation Group, “[Dynamism in Retreat](#),” February 2017.
- <sup>45</sup> U.S. Census Bureau, Business Dynamic Statistics, 1990-2018.
- <sup>46</sup> Economic Innovation Group, “[Dynamism in Retreat](#),” February 2017.
- <sup>47</sup> Douglass North, “[Institutions, institutional change, and economic performance](#),” 1990.



# Section IV.

## A Remote Worker Incentive in Action: Tulsa Remote and its Participants

The growing potential of remote work to reshape how and where many people perform their jobs on a daily basis has provided a novel opportunity for communities with a skilled-worker deficit to directly target footloose employees. Instead of offering costly incentives and enduring cut-throat competition to lure entire companies, Tulsa Remote is a program designed to target the flexible group of people who work from home and incentivize them to relocate to Tulsa for at least one year. The program functions by providing a monetary incentive to relocate in conjunction with wraparound resettlement services upon arrival in Tulsa.

Program participants, or “Remoters,” are selected in part for their willingness to relocate within Tulsa city limits and contribute to the city’s community and economy, with further selection criteria aimed at assessing the potential economic impact of an individual, their degree of community engagement, and how likely they appear to be to stay. In exchange, they receive a total of \$10,000 and are provided with resettlement assistance, a membership to a local co-working space, and programming directed at community building and networking.\*

As an intervention, Tulsa Remote responds to the structural challenges the city faces. The incentive brings new people and their families to Tulsa, helping to rebalance the scales on outmigration. These new residents are also highly educated and many are employed in the high-wage, high-tech sectors that Tulsa has struggled to build out in recent years, aligning with the community’s need to bolster local educational attainment as well as build out their tech workforce. The program has the potential to help build a bench of new tech-oriented talent, provide a positive jolt to the local entrepreneurial ecosystem, and build national awareness of Tulsa as a top-tier destination to live and work.

To be sure, Tulsa Remote is just one piece of the puzzle when it comes to addressing the social and economic concerns of the Tulsa community, and there are numerous other initiatives from George Kaiser Family Foundation (GKFF), as well as public programs designed to address the social and economic conditions of local Tulsans. However, many of these homegrown solutions around education and skill-building are long-term investments that might take decades to realize. Tulsa Remote, on the other hand, can act as a more rapid intervention over the short term to help address the skilled labor gap and establish a critical mass of the type of workers needed to kickstart Tulsa’s tech economy.

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\* The program in early 2021 announced that future Remoters would be able to access the \$10,000 incentive in a new way and receive it as a lump sum at the start of the program if they were willing to use it for a down payment on a home in Tulsa.

## Why are Many Remoters Employed in Tech or Similar Industries Rather Than Other High-Paying Industries or Professions?

Tech or professional services occupations are particularly well-suited to serve as a catalyst for economic growth through a remote worker incentive because they can largely be done from anywhere, are by nature digitized, and are not reliant upon local demand. For Tulsa and many heartland communities, these are sectors ripe for local expansion.

By contrast, many other high wage occupations such as doctors or pharmacists are rooted in providing services to the local population in a manner that does not allow for scaling beyond local population demand, creating a ceiling in terms of economic impact. Others, such as chemists or engineers, are similarly limited due to their ties to expensive and immobile advanced capital equipment, or their requirement to be embedded in teams engaged in hands-on research or development. As the nature of remote work evolves, new groups of highly paid workers may join the cohort of remote-compatible occupations, but many will remain less suitable than the existing cohort of tech jobs and professional occupations that have readily adapted to remote arrangements.

## Characteristics of Tulsa Remote Program Members

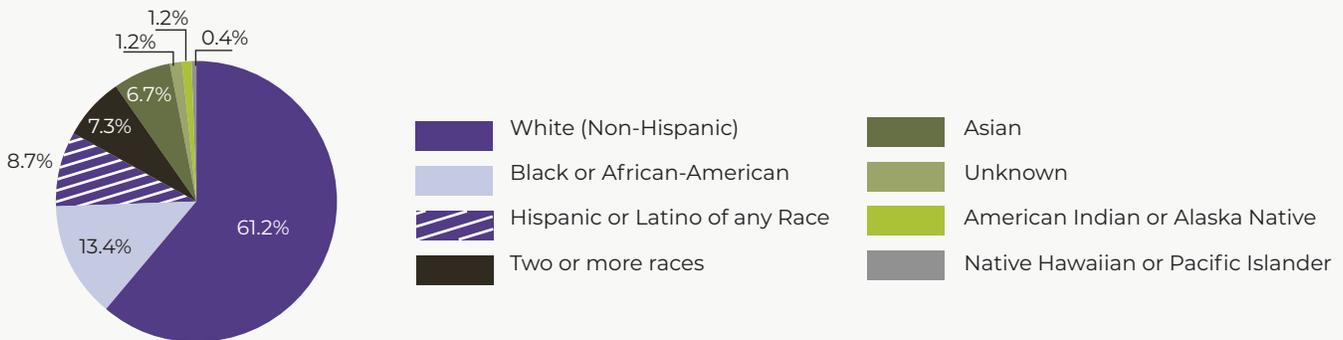
The first Tulsa Remote member moved to Tulsa in February 2019, and since then, the program has steadily continued to grow. As part of this analysis of the program, Tulsa Remote and EIG partnered with the Harvard Business School to conduct a survey of Tulsa Remote members in July 2021. A total of 508 members completed at least some portion of the survey, equivalent to 49.3 percent of the 1,031 Remoters known to be affiliated with the program as of July 1, 2021 (many of whom were scheduled to relocate to Tulsa in the second half of 2021). The survey responses give a sense of who these Remoters are and how they may impact Tulsa.



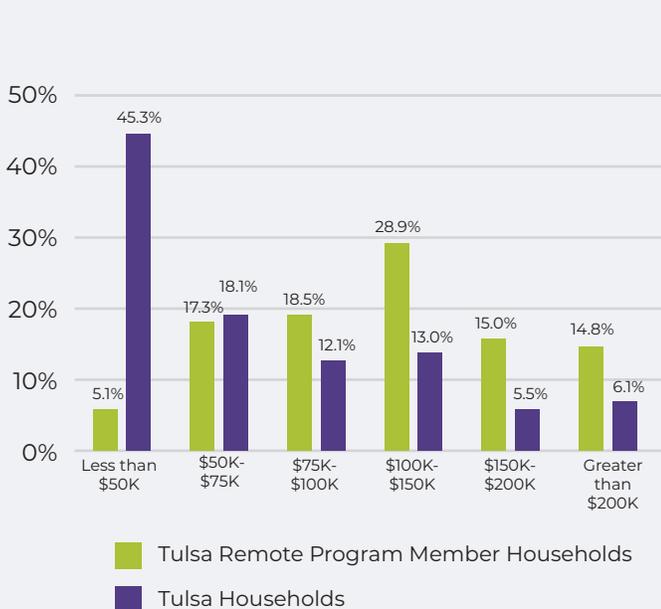
# Tulsa Remote By the Numbers

- The median age for program participants is 35, slightly younger than the mean age of 38.
- Fifty-three percent of Remoters who completed the survey identify as male, while 43.7 percent identify as female. The remaining 3.5 percent marked “other” or preferred not to answer.
- The vast majority of Remoters (77.6 percent) hold a single job, while approximately one in five (20.7 percent) hold two or more jobs. Nearly four out of five (78.7 percent) surveyed remoters are full-time workers, and Remoters earn 90.5 percent of their income from their primary job, on average.
- On average, Remoters spend 84.9 percent of their time working from home as opposed to working from an office, a coworking space, a client’s office, or another location. (This share is likely inflated by the pandemic.)
- The median income among members was \$85,000, while the average was just over \$104,600. When converted to include the value of benefits, the median value of income and benefits was \$105,100, while the average was \$129,400.

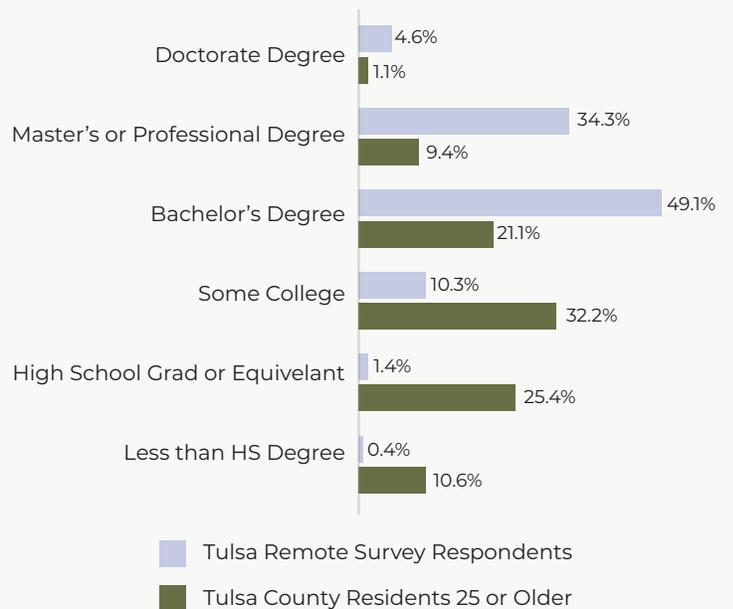
## Race and Ethnicity of Tulsa Remote Program Members



## Share of Households by Income Tier



## Highest Level of Educational Attainment



## Employment and Entrepreneurship

Remoters tend to be employed in knowledge economy jobs, which tend to be higher paying and usually held by individuals with at least a four-year college degree. The survey results paint a clear picture of just how different the sectors of employment are among Remoters compared to Tulsans. A plurality of Remoters are employed in the professional, scientific, and technical services industry (31.1 percent), compared with only 6.4 percent of workers in Tulsa as of 2019. The information industry is the next most common industry for Remoters, employing 14.4 percent of program members, compared with under 2 percent of the Tulsa workforce—a share that has trended downwards in recent years. Other top industries of employment among Remoters are education, health care and social assistance, and finance and insurance.

### Employment and Average Income of Tulsa Remote Program Members by Industry

Industry	Share of program members	Average income	U.S. industry average income
Professional, scientific, and technical services	31.1%	\$119,000	\$107,200
Information	14.4%	\$121,600	\$136,300
Education services	11.8%	\$90,500	\$57,200
Health care and social assistance	6.9%	\$93,600	\$55,100
Finance and insurance	6.3%	\$119,100	\$121,500
Arts, entertainment, and recreation	5.9%	\$83,000	\$45,700
Manufacturing	3.5%	\$121,700	\$73,400
Management	3.0%	\$119,300	\$132,400
Retail trade	2.8%	\$85,000	\$36,800
Other services	2.4%	\$92,100	\$44,100

Source: Analysis of EIG-HBS survey data and U.S. Bureau of Labor Statistics Quarterly

Survey respondents indicated a high level of entrepreneurial activity and intent. A combined 18.7 percent of program members indicate that they are self-employed or business owners (including respondents who identified as self-employed, gig workers, business owners, or entrepreneurs). By comparison, just under 11 percent

of all workers nationwide are similarly self-employed, a sign that program participants are highly entrepreneurial relative to the workforce overall. On a related survey question, 27 percent of all survey respondents reported actively managing their own business locally or in another city. Of those Remoters living in Tulsa as of mid-2021, 36.7 percent have at least thought about starting a business in the near future. This entrepreneurial energy among the program participants implies a high potential for new businesses in Remoters' fields of expertise to be an additional benefit of the program in the future if they follow through on their business startup intentions.

27 percent of all survey respondents reported actively managing their own business locally or in another city.

## Household Size and Characteristics

Remoters provide an extra boost to the local population and economy when additional household members relocate with them. Combining results from the survey with administrative data from the Tulsa Remote program allows for an estimate that each Remoter household contains between 1.5 and 1.9 people, implying that approximately one additional person moves to Tulsa for every two Remoters, on average. While approximately 46 percent of Remoters were single with no additional household members, a total of 206 other workers and 118 school-aged children relocated alongside Tulsa Remote program members who filled out the survey. All in all, 13 percent of surveyed households had school-aged children. Remoters and their households also bring additional income with them when they move. The average reported household income is \$132,700, nearly 37 percent larger than the equivalent figure for Tulsa County and 44 percent larger than the countrywide average.

## Residing in Tulsa

The majority of Remoters living in Tulsa rent their place of residence (59.9 percent) and pay an average of \$1,200 per month for housing. Thirty-nine percent are homeowners or live in a residence owned by someone in the household and pay an average of \$1,500 per month. Among those in Tulsa who currently do not own, four out of ten say they are at least slightly likely to purchase a house within the next year.

Among those in Tulsa who currently do not own, four out of ten say they are at least slightly likely to purchase a house within the next year.

The likelihood of owning a home in Tulsa varies depending on several characteristics of program members. In particular, Remoters who are married or have children are more likely to own their residence than their single and childless counterparts. Other factors increasing the likelihood of homeownership include having family in Tulsa or prior connections to the city, as well as whether an individual has previously lived in Tulsa before participating in Tulsa Remote.

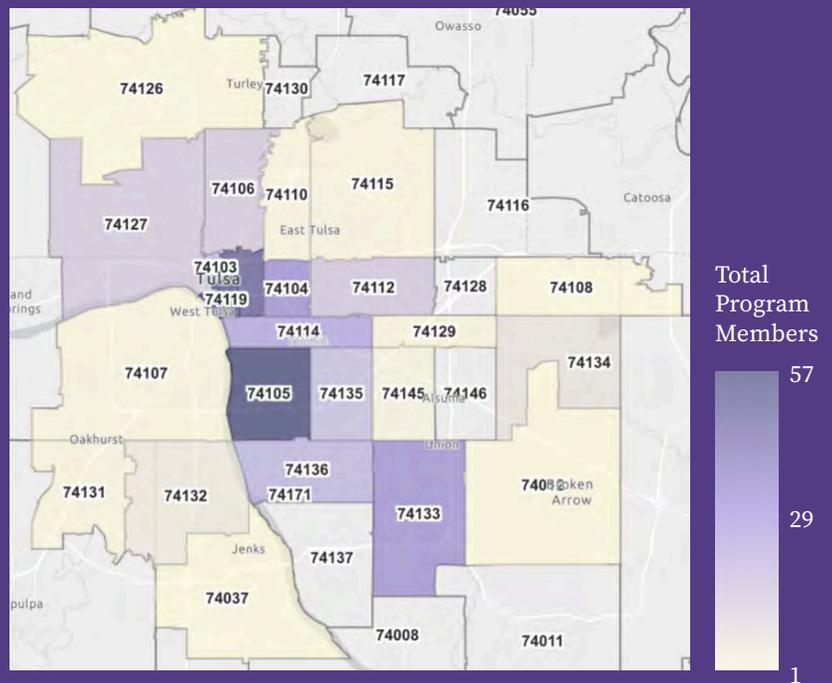
## Commitment to Tulsa and Working Remotely

It is impossible to know what percentage of Remoters will become permanent residents in the Tulsa area, although some factors provide clues as to who might stick around longer. In particular, program members above the average age of 38 say they are more likely to stay in Tulsa over the long term. In general, the likelihood of staying in Tulsa seems to rise by about 10 percent with each decade of age



## Where do Remoters Live?

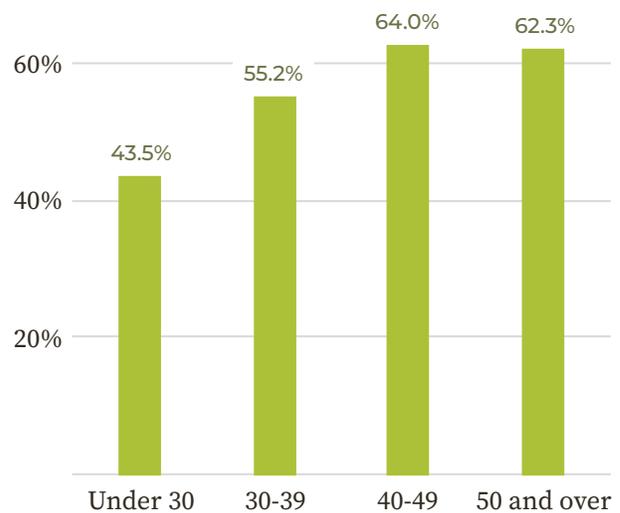
Remoters and their families live throughout Tulsa, but some zip codes are particular hotspots for residency. Generally, the most common places for Remoters to live in Tulsa are zip codes 74105 (Brookside), 74119 (Riverview/Downtown), and 74120 (Pearl District/Greenwood/Swan Lake). In general, renters are more likely to reside in areas close to downtown, while homeownership is more common in southern, more suburban parts of the city.



(with the oldest age group being the only exception). Just over 43 percent of those younger than 30 expect to remain in Tulsa five years into the future, compared to 55.3 percent of those in their 30s and 64 percent of those in their 40s. Notably, the likelihood of remaining in Tulsa for five years does not vary greatly depending on the amount of time that a Remoter has already spent in Tulsa.

One factor potentially mediating whether Remoters stay in Tulsa is their likelihood of continuing to work remotely. Looking to the future, 82.5 percent of surveyed Remoters believe they are at least slightly likely to be working remotely in five years, while 53.5 percent think that it is extremely likely they will continue to be remote. Less than 10 percent of all surveyed Remoters think that it is unlikely they will be remote in five years. These shares are quite positive for Tulsa Remote—a large share of their new residents see themselves as long-term remote workers, (i.e., individuals who could stay in Tulsa and remain employed in high-paying jobs even if in-person job opportunities didn't appear for them in the Tulsa economy). This is no guarantee that these individuals will stay in Tulsa and stay remote, but it implies a high potential for retention.

### Share of Tulsa Remote Program Members Likely to Remain in Tulsa for 5 Years by Age Cohort



Source: Analysis of EIG-HBS survey data

### Additional Survey Insights

The survey also included a host of questions about prior connections to Tulsa, visits from friends and family, community engagement, and use of the moving incentive. Generally speaking, a good swath of participants had a prior connection to Tulsa and, upon arrival, many participants have engaged in the community and spent their incentive locally.

Many Tulsa Remote participants have a prior connection to Tulsa. Family ties are the most common, with 38.6 percent of all Remoters living in Tulsa as of July 2021 reporting a family connection to the city. Many others have local friends (37.4 percent) or a professional network connection (19.1 percent).

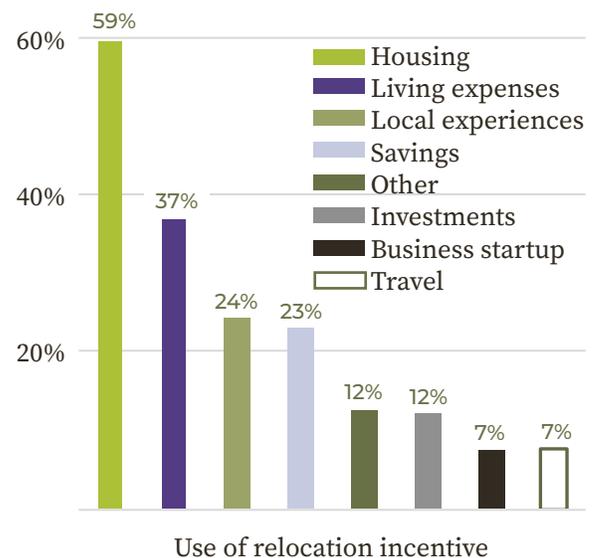
Interestingly, 21 percent of Remoters are “boomerangs” who returned to the city after living somewhere else for a period of time. This raises an intriguing question that frequently applies to incentive programs more generally as to whether the behavior would have occurred absent the financial incentive—in this case relocating to Tulsa. If these boomerangs would have returned absent the incentive, the program’s benefits would be diminished somewhat as the program could no longer take credit for the new income of those already planning to move. There is, however, no way to predict behavior in the absence of the program (particularly given the unusual circumstances related to the COVID-19 pandemic), and the lackluster domestic migration trends suggest that returning without the incentive is not a particularly common occurrence. Regardless, the boomerangs make up a relatively small portion of total program members, and the Remoters’ return to the community clearly provides economic benefits.

Friends and family visiting Remoters in Tulsa offers another positive economic externality of the program. The majority of surveyed Remoters living in Tulsa as of July 2021 (68 percent) have received visitors since moving—a statistic that would likely be even higher were it not for the pandemic.

Program members tend to be highly engaged in the local community. On a monthly basis, the survey found that 78.0 percent patronize local or small businesses, 41.3 percent engage in volunteering, 38.8 percent engage in local charitable giving, and that 15.4 percent are engaged in the leadership of a local organization.

Finally, the survey asked about the various ways in which Remoters used or planned to use the \$10,000 incentive that they receive as part of the program. The question allowed for multiple responses so the responses do not sum to 100 percent. The most common use was housing, followed by living expenses and local experiences, suggesting that much of the money may have stayed local.

### Tulsa Remote Program Member Use of the \$10,000 Relocation Incentive



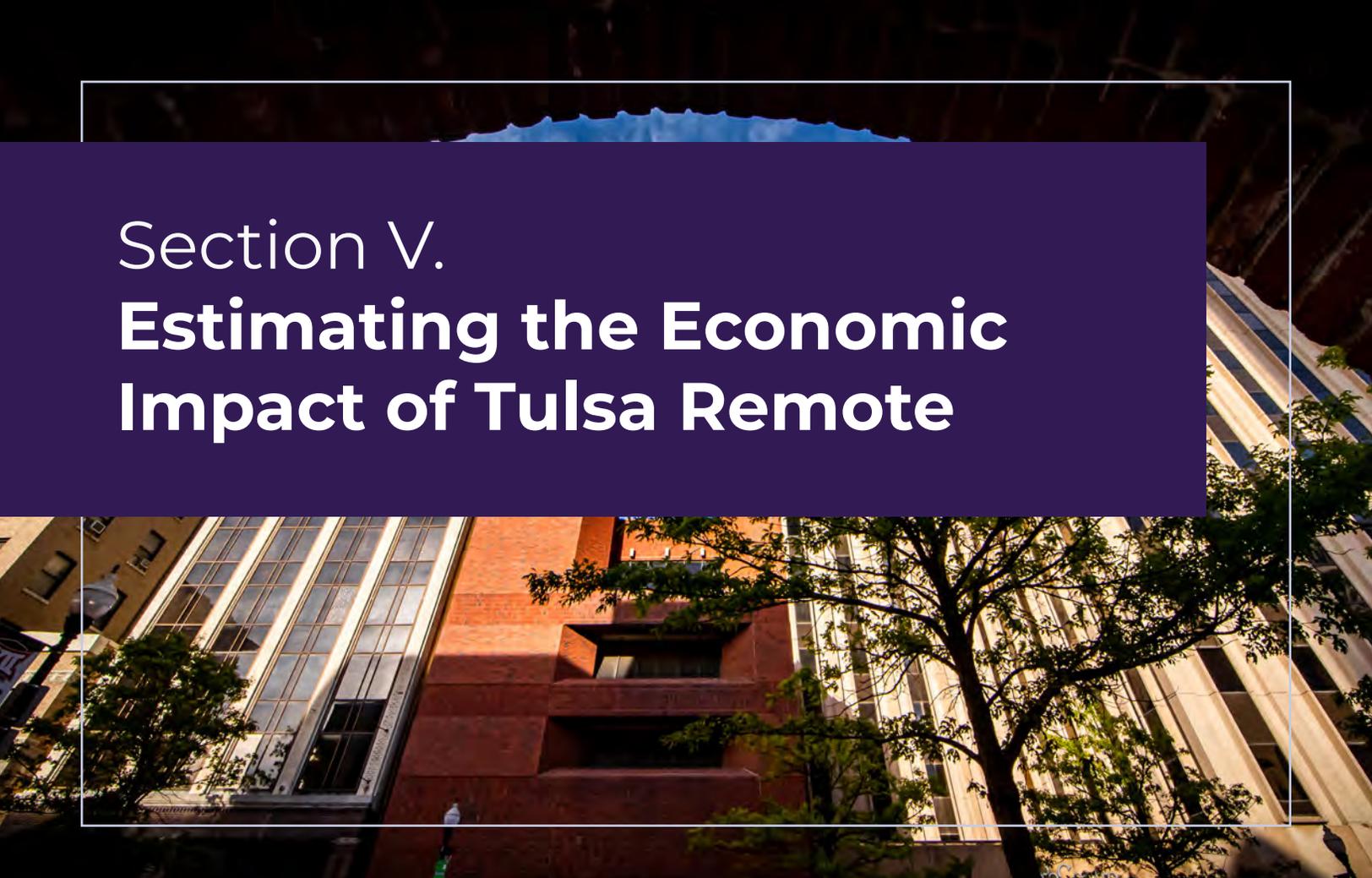
Source: Analysis of EIG-HBS survey data

## Endnotes

<sup>1</sup> U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages, 2019.

<sup>2</sup> U.S. Bureau of Labor Statistics, Current Population Survey, July 2021. Note: The self-employed designation includes both those who had incorporated their businesses and those who had not.

<sup>3</sup> U.S. Census Bureau, American Community Survey 1-year estimates, 2019.



# Section V. Estimating the Economic Impact of Tulsa Remote

Hundreds of remote workers have already relocated to Tulsa as part of the Tulsa Remote initiative, and the city is on track to potentially absorb thousands more new residents in the coming years. This infusion of highly educated, skilled remote workers raises the question of how their arrival will affect the local economy. At a fundamental level, the new residents contribute their remote jobs and labor income, adding to regional economic activity through their demand for local goods and services: they buy and rent houses; they eat and shop at local establishments; they go to doctors, visit local banks, and pay taxes. Yet, the true scope of their economic impacts will extend beyond their personal activity alone.

As Remoters go about their daily lives, they create ripple effects that magnify their individual contributions and catalyze other local jobs and income gains as well, a process that is broadly characterized as economic “multiplier

effects.” This induced additional economic activity materializes in the form of new local jobs, income, and broader economic effects. In someone’s daily experience in Tulsa, this shows up as the need to hire more doctors and nurses, for instance, or through additional hours for an employee of a local coffee shop.

The local economy appears particularly primed to benefit from these spillover impacts thanks to Tulsa Remote’s emphasis on luring highly skilled workers that bring income from outside the region—and produce particularly strong multiplier effects due to the above-average earnings of those workers.<sup>1</sup>

This section presents the results of an economic impact analysis that was performed using IMPLAN economic modeling software\* to provide a projected estimate of Tulsa Remote’s annual effect on Tulsa County’s economy.

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\* IMPLAN economic modeling software combines a set of databases, economic factors, multipliers, and demographic statistics to identify localized economic impacts resulting from a change in the economy—in this case, the arrival of new remote workers to Tulsa. The analysis presented here covers the economic impact solely on Tulsa County.

The estimated economic impacts are reported for labor income, jobs, value added (GDP), and tax revenue. Using survey data\* from current, former, and accepted program members as well as pre-existing administrative data gathered by George Kaiser Family Foundation, the analysis models the impact of program members in 2021 and 2025.

## Projected Economic Impact of Tulsa Remote in 2021

### Modeling Approach

The projected economic impact of Tulsa Remote in 2021 considers only the members who moved prior to 2021, of whom there were 450 active members or program alumni.† In order to estimate the number of members present in Tulsa for the duration of the 2021 impact evaluation period, we apply a retention rate based on survey responses. Among the alumni respondents who completed the survey and provided a zip code of residence for June 2021, approximately 87.5 percent remained living in the Tulsa metro area.‡ We apply this 87.5 percent retention rate to the 450 members who arrived before the start of 2021 and arrive at an estimated 394 Remoters present in Tulsa for the entirety of 2021.§ The model relies on the cumulative annual labor income of all Remoters present, adjusted to include the average value of benefits, to produce estimated economic effects stemming from the presence of these remote workers in Tulsa.²

### Key Findings

- In total, the combined new labor employment based in Tulsa in 2021 as a result of the program is approximately 592 full-time equivalent (FTE) jobs, 394 remote jobs belonging to program members and 198 induced FTEs based in Tulsa.
- The Tulsa Remote program is estimated to contribute \$62.0 million in new labor income to the local economy in 2021—\$51.3 million in direct labor income from remote workers and \$10.7 million in induced local labor income.
  - On average, the program resulted in roughly \$157,300 in new local labor income per Remoter present in Tulsa through the end of 2021.
  - For every dollar spent toward relocating a remote worker, there was a \$13.77 return in new local labor income, including the Remoters' income and induced local labor income.
  - Looking just at the induced economic effects, each dollar spent on the moving incentive resulted in \$2.38 in new induced labor income locally.

\* Among the 1,031 current, former, and accepted Tulsa Remote members at the time of the survey, 508 completed the survey for a response rate of 49.3 percent.

† The economic modeling software does not allow for the arrival or departure of members at distinct points over the course of a year as would naturally occur (i.e., partial year estimates). Therefore, we institute a 2021 demarcation line that treats all pre-January 2021 Remoters as “new arrivals” as of January 1, 2021 and provides for the annual effects of Remoters to be modeled in calendar years.

‡ There may have been some response bias in the survey, as program participants remaining in Tulsa could have been more likely to complete the survey than those who moved away. This estimate could thus be overstated but is the best estimate given the available data.

§ In adjusting for retention, we removed the 17 Remoters without data and then used a distributional attrition approach to remove the remaining 39 members, which involved proportionally removing members across income tiers according to the real distribution of remoters across those tiers (rather than removing evenly from each group or at random, both of which might unfairly skew the final impact assessment).

## Key Terms for Understanding the Results

A few key terms are used to discuss the economic impact of the Tulsa Remote program throughout this section:

- **Economic impacts:** The broad economic effects generated by the arrival of the Remoters. The impacts can be broken down further into direct and induced effects.
- The **direct effects** are those linked with the members themselves, such as the income they bring to the region through their primary remote work.
- The **induced effects** are those resulting from the Tulsa-based household spending of the relocated program members. These spillover effects capture the additional jobs, income, and taxes that are created (or “induced”) by the infusion of new remote workers to Tulsa and their associated economic activity.

A brief example to demonstrate:

If 15 program members moved to Tulsa, they would bring their 15 remote jobs and a hypothetical combined total income of \$1 million. These 15 jobs and \$1 million in income would be direct effects. As these 15 Remoters spend their income locally in Tulsa County on goods and services like housing, restaurants, and healthcare, they spur hiring at businesses to meet the increased demand. This new economic activity could take the form of an additional employee at the local grocery store, for instance, as well as an increase in the total number of hours worked by a lawyer, which would be considered the induced effects.

In the initial year the Remoters move to Tulsa, the induced economic effects of Remoters are “created”—a job can only be created once, in its first year—while in subsequent years, any impacts will remain “supported,” based on the total number of members remaining in Tulsa.



### Induced Labor Income by Industry, 2021

Industry	Total labor income
Health care and social assistance	\$3,239,000
Retail trade	\$1,206,300
Finance and insurance	\$1,035,200
Professional, scientific, and technical services	\$751,300
Accommodation and food services	\$704,700
Other services	\$691,400
Admin, support, and waste management	\$554,400
Transportation and warehousing	\$528,100
Wholesale trade	\$466,700
Educational services	\$271,600
Real estate, rental, and leasing	\$249,900
Information	\$229,300
Management	\$182,600
Utilities	\$124,600
Arts, entertainment, and recreation	\$117,500
Manufacturing	\$102,000
Mining, quarrying, and oil/gas extraction	\$94,000
Construction	\$90,300
Public administration	\$82,500
Agriculture, forestry, fishing and hunting	\$2,000
<b>TOTAL</b>	<b>\$10,723,400</b>

Source: IMPLAN 2019 data for Tulsa County model region

### Direct Economic Impact of Tulsa Remote Program Members in 2021

We estimate there to be 394 program members and alumni working remotely in Tulsa who were present for the entirety of the 2021 calendar year. All together, those Remoters are projected to contribute \$51.3 million in direct labor income to the Tulsa economy. The direct income represents the total individual labor earnings stemming from the primary employment of Remoters themselves, excluding the income of any household member that may have moved with them. These direct effects provide the core economic impact of the program in terms of employment and labor income in 2021 and trigger the induced economic activity detailed in the sections below.

### Induced Effects: Labor income

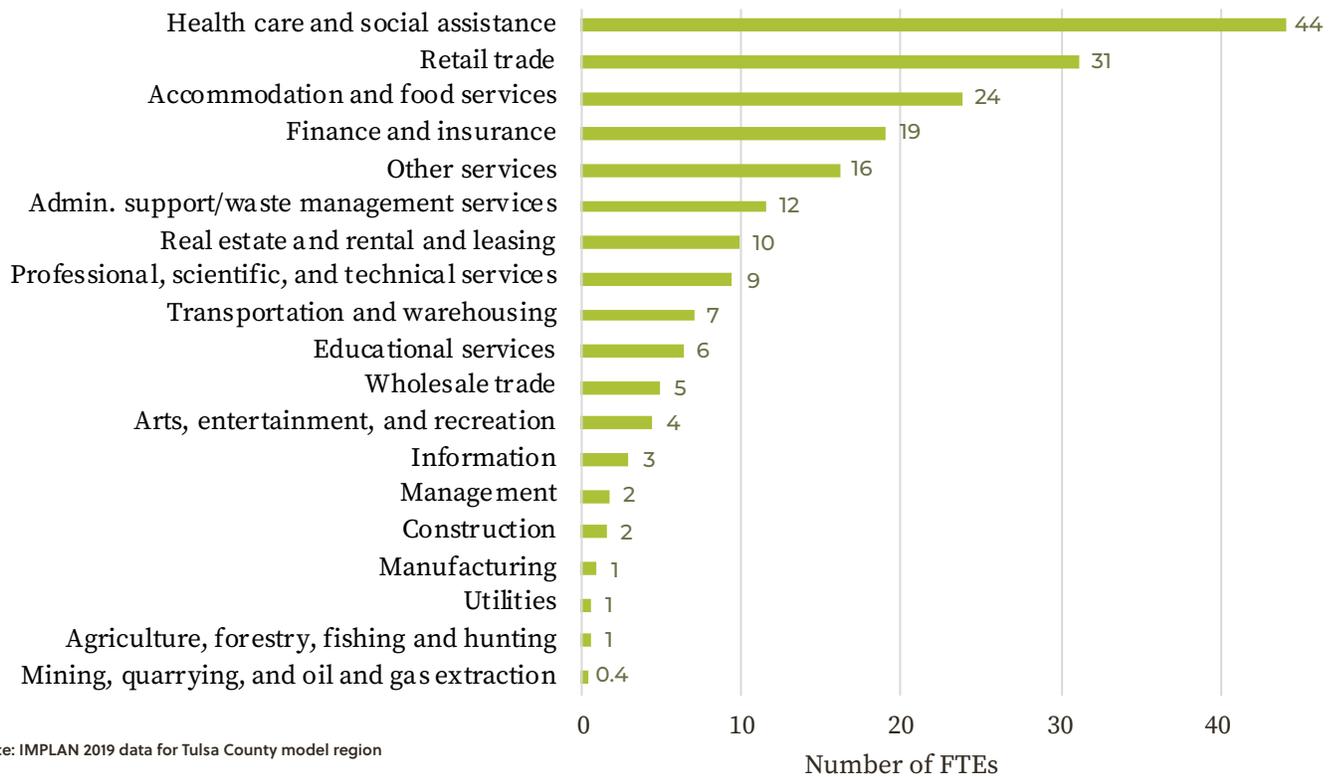
The economic activity generated by the Remoters results in \$10.7 million in induced local labor income in 2021. The induced labor income is spread across multiple industry sectors, and those that saw the greatest increase in induced labor income are health care and social assistance, retail trade, and finance and insurance—quintessentially “locally traded” sectors that service local populations. These top three sectors are each estimated to see an increase in over \$1 million dollars in labor income. The particular growth in these sectors is somewhat intuitive, as new residents need the everyday goods and services provided by doctors, retail stores, and banks.



On average, every Remoter present for the entirety of 2021 is responsible for \$27,200 in new labor income in the Tulsa economy beyond their own. That figure is not directly attributable to any single program member (the compounding demand of many individuals drives these numbers rather than the behavior of one person).\*

\*This gives a sense of the new labor income per Remoter if all Remoters contributed equally to the economic impact of the program. We know this isn't the case because the economic impact of a Remoter who makes \$35,000 a year is inherently different from one who makes \$600,000 a year, but it provides an additional frame of reference for impact in 2021.

### Induced Full Time Equivalent (FTE) Jobs by Industry, 2021



When combining the induced labor income (\$10.7 million) and the direct labor income of the Remoters (\$51.3 million), the Tulsa Remote program is estimated to contribute \$62.0 million in new labor income to the local economy in 2021.

number of full-time jobs produced, the real-world increase in employment could manifest in several ways, ranging from extra hours for an existing employee, a bump from part- to full-time employment, or the creation of a new position requiring the hiring of another employee.

### Induced Effects: Employment

The economic activity generated by the Remoters results in approximately 198 full-time equivalent (FTE) jobs of induced employment, which are additive to the 394 jobs of the program members themselves.\* In total, the combined new labor employment based in Tulsa in 2021 as a result of the program is approximately 592 full-time equivalent (FTE) jobs. On average, approximately one FTE position was created for every two Remoters in Tulsa in 2021. Put another way, the average annual employment that results from program members living and working in Tulsa over the year is 198 FTEs. Because FTEs represent the equivalent

On average, approximately one FTE position was created for every two Remoters in Tulsa in 2021.

This induced employment in Tulsa is distributed across a range of industries. The most significant gains are centered in health care, retail establishments, restaurants, and finance-related industries. Many of these induced jobs are

\*Full-time equivalent employment is the number of full-time equivalent jobs, defined as total hours worked divided by average annual hours worked in full-time jobs. An FTE is assumed to work 2,080 hours in a standard year.

in industries that pay higher than the local industry-wide average. For workers in Tulsa County across all industries, annual pay averaged \$54,300 in 2020.<sup>3</sup>

In total, 93 jobs (just under 47 percent of the total) were induced in private sector industries that typically earn more than the industry-wide average in Tulsa. The bulk of this new induced employment is in the healthcare and social assistance industry (44 FTEs), which averages annual pay of \$56,500 locally and employs people in subsectors such as hospitals and physicians’ offices. The next most significant addition to employment in higher-paying industries is in the finance and insurance industry (19 FTEs), which averages annual pay of \$82,400 locally.

At the same time, however, 104 jobs (just under 53 percent of the total) were created in private sector industries that earn below the industry-wide average in Tulsa. The largest segment of these jobs were induced in the retail trade sector (31 FTEs), which averages annual pay of

\$33,300 locally, and employs people in subsectors such as general retail and food or beverage stores. The next largest industry group was accommodation and food services (24 FTEs), which averages annual pay of \$18,600 and covers subsectors such as full- and limited-service restaurants.

### Induced Effect: Value Added (GDP Contribution)

The economic activity of Remoters results in \$19.1 million in additional “value added” for Tulsa County in 2021. Value added is the total market value of all final goods and services produced—essentially the contribution to local GDP resulting from the arrival of the Remoters.<sup>4</sup> It is a broad measure of the program’s impact on the local economy that captures labor income as well as a wider range of additional economic activity that occurs in response to the Remoters arrival, including profits for local businesses. The induced GDP activity averages approximately \$48,400 per Remoter present throughout 2021.



\*If the same total tax rate of 14.9 percent from the induced income model were applied to the \$41.4 million of labor income directly attributable to the Remoters, \$6.2 million in state and local tax receipts would have been generated in 2021. However, we do not know with certainty what their actual state and local contributions will be for 2021.

## Induced Effect: Taxes

The combined state and local tax revenue induced by the Remoters is approximately \$1.6 million in 2021.\* Of that total, the amount of new state tax revenue induced in 2021 is \$924,100, while the amount of induced county and local taxes is \$667,400. On average, each program member induces enough economic activity to create \$4,000 in new state and local tax revenue. At the state level, these payments include personal income and sales taxes stemming from the induced labor income and household spending, as well as a range of additional taxes such as motor vehicle registrations and fishing and hunting fees. Local tax impacts are primarily property taxes and sales taxes. (See below for a discussion about the complexities getting in the way of a robust estimation of the state and local tax take from Remoters themselves.)

Even as Remoters contribute taxes, they also represent a new cost in terms of the services that state and local governments must provide. In general, the largest state and local government expenditures are directed toward education, health, and social service programs. Oklahoma has some of the lowest state and local per capita direct general expenditures among all states.<sup>5</sup> While the overall cost to government of the new remote workers cannot be precisely calculated, it is important to acknowledge that the net effects of the Remoters to state and local revenues is likely positive due to the fact that they are generally high-earning and, as prime-age workers, are generally less reliant on government services than other segments of the population.

\*Of the households that reported an additional worker present in the survey, one-quarter did not report any additional household income on top of their individual income, a potential indication that additional household income is undercounted.

† When combined with the direct benefits-adjusted income of Remoters themselves (\$51.3 million), a total of \$57.8 million in direct labor income is attributable to program members and their households. While significant, this number itself may be an undercount. As stated earlier, of the 187 households that reported having an additional worker in the household, one-quarter did not report any additional household income on top of their individual income.

## Estimating the Induced Effects from Additional Household Members

A significant number of Remoters move or reside with additional household members (spouses, partners, family members, and children) who also contribute to Tulsa's economy.\* In 2021 alone, the additional household members living with program members in Tulsa earned \$6.5 million in benefits-adjusted direct labor income.†

Considering solely the additive effects of household members, the induced economic impacts of the program in 2021 grow as follows:

- The additional number of new jobs in the Tulsa economy is 13 FTEs.
- The additional amount of new labor income is \$697,000.
- The additional contribution to GDP is \$1.2 million.

Combining those additional household effects with the effects of Remoters themselves, the total induced economic impacts of the program in 2021 grow to the following:

- The total number of new jobs in the Tulsa economy is 211.
- The total amount of new labor income is \$11.4 million.
- The total new contribution to GDP is \$20.2 million.

## Discussion: Challenges to Measuring the Economic Effects of Remote Workers

The addition of several hundred remote workers into an economy presents unique challenges for modeling the economic effects, and their direct GDP and tax revenue impacts are particularly difficult to accurately capture given the nontraditional nature of their work arrangements. While labor income can be thought of as the paycheck hitting an employee's wallet, the actual value of a given worker's "product"—whatever that may be—is generally much more valuable than the worker's wage reflects. GDP encompasses this fuller value, including things like company profits, and is generally tallied at the firm or establishment level. Thus, remote workers can be spread across the country yet create work products for companies and clients who can be in very different parts of the country, making it a challenge to ascertain where their economic output should be—and feasibly can be—counted. The way GDP is accounted for is thus not designed to measure atypical work arrangements like remote work wherein work is performed separate from a physical business location.

Economic impact modeling thus encounters some difficulty in measuring these outcomes due to a lack of clarity around where economic activity is registered and where it is taxed, and even federal statistical agencies like the Bureau of Labor Statistics are still considering how remote workers should fit into metrics that have traditionally assumed work is done in specific locations. Estimating the Remoters' state and local tax revenue effects is similarly difficult given different tax regimes across states and the different taxes paid by employers (e.g., payroll) and employees (e.g., income), an issue that is further complicated by the patchwork of related state laws.<sup>6</sup> This issue of determining where remote workers should be taxed became particularly salient in the midst of the pandemic and has yet to be fully clarified.<sup>7</sup>

Because the work produced by Remoters is not inherently tied to the local economy in the same way the work of a local service provider or goods producer is, the Remoters' primary footprint in the local economy is their income, not the associated industrial output they produce. This means that the Remoters' labor income is the best, most comprehensive way to measure the direct local impact at present. Estimates of induced impact, in turn, provide context for what this labor income triggers in the local economy. As remote work proliferates, the ability to measure and effectively assign the value added produced by the labor of remote workers will hopefully improve.



## Projected Economic Impact of Tulsa Remote in 2025

Tulsa Remote intends to build upon the economic impacts of its original cohort and grow significantly in the years ahead. While the range of specific estimates for total program participation beyond 2021 expands as various assumptions have to be made with respect to retention rates and cohort sizes, the results in this section show an initiative on track to make a truly meaningful imprint on the local economy in 2025.

This analysis estimates the program’s impact in 2025 based on known membership and anticipated growth projections provided by Tulsa Remote. The 2025 results are modeled under the assumption that there will be 900 additional new members at the start of 2022; an additional 1,100 at the start of 2023; an additional 1,300 at the start of 2024; and an additional 1,500 at the start of 2025.<sup>8</sup>

### Estimating Program Member Retention Rates in Tulsa

For projected effects through 2025, program attrition must be taken into consideration to estimate the share of members who are likely to remain in Tulsa after program completion. The retention rate is the share of program members from the previous year who remain in Tulsa, and there are three estimated retention rate pathways through 2025: High, Stable, and Low. For each pathway, Year 1 and Year 2 retention rates are based on survey results indicating

### Key Findings

- Based on growth projections supplied by Tulsa Remote, the combined new employment in Tulsa as a result of the program is projected to be upwards of 5,000 in 2025, including at least 1,500 induced jobs.
- The new labor income in the local economy in 2025 alone is projected to range from \$485.4 million to \$518.2 million.

approximately 87.5 percent of program alumni remained in the Tulsa metro area as of July 2021.

- The High Retention pathway incorporates a retention rate that trends upwards over time for each cohort under the assumption that program members who stay in the region longer become increasingly more likely to remain in Tulsa (i.e., attrition rates are likely to be highest in the early years).
- The Stable Retention pathway assumes that the share of program members remaining in Tulsa each year is a stable rate of 87.5 percent.
- The Low Retention pathway assumes that members within each cohort become less likely to remain in Tulsa as time goes on (i.e., attrition rates increase over time), resulting in a decreasing retention rate over time.

### Year-to-Year Retention Rates

	Year 1 retention rate	Year 2 retention rate	Year 3 retention rate	Year 4 retention rate	Year 5 retention rate
High Retention: Increasing rate	87.5%	87.5%	90%	92.5%	95%
Stable Retention: Flat rate	87.5%	87.5%	87.5%	87.5%	87.5%
Low Retention: Decreasing rate	87.5%	87.5%	85%	80%	75%

### Cumulative Retention Rates by Cohort Over Time

	Share of cohort present after year 1	Share of cohort present after year 2	Share of cohort present after year 3	Share of cohort present after year 4	Share of cohort present after year 5
<b>High Retention: Increasing rate</b>	87.5%	76.7%	68.9%	63.8%	60.4%
<b>Stable Retention: Flat rate</b>	87.5%	76.7%	66.9%	58.7%	51.3%
<b>Low Retention: Decreasing rate</b>	87.5%	76.7%	65.1%	52%	39.1%

The various retention rate pathways were designed in part to arrive at a range that approximates the survey-indicated likelihood that 56 percent of program members will remain in Tulsa after five years. Survey results show that 43 percent of program members living in Tulsa as of June 2021 were moderately or extremely likely to remain in the city for five years, while an additional 12 percent indicated they were slightly likely to remain for five years, resulting in a total of approximately 56 percent who were at least slightly likely to remain by 2025. The table below models how the yearly retention rates (in the previous table) ultimately result in approximations of the cumulative retention rates suggested by the survey.

### Projected 2025 Results

Based on anticipated growth in program membership and the effects of various retention rates, the projected impacts in 2025 are the following:

- **Direct effects**

- The number of direct remote jobs from program members is projected to range from 3,669 to 3,912.
- The amount of direct labor income from program members is projected to range from \$399.5 to \$426.6 million.

- **Induced effects**

- The number of induced local jobs is projected to range from 1,580 to 1,686 FTEs.
- The amount of induced local labor income is projected to range from \$85.9 to \$91.6 million.
- The induced contribution to local GDP is projected to range from \$152.4 to \$162.6 million.

- **Total effects**

- The total number of new jobs in the Tulsa economy, including program members' remote jobs and the cumulative impact of induced local jobs, could range from 5,249 FTEs to 5,598 FTEs.
- The total new labor income could range from \$485.4 to \$518.2 million.

Thus, on its current expansion trajectory, by 2025 Tulsa Remote is poised to sustain well over 5,000 high-impact local jobs and generate approximately \$500 million in local earnings, representing a potentially transformative infusion of human capital and spending power into the Tulsa economy.

## Projected Economic Impact of Tulsa Remote in 2025 by Retention Scenario

HIGH RETENTION	Direct Effects in 2025	Included Effects in 2025	Total Impact in 2025
Jobs (FTEs)	3,912	1,686	5,598
Labor Income	\$426,607,018	\$91,619,231	\$518,226,249
Value Added (GDP)	--	\$162,631,165	--
STABLE RETENTION	Direct Effects in 2025	Included Effects in 2025	Total Impact in 2025
Jobs (FTEs)	3,804	1,638	5,442
Labor Income	\$414,325,883	\$89,043,822	\$503,369,705
Value Added (GDP)	--	\$158,061,012	--
LOW RETENTION	Direct Effects in 2025	Included Effects in 2025	Total Impact in 2025
Jobs (FTEs)	3,669	1,580	5,249
Labor Income	\$399,517,845	\$85,875,240	\$485,393,085
Value Added (GDP)	--	\$152,428,008	--

Source: IMPLAN 2019 data for Tulsa County model region

## Endnotes

<sup>1</sup>Enrico Moretti, "Local Multipliers," The American Economic Review, 2010.

<sup>2</sup>Unadjusted income information was available for 433 of the 450 members in Tulsa prior to January 2021.

<sup>3</sup>U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages, 2020.

<sup>4</sup>For a more in-depth discussion of value added, see IMPLAN's [guide to interpreting value added](#).

<sup>5</sup>Urban Institute, "State and Local Expenditures," accessed September 2021.

<sup>6</sup>Jared Walczak, "Teleworking Employees Face Double Taxation Due to Aggressive 'Convenience Rule' Policies in Seven States," August 2020.

<sup>7</sup>Richard C. Auxier, "Supreme Court Punts on State Tax Question About Remote Work," June 2021.

<sup>8</sup>Data-informed estimates of retention rates and ranges of outcomes for program growth have a large effect on impact projections, as do data unknowns like the actual salary of future program admits.

# Section VI.

## The Promise of Remote Work Incentives



Tulsa Remote is a leader among remote work incentive programs, and its profile has only grown along with the rapid expansion of teleworking in the pandemic era. However, essential questions remain about the transferability, social impact, and economic effects of remote worker incentive programs. For Tulsa Remote at least, it seems clear that both conceptually and in practice so far, the initiative has demonstrated several hallmarks of a well-constructed economic development tool: It is forward-looking and embraces change; it is locally led and responsive to community challenges; and it has clear and measurable impact.

Beyond the advantages that come with a remote work incentive program generally, Tulsa Remote specifically is a well-designed economic development intervention for a host of reasons.

Critically, **the Tulsa Remote program reflects an approach to economic development that embraces, rather**

**than fights, technological change.** The remote worker incentive reflects an inherent recognition of the economic implications for the future of work brought about by the growth of teleworking, particularly an evolving type of competition within the labor force—not necessarily just between employers but increasingly between places as well. Thanks to technological advancements that have facilitated remote work, a place like Tulsa can compete for high-skill, high-wage workers themselves rather than just their employers. That technology-aided shift in approach allows Tulsa to lean into its own competitive edge, showcasing its lower cost of living and heartland lifestyle to attract individuals living in high-cost coastal cities.

The Tulsa Remote program is also **a direct response to several local challenges, making it a place-sensitive intervention.** In Tulsa’s case, the remote worker incentive model is uniquely suited to the “chicken and egg” problem it faces related to jumpstarting its high-tech employment sectors. It attracts high-tech workers, seeds the potential for future economic transformation, and brings highly-

educated individuals—many of whom in turn bring family members with their own high incomes, creating the potential for outsized local impact. By supplementing the local workforce with highly educated new residents, by energizing migration broadly, and by transplanting tech expertise, the program is tailored to the structural barriers hindering Tulsa’s economic evolution.



**The quantifiable economic impact of the program is also strong**, and so far, the program appears to show promising returns for the investment made into attracting new residents with a \$10,000 incentive. Since its founding in 2018, the program has brought more than 1,200 people to Tulsa and will be responsible for \$62.0 million of labor income in 2021 alone. Under anticipated growth plans, the program could potentially be responsible for over 5,000 jobs locally in 2025 and at least \$500 million in additional income for Tulsa’s economy. Beyond these purely economic contributions, Remoters bring valuable skills and education along with a strong entrepreneurial intent. Depending on how many remain in Tulsa beyond their initial year, the Remoters have the potential to act as catalysts for economic growth well into the future.

Even for an initiative with solid theoretical foundations, future outcomes remain unknowable, and **the potential**

**success of the initiative moving forward will be mediated by four primary factors: retention and growth, competition, community support, and the extent to which it is able to actually contribute to long-term economic transformation.** For Tulsa—and any community considering such an approach to economic development—there are several fundamental questions that must be asked when considering a remote work incentive:

**How does the community bring remote workers and ensure that they stay?**

Tulsa Remote seems to have a strong answer for how to attract and retain remote workers at this early stage, yet Tulsa Remote’s ultimate success will be determined by how many of its participants truly become transplants and long-time Tulsans. This hinges on any number of factors, including quality of life and affordability in the city, community integration, career opportunities, the local education system, and the future of remote work.

**How can the initiative stand out in the face of competing remote worker programs?**

Even as Tulsa Remote has emerged as an early leader in how to incentivize remote workers to relocate and support them with wrap-around services in a new city, it remains unclear what the future holds for its competition. At this point, it seems likely that the initiative will have little trouble meeting its expansion plans in the coming years. With applications growing at steady rates, the pipeline of willing and would-be Remoters appears well-stocked. The value of the head start and private institutional backing for Tulsa Remote relative to other remote work programs similarly should not be underestimated. Being a first mover brings risks, but also rewards. As other places learn what makes Tulsa Remote successful, they may borrow and innovate their way into competitiveness.



### **How can the community ensure that local institutions and community members buy into the initiative?**

Formal institutional support for the program also appears strong in Tulsa, as the initiative has benefitted from strong civic support and the broad network of advocates throughout the local business community. For sustainable success, local Tulsans must also perceive benefit from the influx of thousands of highly paid, highly educated households. This study begins to lay out how the infusion of this new human capital and energy permeates through the local economy, but the case will need to be made on more personal levels too.

As Tulsa Remote scales up, it will be vital to track community perceptions. The continued work to ensure that Remoters do not become a class of highly paid transplants unto themselves but rather truly become neighbors working towards a shared local future is an essential ingredient in the program's sustainability; ultimately, the economic and social benefits must also extend to Tulsans themselves. Tulsa Remote seems to select a highly engaged group of individuals likely to make local connections, but other economic factors such

as housing and education could prove to be hurdles to a fully cohesive union of Remoters and locals. In this, Tulsa joins the ranks of other cities across the country striving to harness tech-driven growth and revitalization into progress against long-standing economic and social issues. Thus, as with any policy, mindful administration and community engagement will be required in the years to come, especially as the program's footprint grows locally.

### **Will newly attracted remote workers live up to expectations and eventually go on to form the base of a new local knowledge economy?**

While Tulsa Remote theoretically helps bypass the chicken and egg problem of developing a bench of skilled, knowledge economy workers capable of spurring spillover economic development in the future, the degree to which it pans out in practice remains to be seen. The program undoubtedly has strong short term economic impacts, but whether the cluster of knowledgeable and skilled remote workers eventually go on to spur broader economic realignment in Tulsa remains an open question and an issue that communities will need to monitor and consider in real time as initiatives play out across the country.

Tulsa Remote is by no means an economic development panacea—it does not solve local poverty or spectacularly deliver full employment—but it is an initiative that promises high returns for the community. The example it sets not just in terms of structuring a remote worker incentive, but in terms of the potential for innovative policy making is valuable to an audience far beyond Oklahoma. Its success to date provides vital evidence that carefully constructed and well supported interventions can successfully push back against the forces that drive spatial inequality in the United States. Hundreds of new Tulsans and the nearly 200 jobs they supported in 2021 alone are a testament to how intentional economic development policy that embraces change and leans into local advantage can drive economic growth and prosperity.

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