



2023-2027
CEDS Appendix:
Detailed Data

Prepared by EY for the
INCOG Economic Development District



This data appendix contains extended economic and demographic data collected by EY as part of the Indian Nations Council of Governments (INCOG) Comprehensive Economic Development Strategy (CEDS). Data in this appendix is referenced throughout the CEDS and provide a baseline understanding of recent trends and conditions in the INCOG region.

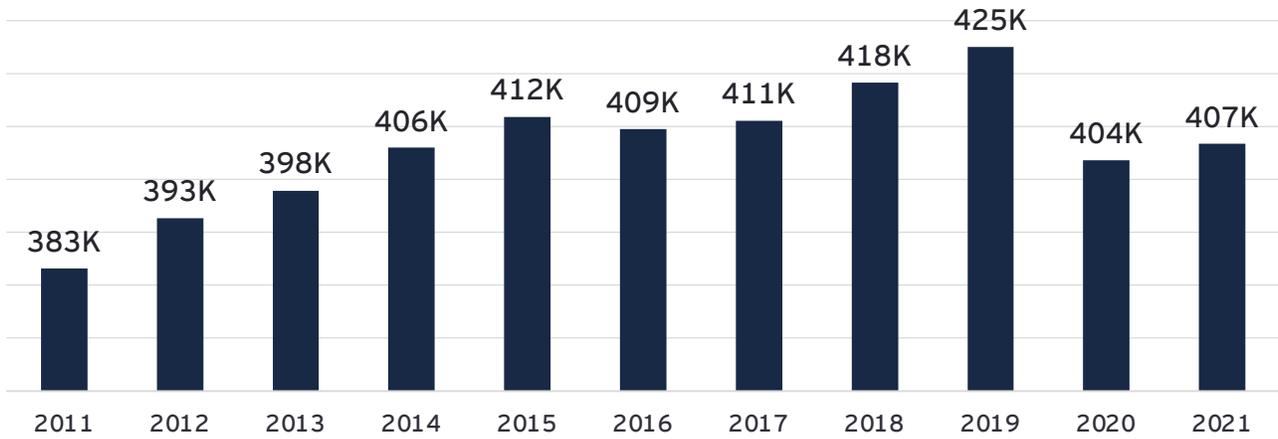
The INCOG Economic Development District (EDD) is comprised of Creek, Osage, and Tulsa counties in Oklahoma. Recognizing that these counties interact with a larger regional economy, for the purposes of the CEDS, the geographic definition of the INCOG region is expanded to include Rogers and Wagoner counties. Additional benchmark comparison is provided for the Tulsa Metropolitan Statistical Area (MSA), which includes Creek, Okmulgee, Osage, Pawnee, Rogers, Tulsa and Wagoner counties in Oklahoma.

Much of the data shared in this appendix is from publicly available data sources, including the US Census and US Bureau of Economic Analysis. Detailed employment data was purchased from Lightcast, an industry and workforce data modelling company. Venture capital data was purchased from Pitchbook.

In all contexts, the data is the most recently available at the time of this report's production.

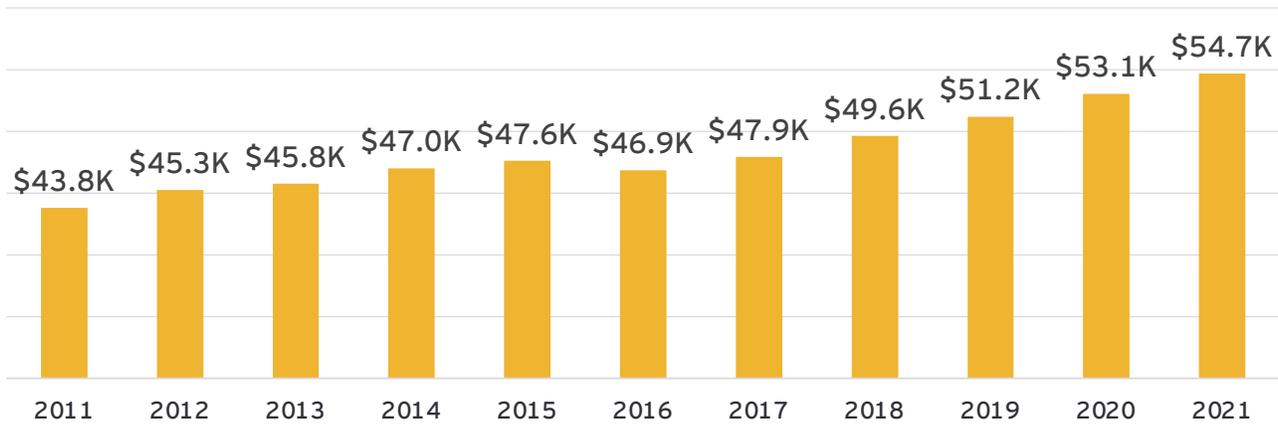
Regional employment and wages

Total employment, INCOG region, 2011 - 2021



Source:
Lightcast and EY

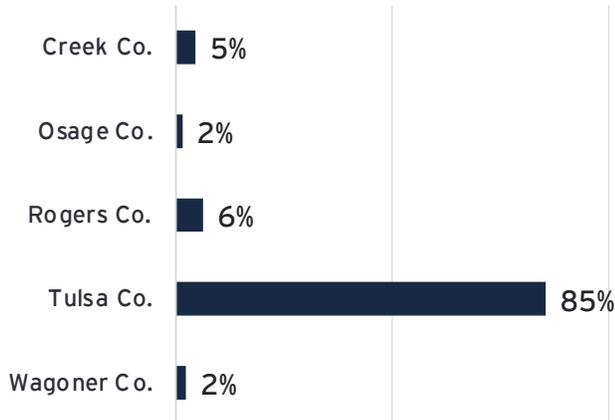
Average annual wage, INCOG region, 2011 - 2021



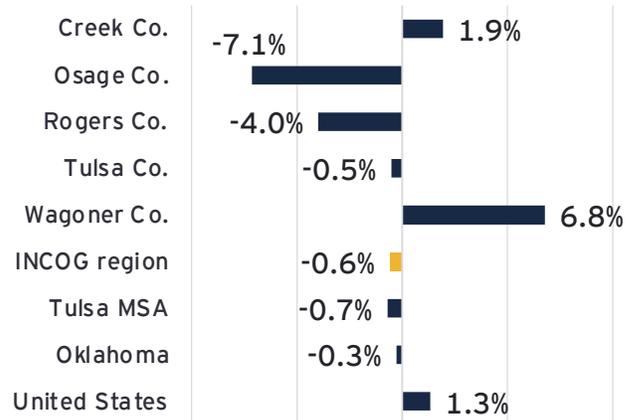
Source:
Lightcast and EY

Regional employment and wages

Share of INCOG region employment, 2021

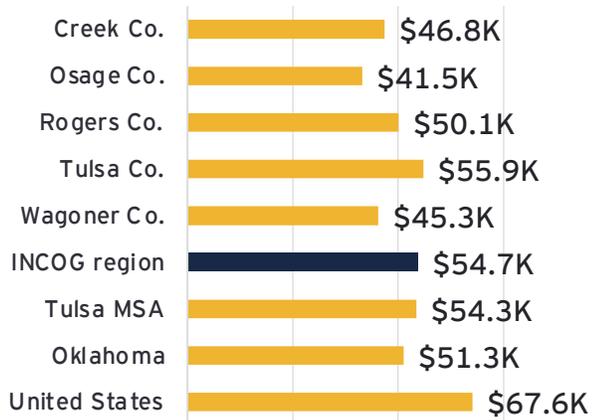


Employment growth, 2016 - 2021

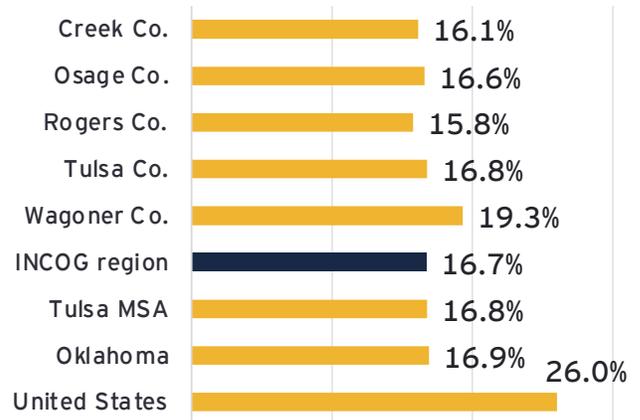


Source:
Lightcast and EY

Average annual wages, 2021



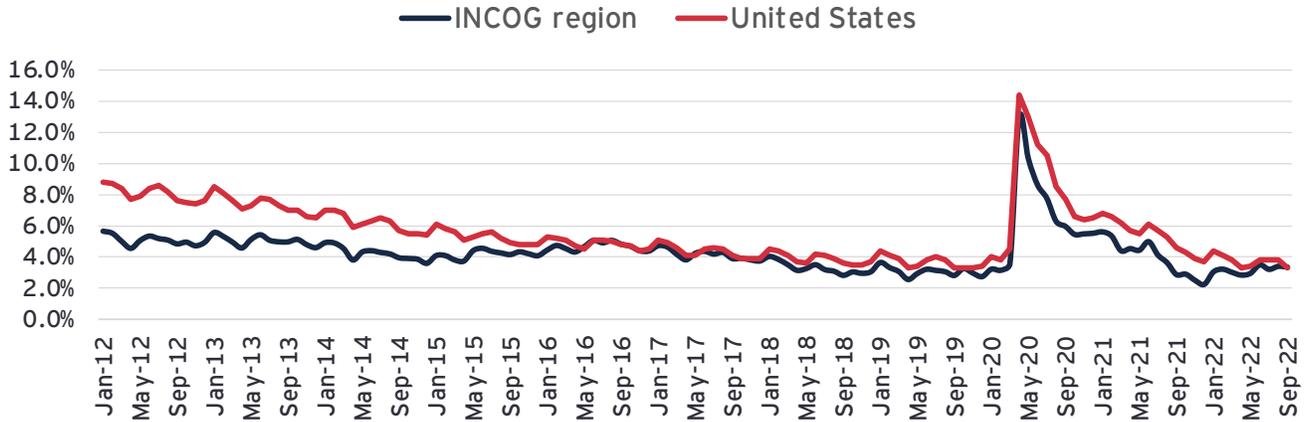
Average wage growth, 2016 - 2021



Source:
Lightcast and EY

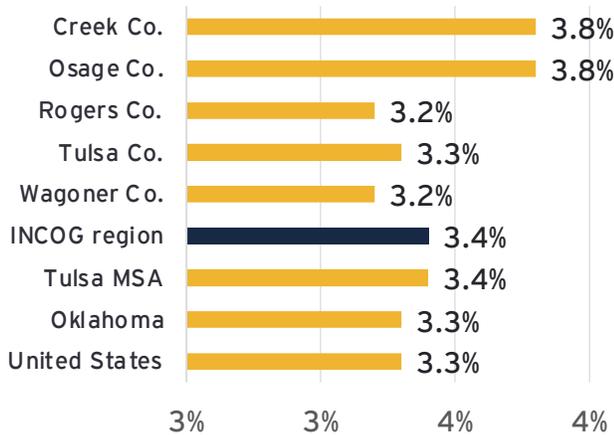
Unemployment

Monthly unemployment rate (not seasonally adjusted), 2012 - 2022

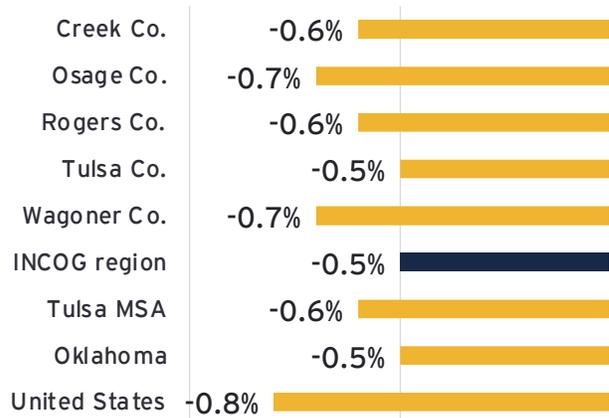


Source:
US BLS and EY

Unemployment rate, September 2022



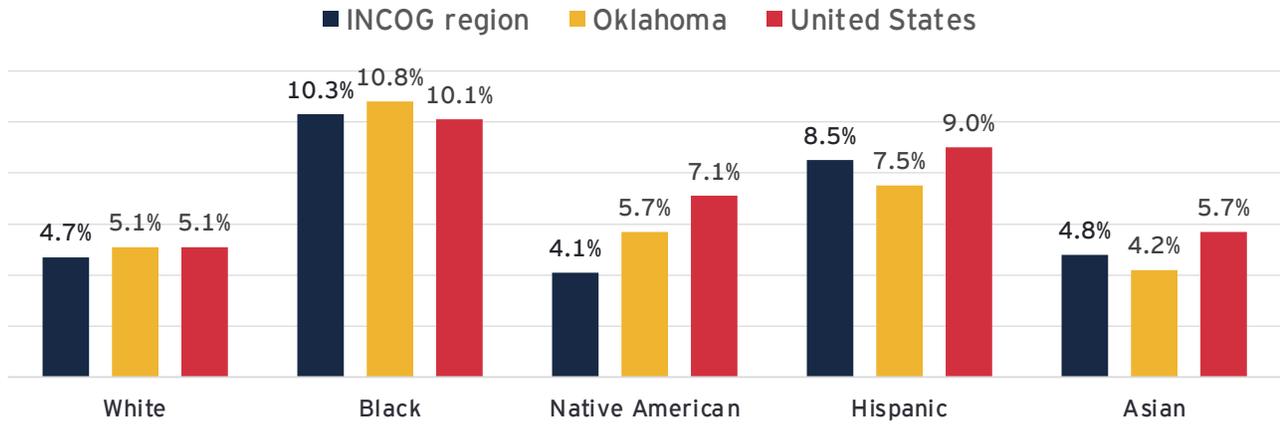
Percentage point change in unemployment rate, September 2017 - September 2022



Source:
US BLS and EY

Unemployment

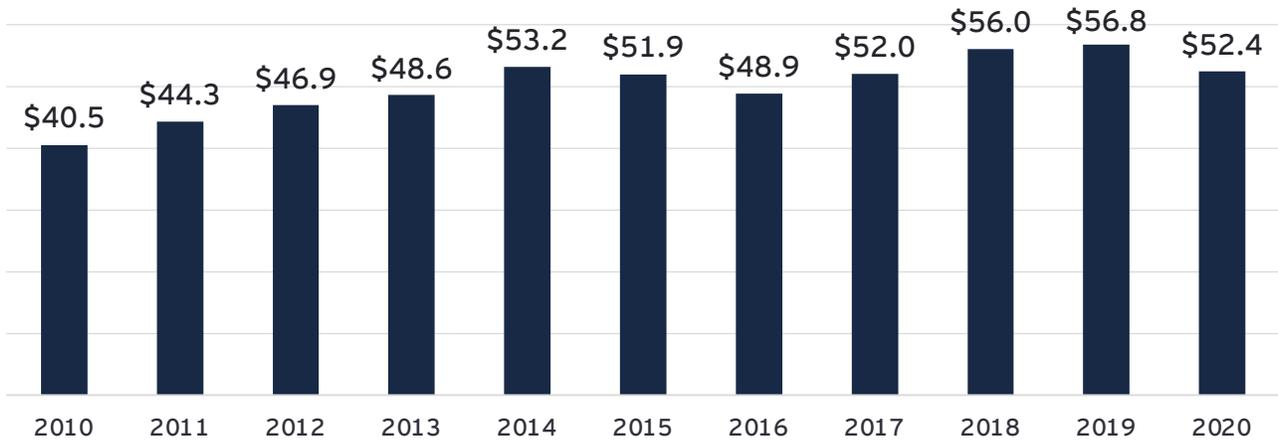
Civilian working age unemployment rate by race, 2021
(Approximate, some data unavailable)



Source:
US Census American Community Survey and EY

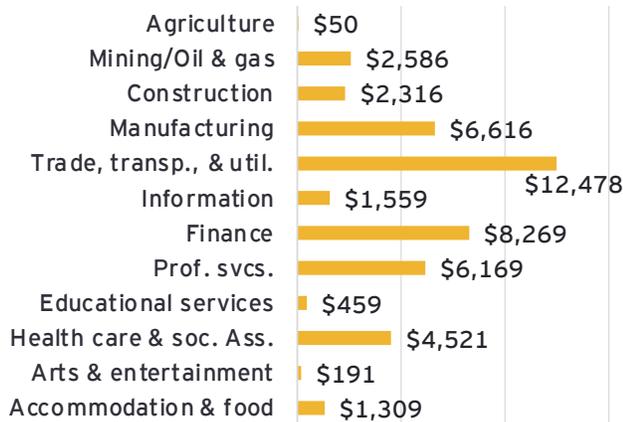
Gross domestic product (GDP)

Gross domestic product (\$ billions), INCOG region, 2011 - 2021

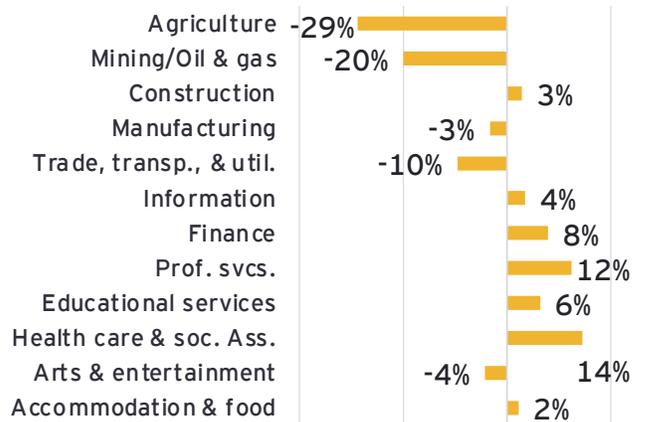


Source:
US Bureau of Economic Analysis and EY

GDP (\$ millions) by industry, INCOG region, 2020



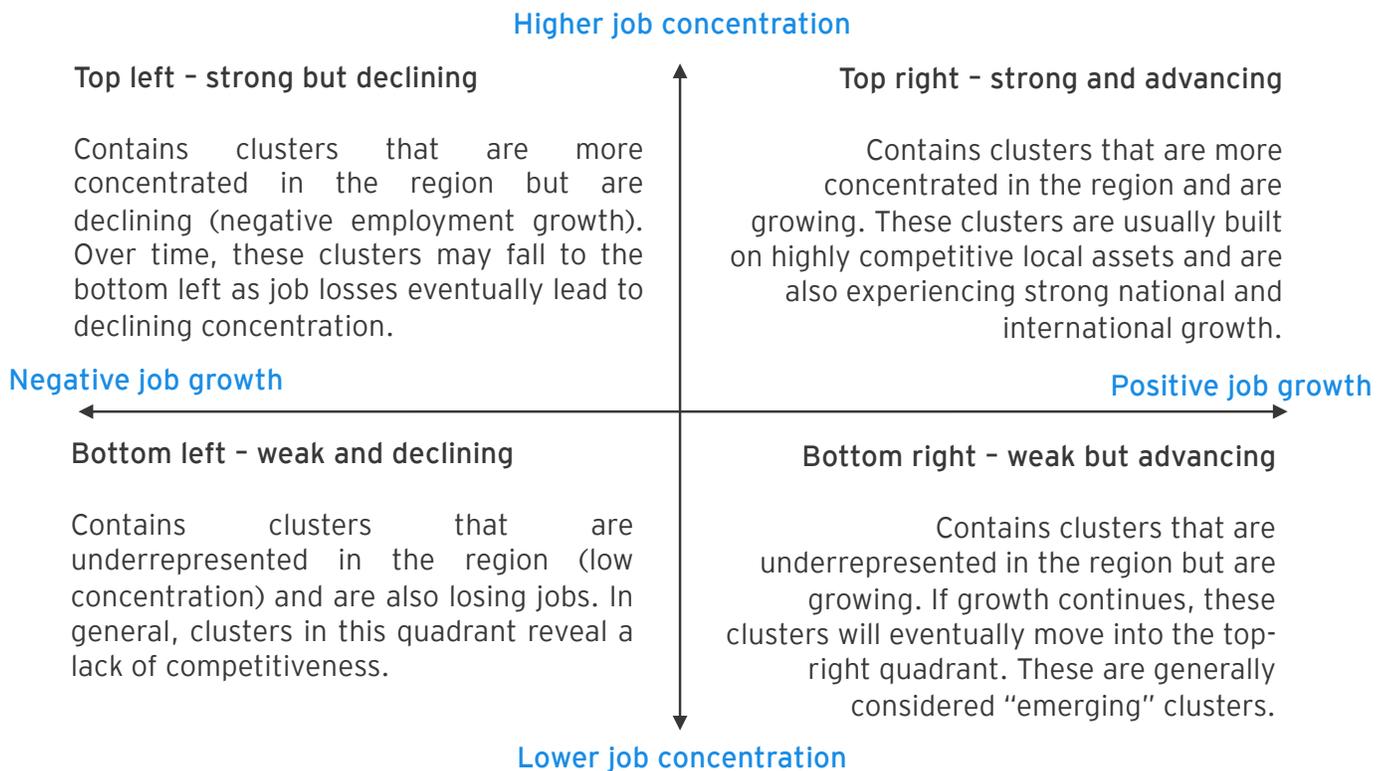
GDP growth by industry, INCOG region, - 2020



Source:
US Bureau of Economic Analysis and EY

Industry cluster analysis: bubble chart

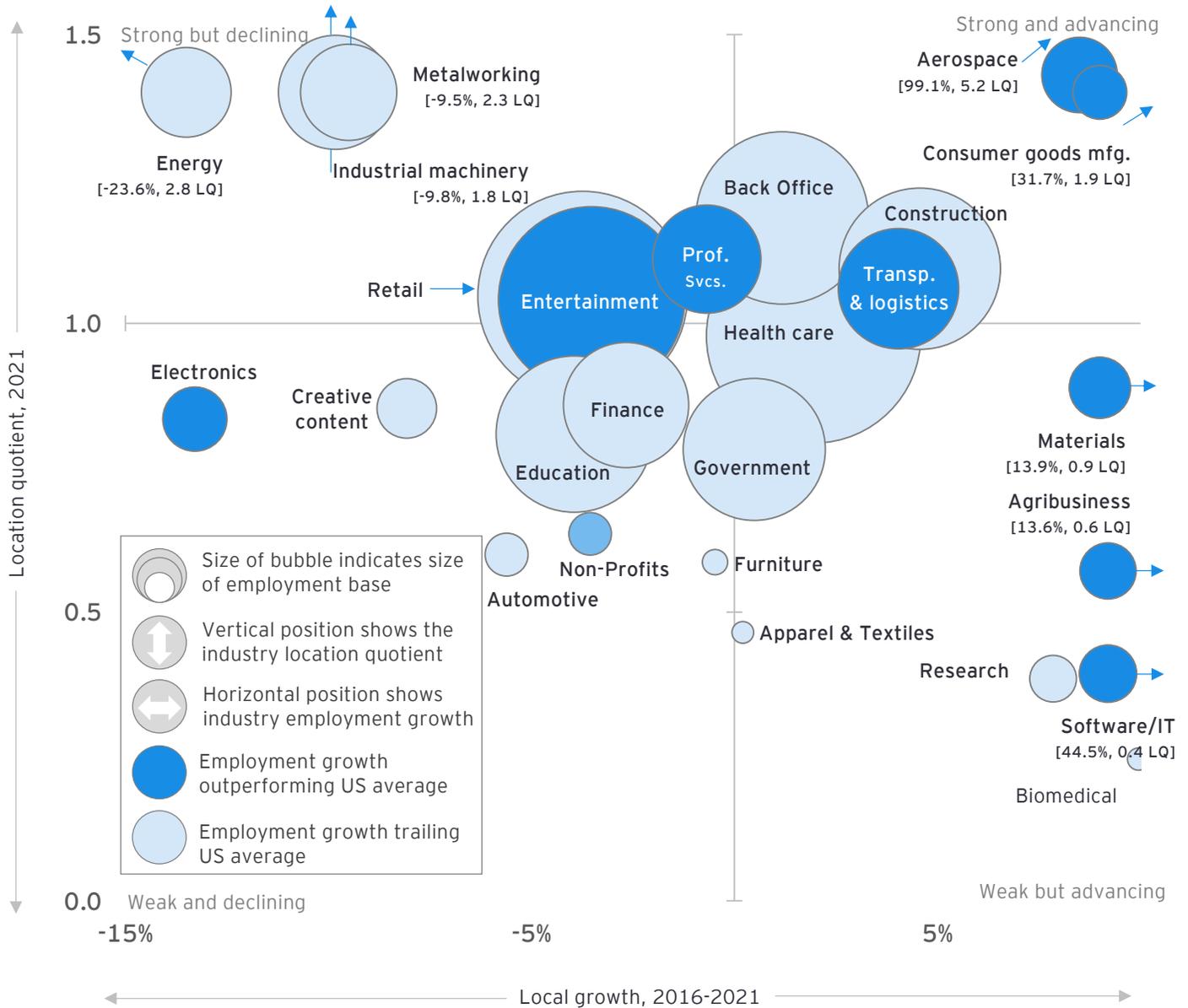
The “bubble chart” on the following page combines location quotients (LQs), growth and relative size to illustrate a snapshot of the INCOG region’s industry cluster performance. A location quotient is the relative concentration or density of a specific cluster in a region compared to the US average. For example, a 1.5 LQ indicates that the location has 50% more jobs as a share of the overall economy than the US. This usually indicates local competitive strengths in that cluster. The horizontal axis displays employment growth of each cluster from 2016 through 2021. The vertical axis shows the LQ. The size of each bubble indicates the number of local jobs in the cluster. Clusters can generally be grouped in four categories, as described in the map below.



The pages following the bubble chart display the same data in table format for the INCOG region and the individual counties within the region. For the individual counties, data is sorted by relative position in each of the four quadrants of a bubble chart: Strong but declining, Strong and advancing, Weak and declining, and Weak but advancing.

Industry cluster analysis: bubble chart

Five-county INCOG region industry cluster analysis, 2016-2021



Source: Lightcast and EY

Industry cluster table: INCOG region

Five-county INCOG region industry cluster performance, 2016-2021

Cluster	Employment (2021)	Employment growth (2016-2021)	Location quotient (2021)
Aerospace	6,971	99.1%	5.2
Agribusiness & Food	3,881	13.6%	0.6
Apparel & Textiles	594	0.2%	0.5
Automotive	2,277	-5.6%	0.6
Back Office	36,128	1.2%	1.2
Biomedical	623	10.0%	0.2
Construction	31,637	4.6%	1.1
Consumer Goods Mftg	3,562	31.7%	1.9
Creative Content	4,359	-8.1%	0.9
Education	29,690	-3.9%	0.8
Electronics	5,045	-13.3%	0.8
Energy	9,831	-23.6%	2.8
Entertainment	42,096	-3.5%	1.0
Finance	19,086	-2.7%	0.9
Furniture	802	-0.5%	0.6
Government	24,559	0.5%	0.8
Healthcare	55,687	1.9%	1.0
Industrial Machinery	15,863	-9.8%	1.8
Materials	4,602	13.9%	0.9
Metalworking	11,299	-9.5%	2.3
Mining & Logging	110	-40.5%	0.2
Non-Profits	2,237	-3.6%	0.6
Professional Services	14,255	-0.7%	1.1
Research	2,681	7.8%	0.4
Retail	53,282	-3.7%	1.0
Software / Info. Tech.	4,037	44.5%	0.4
Telecom Services	3,049	-15.0%	1.6
Transportation & Logistics	17,649	4.0%	1.1
Total	409,471	-0.7%	1.0

Source:
Lightcast and EY

Industry cluster tables: Osage County

Osage County industry cluster performance, 2016-2021

Cluster	Employment (2021)	Employment growth (2016-2021)	Location quotient (2021)
Retail	812	7.8%	1.0
Industrial Machinery	183	68.8%	1.4
Metalworking	159	76.2%	2.1
Mining & Logging	12	-	1.3
Back Office	77	2.0%	0.2
Agribusiness & Food	47	62.9%	0.5
Professional Services	45	25.6%	0.2
Research	21	33.6%	0.2
Creative Content	12	50.0%	0.2
Software / Info. Tech.	12	200.0%	0.1
Government	2,179	-2.8%	4.5
Entertainment	606	-7.7%	1.0
Education	558	-9.7%	1.0
Construction	493	-28.7%	1.1
Energy	322	-1.1%	6.0
Healthcare	432	-20.8%	0.5
Finance	135	-8.2%	0.4
Transportation & Logistics	24	-40.4%	0.1
Non-Profits	22	-13.9%	0.4
Electronics	20	-52.1%	0.2
Telecom Services	16	-12.9%	0.6
Materials	8	-67.0%	0.1
Consumer Goods Mftg.	4	-90.9%	0.1
Total	6,207	-6.9%	1.0

Strong & Advancing

Weak but Advancing

Strong but Declining

Weak & Declining

Note: Aerospace, Automotive, Furniture, Apparel & Textiles, and Biomedical were not included as part of the analysis given lack of overall industry presence.

Source:
Lightcast and EY

Industry cluster table: Creek County

Creek County industry cluster performance, 2016-2021

Cluster	Employment (2021)	Employment growth (2016-2021)	Location quotient (2021)
Retail	2,213	5.1%	1.0
Government	1,765	7.0%	1.2
Metalworking	1,698	17.9%	7.5
Telecom Services	84	14.3%	1.0
Entertainment	1,718	23.7%	0.9
Transportation & Logistics	706	21.4%	0.9
Finance	553	0.4%	0.5
Professional Services	325	29.2%	0.6
Electronics	178	20.3%	0.6
Materials	70	66.5%	0.3
Furniture	34	85.0%	0.6
Software / Info. Tech.	30	273.9%	0.1
Construction	2,468	-0.2%	1.9
Education	1,890	-4.6%	1.1
Industrial Machinery	1,147	-6.2%	2.9
Energy	546	-5.3%	3.4
Biomedical	138	-2.1%	1.2
Consumer Goods Mftg	90	-16.8%	1.0
Healthcare	1,982	-15.0%	0.8
Back Office	479	-23.2%	0.3
Agribusiness & Food	102	-25.6%	0.3
Automotive	85	-7.3%	0.5
Research	64	-10.4%	0.2
Creative Content	59	-7.2%	0.3
Aerospace	27	-25.6%	0.4
Mining & Logging	21	-1.1%	0.8
Non-Profits	12	-40.0%	0.1
Apparel & Textiles	8	0.0%	0.1
Total	18,536	1.8%	1.0

Strong & Advancing

Weak but Advancing

Strong but Declining

Weak & Declining

Source:
Lightcast and EY

Industry cluster table: Rogers County

Rogers County industry cluster performance, 2016-2021

Cluster	Employment (2021)	Employment growth (2016-2021)	Location quotient (2021)
Retail	3,382	5.4%	1.1
Entertainment	2,405	0.5%	1.0
Energy	499	6.9%	2.3
Agribusiness & Food	434	34.6%	1.0
Materials	367	33.1%	1.1
Consumer Goods Mftg	177	15.8%	1.5
Back Office	1,600	35.7%	0.8
Transportation & Logistics	295	3.3%	0.3
Non-Profits	125	8.7%	0.6
Telecom Services	73	23.6%	0.6
Apparel & Textiles	71	782.0%	0.9
Software / Info. Tech.	55	35.7%	0.1
Furniture	8	100.0%	0.1
Government	4,161	-9.9%	2.1
Construction	2,545	-15.8%	1.4
Metalworking	1,749	-20.2%	5.7
Industrial Machinery	1,235	-18.8%	2.3
Healthcare	2,226	-0.9%	0.6
Education	2,107	-3.8%	0.9
Finance	660	-4.4%	0.5
Professional Services	510	-5.5%	0.6
Electronics	203	-8.1%	0.5
Automotive	200	-18.3%	0.8
Creative Content	74	-4.4%	0.2
Research	44	-55.2%	0.1
Mining & Logging	8	-88.7%	0.2
Biomedical	8	-39.6%	0.1
Total	25,270	-4.1%	1.0

Strong & Advancing

Weak but Advancing

Strong but Declining

Weak & Declining

Note: Aerospace was not included as part of the analysis given lack of overall industry presence.

Source:
Lightcast and EY

Industry cluster table: Tulsa County

Tulsa County industry cluster performance, 2016-2021

Cluster	Employment (2021)	Employment growth (2016-2021)	Location quotient (2021)
Healthcare	50,254	2.9%	1.0
Back Office	33,796	0.5%	1.3
Construction	24,700	7.5%	1.0
Transportation & Logistics	16,469	3.5%	1.2
Aerospace	6,919	104.3%	6.0
Consumer Goods Mftg	3,249	37.4%	2.0
Government	15,719	3.5%	0.6
Materials	3,984	14.9%	0.9
Software / Info. Tech.	3,919	44.0%	0.4
Agribusiness & Food	3,058	12.8%	0.5
Research	2,534	11.1%	0.4
Furniture	721	1.5%	0.6
Biomedical	463	14.2%	0.2
Mining & Logging	73	2.1%	0.1
Retail	45,188	-5.4%	1.0
Entertainment	36,410	-5.1%	1.1
Professional Services	13,205	-1.2%	1.2
Industrial Machinery	12,453	-9.5%	1.7
Energy	8,436	-26.4%	2.8
Metalworking	7,424	-13.3%	1.8
Creative Content	4,207	-8.1%	1.0
Telecom Services	2,861	-16.6%	1.8
Education	24,041	-3.5%	0.8
Finance	17,481	-2.3%	0.9
Electronics	4,646	-13.8%	0.9
Non-Profits	2,033	-3.8%	0.7
Automotive	1,990	-3.8%	0.6
Apparel & Textiles	526	-7.0%	0.5
Total	347,324	-0.6%	1.0

Strong & Advancing

Weak but Advancing

Strong but Declining

Weak & Declining

Source:
Lightcast and EY

Industry cluster table: Wagoner County

Wagoner County industry cluster performance, 2016-2021

Cluster	Employment (2021)	Employment growth (2016-2021)	Location quotient (2021)
Retail	1,637	12.7%	1.4
Construction	1,431	31.5%	2.1
Entertainment	989	22.8%	1.1
Metalworking	273	33.4%	2.4
Agribusiness & Food	249	12.8%	1.6
Furniture	44	127.5%	1.4
Consumer Goods Mftg	43	21.5%	1.0
Healthcare	809	17.9%	0.6
Transportation & Logistics	172	9.3%	0.4
Professional Services	172	7.8%	0.6
Energy	53	44.0%	0.7
Telecom Services	27	231.3%	0.6
Software / Info. Tech.	22	9.1%	0.1
Biomedical	14	80.1%	0.2
Education	1,099	-9.8%	1.3
Industrial Machinery	855	-12.6%	4.2
Government	726	-1.1%	1.0
Materials	183	-22.7%	1.5
Finance	256	-16.1%	0.5
Back Office	180	-1.9%	0.3
Non-Profits	25	-27.2%	0.3
Aerospace	25	-24.4%	0.8
Research	15	-16.1%	0.1
Creative Content	12	-25.0%	0.1
Total	9,373	6.7%	1.0

Strong & Advancing

Weak but Advancing

Strong but Declining

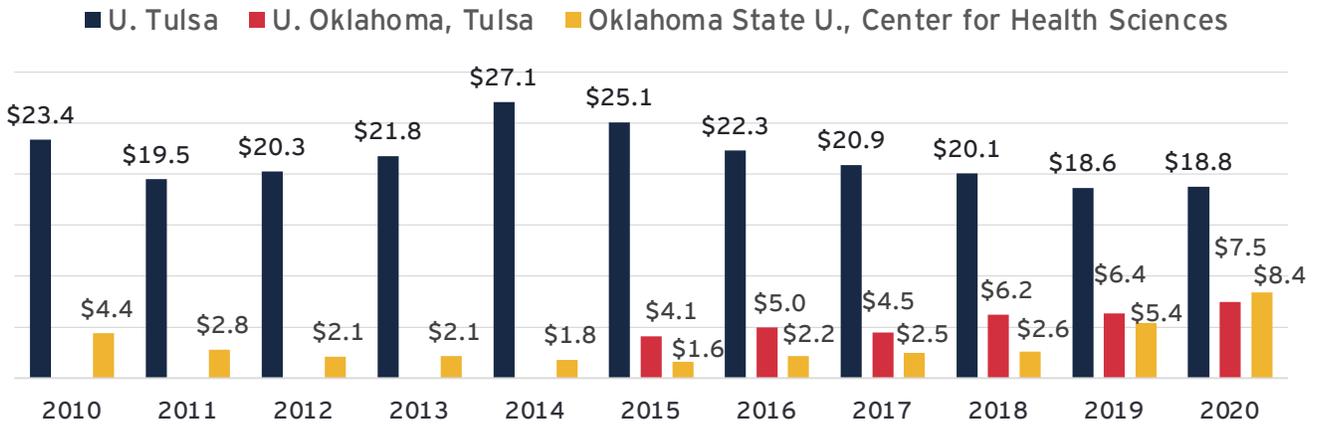
Weak & Declining

Note: Automotive, Apparel & Textiles, Electronics and Mining & Logging were not included as part of the analysis given lack of overall industry presence.

Source:
Lightcast and EY

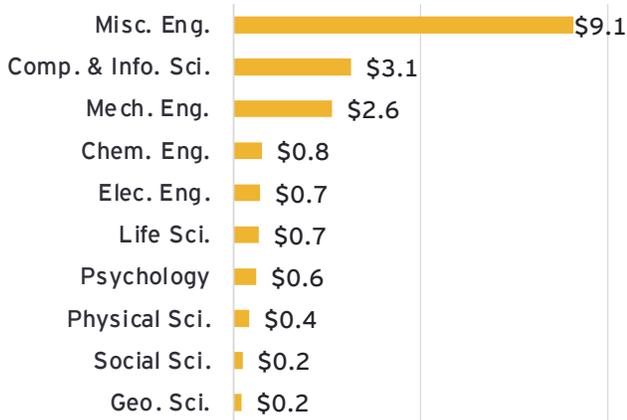
Innovation and entrepreneurship

University research and development expenditures (\$ millions) in the INCOG region, 2010 - 2020

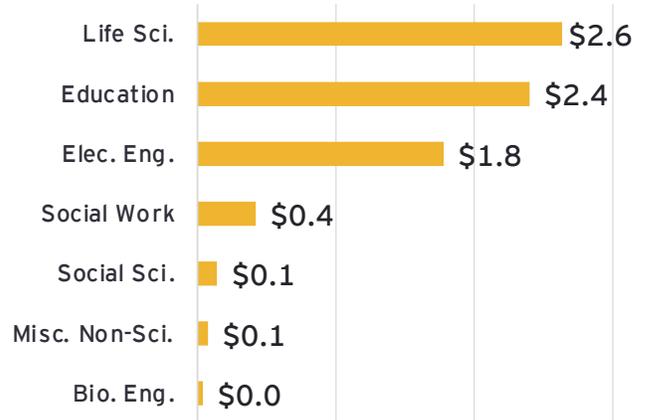


Source:
National Science Foundation and EY

Top 10 research fields (\$ millions) at the University of Tulsa, 2020



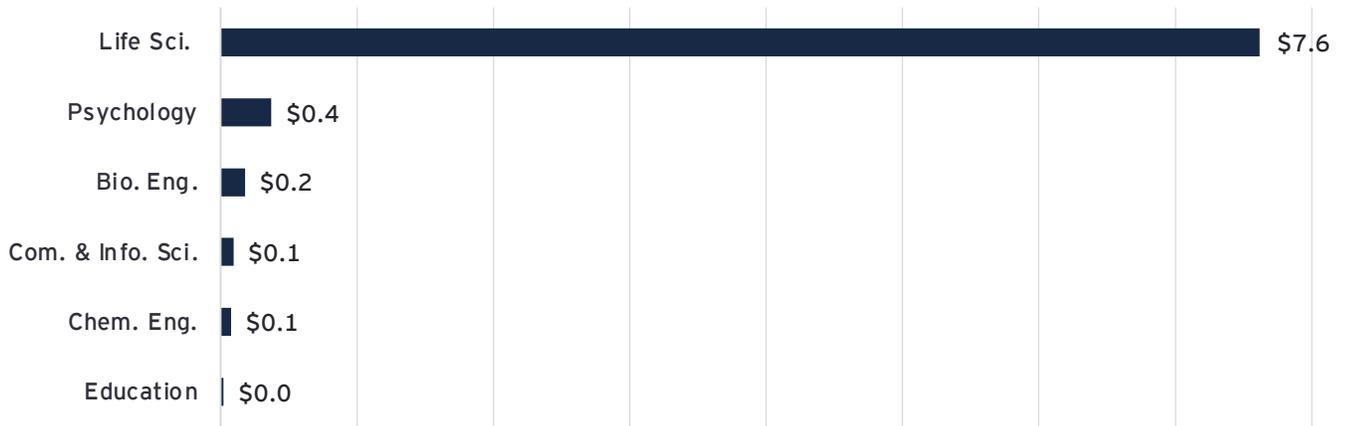
Top research fields (\$ millions) at the University of Oklahoma Tulsa, 2020



Source:
National Science Foundation and EY

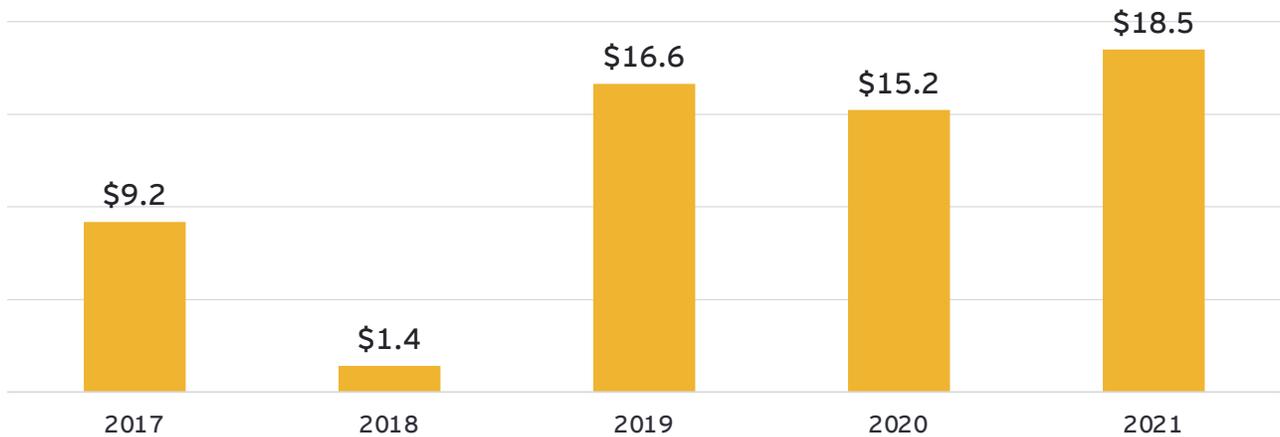
Innovation and entrepreneurship

Top research fields (\$ millions) at Oklahoma State University Health Sciences Center, 2020



Source:
National Science Foundation and EY

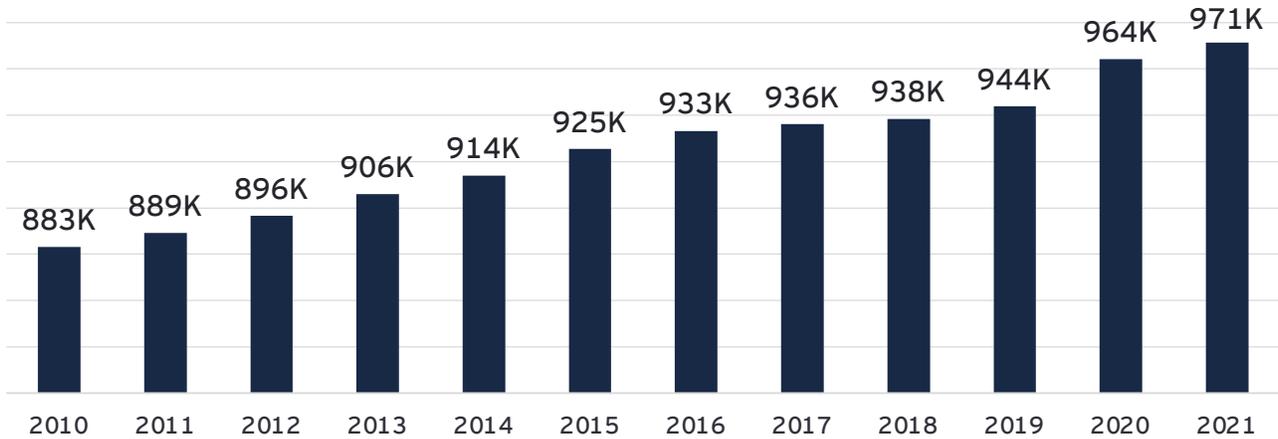
Venture capital funding raised (\$ millions) by companies headquartered in the INCOG region, 2017 - 2021



Source:
PitchBook and EY

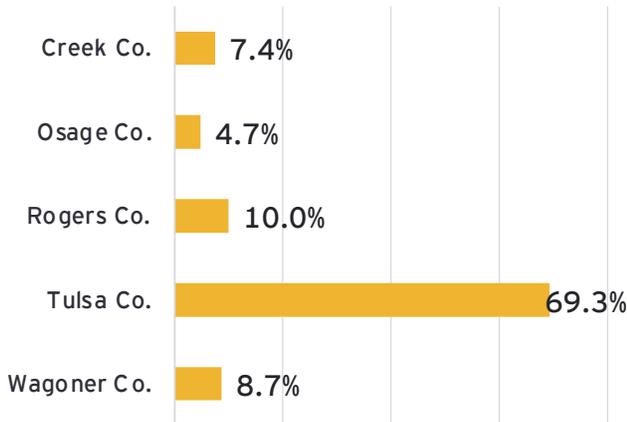
Population trends

Total population, INCOG region, 2010 - 2021

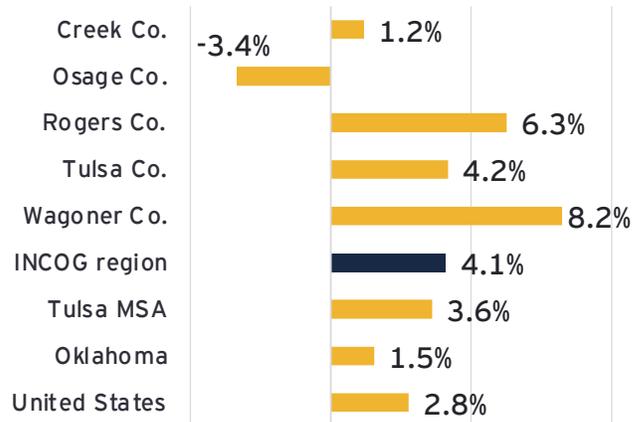


Source:
US Census Population Estimates and EY

Share of INCOG region population, 2021



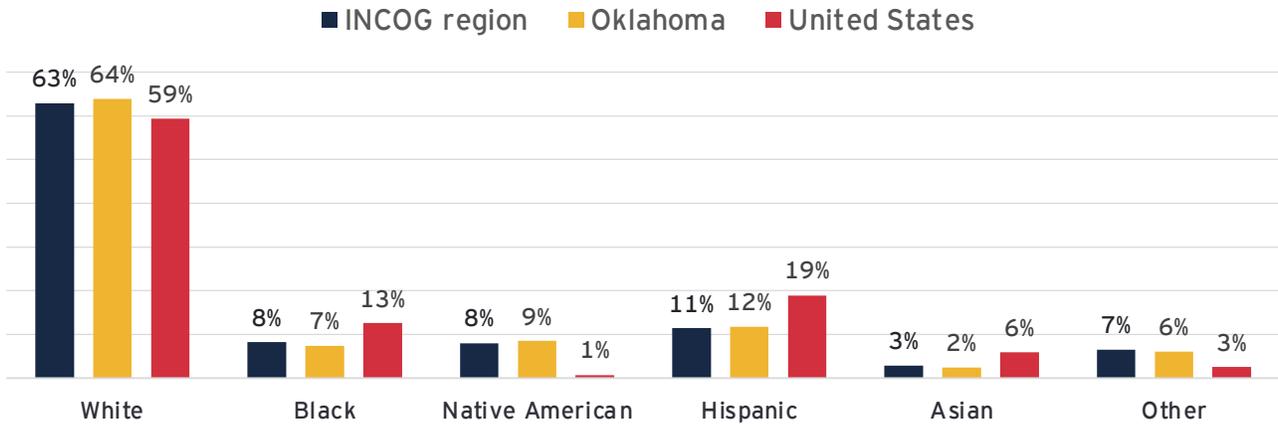
Population growth, 2016 - 2021



Source:
Lightcast and EY

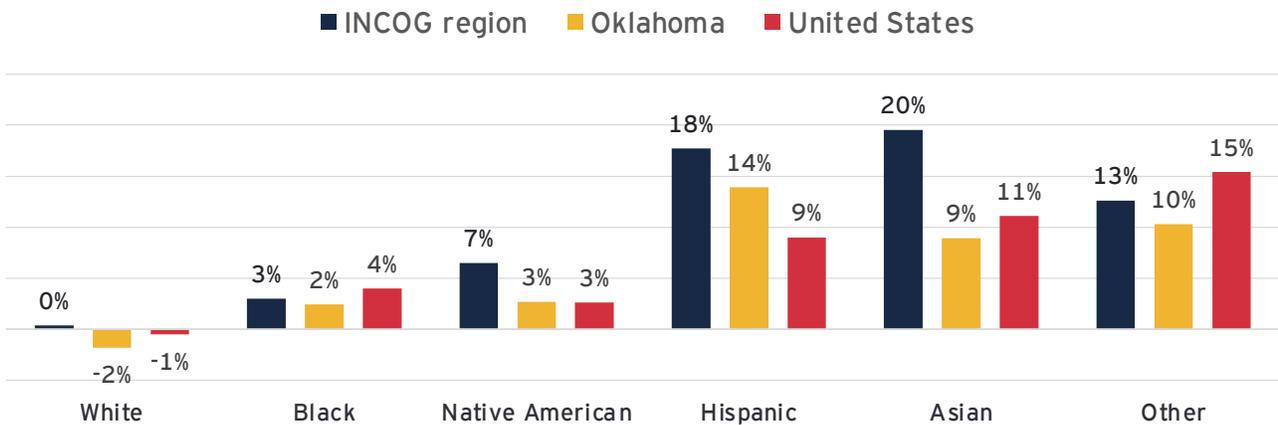
Racial diversity

Share of population by race, 2021



Source:
US Census Bureau Population Estimates and EY

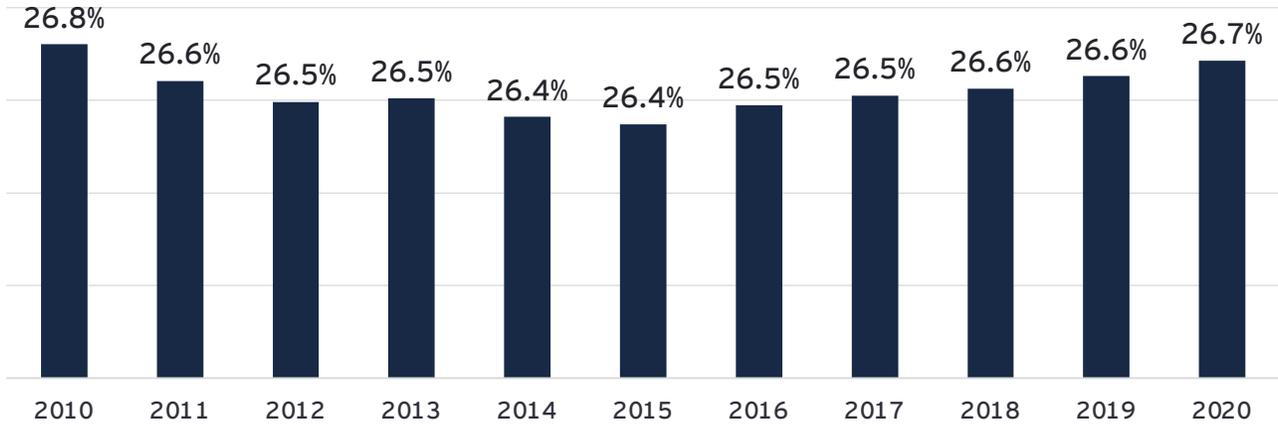
Population growth by race, 2016 to 2021



Source:
US Census Bureau Population Estimates and EY

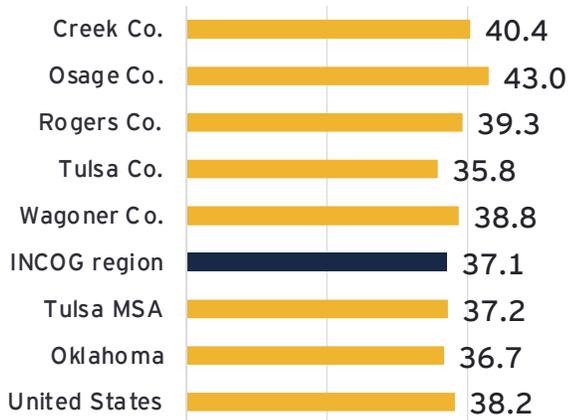
Age distribution

Share of population aged 25 - 44 years in the INCOG region, 2010 - 2020

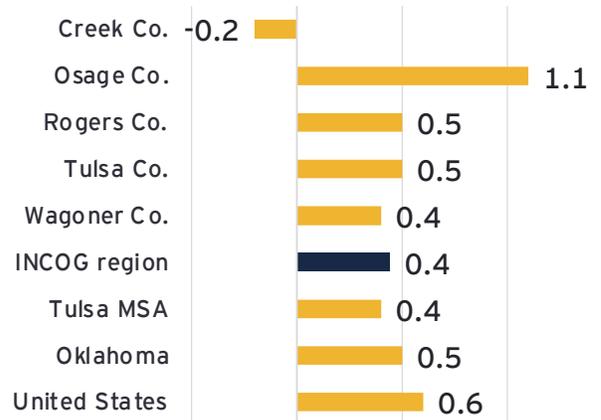


Source:
US Census American Community Survey and EY

Median age, 2020



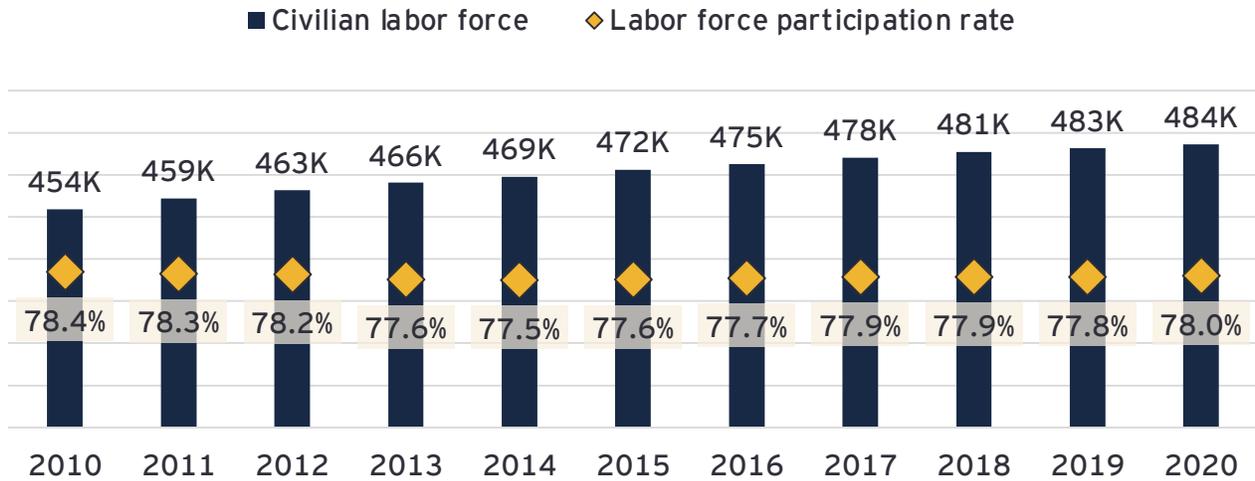
Change in median age, 2015 - 2020



Source:
US Census American Community Survey and EY

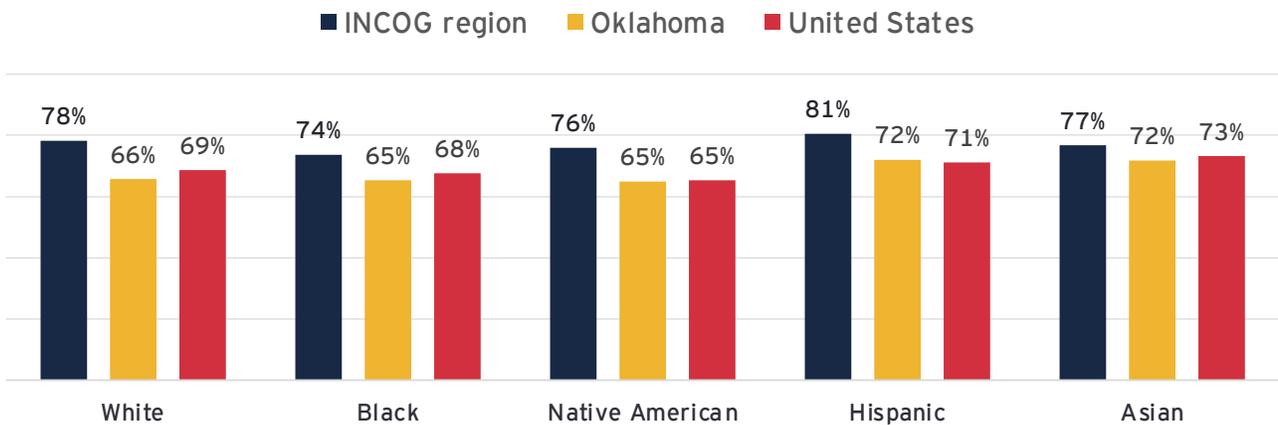
Labor force participation

Civilian working age (25-64) labor force and participation rate, INCOG region, 2010 - 2020



Source:
US Census American Community Survey and EY

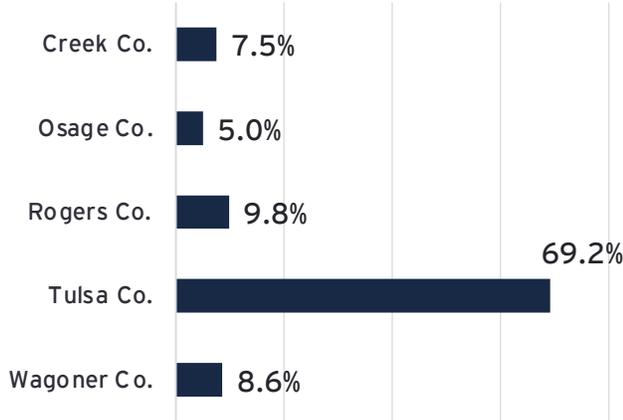
Civilian working age labor force participation rate by race, 2021
(Approximate, some data unavailable)



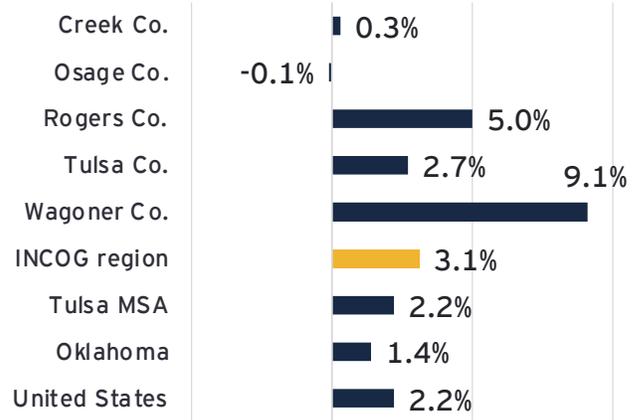
Source:
US Census American Community Survey and EY

Labor force participation

Share of INCOG region civilian working age labor force, 2020

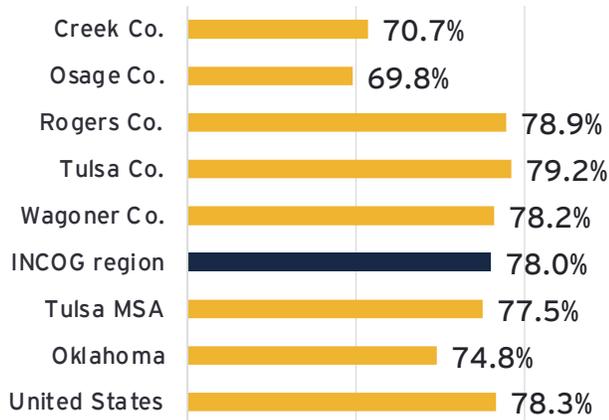


Growth in civilian working age labor force, 2015 - 2020

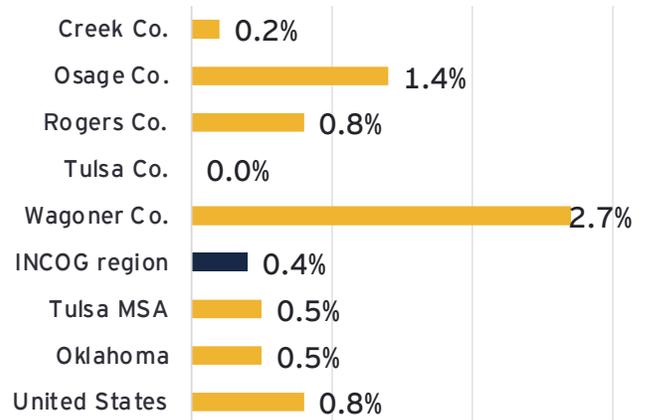


Source:
US Census American Community Survey and EY

Civilian working age labor force participation rate, 2020



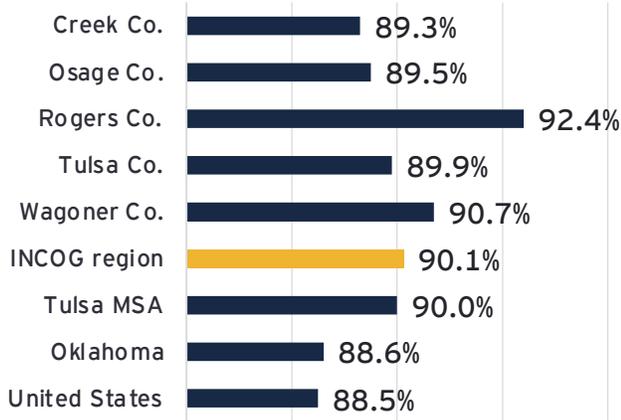
Percentage point change in civilian working age labor force participation rate, 2015 - 2020



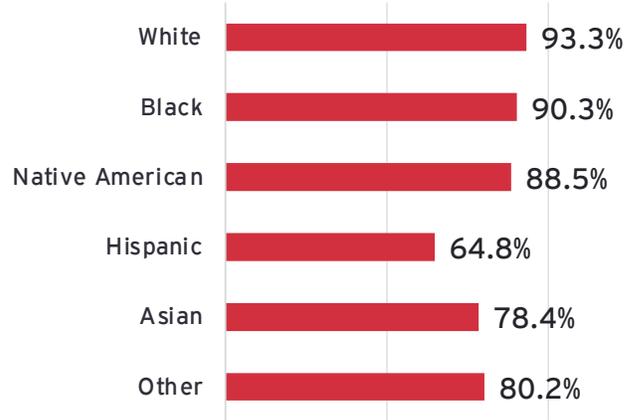
Source:
US Census American Community Survey and EY

Educational attainment

Share of population over 25 with a high school degree, 2020



Share of population over 25 with a high school degree by race, INCOG region, 2020

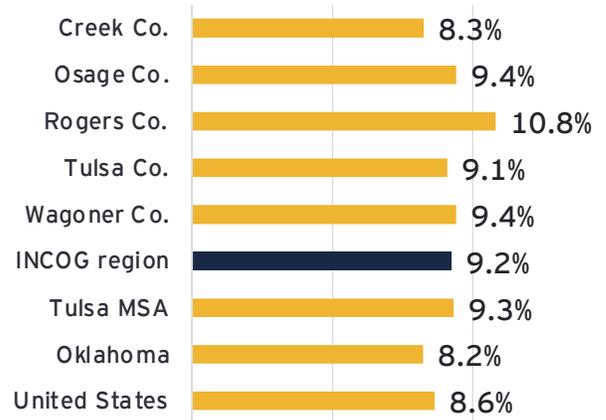


Source:
US Census American Community Survey and EY

Share of population over 25 with some college but no degree, 2020



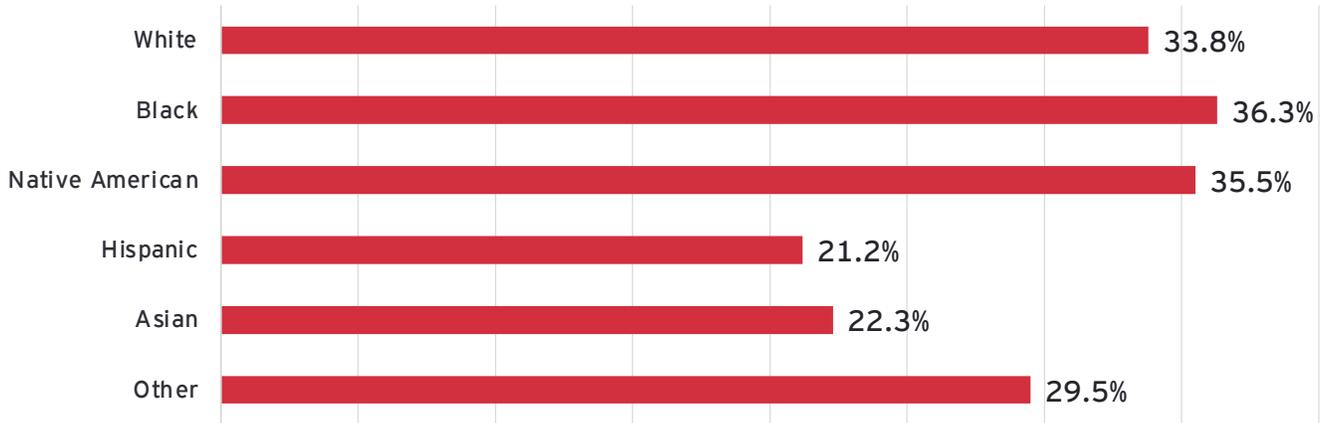
Share of population over 25 with an associate degree, 2020



Source:
US Census American Community Survey and EY

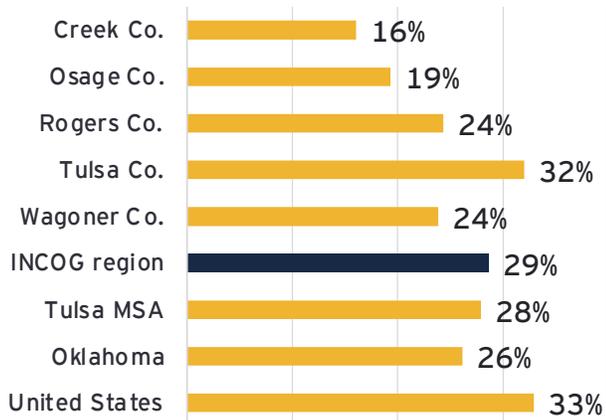
Educational attainment

Share of population over 25 with some college or an associate degree by race*, INCOG region, 2020



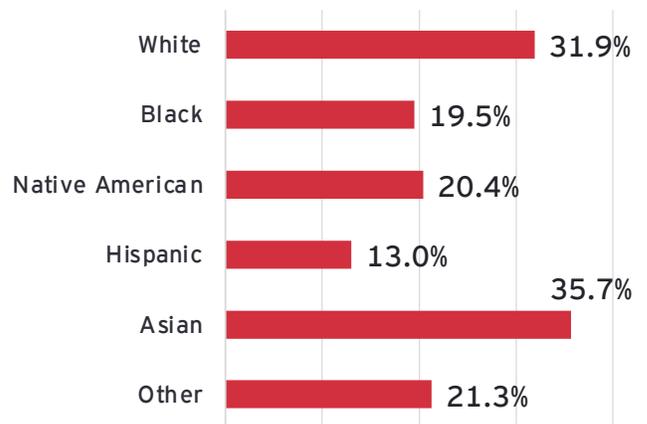
Source:
 US Census American Community Survey and EY
 *This statistics is only currently available for combined some college and associate degree by race

Share of population over 25 with a bachelors degree or higher, 2020



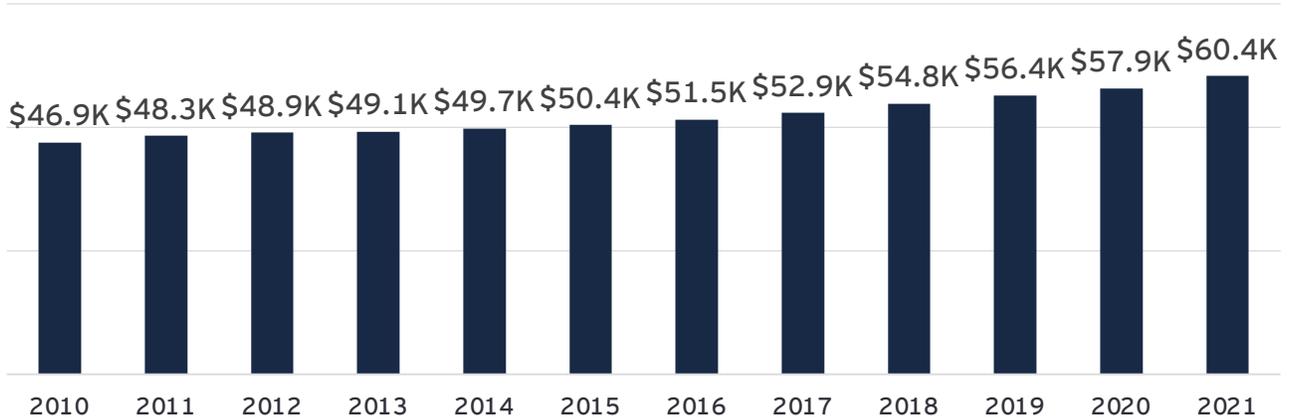
Source:
 US Census American Community Survey and EY

Share of population over 25 with a bachelors degree or higher by race, INCOG region, 2020



Income

Median household income, INCOG region, 2010 - 2021

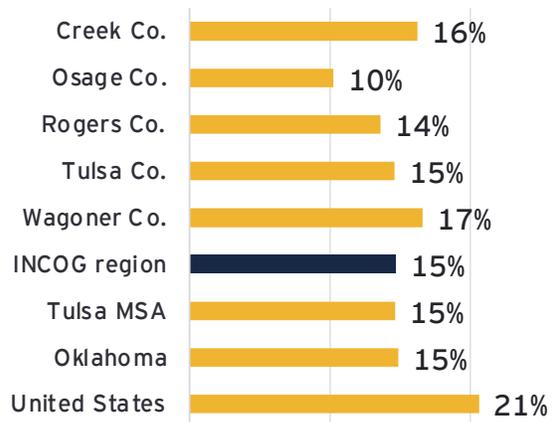


Source:
US Census American Community Survey and EY

Median household income, 2020



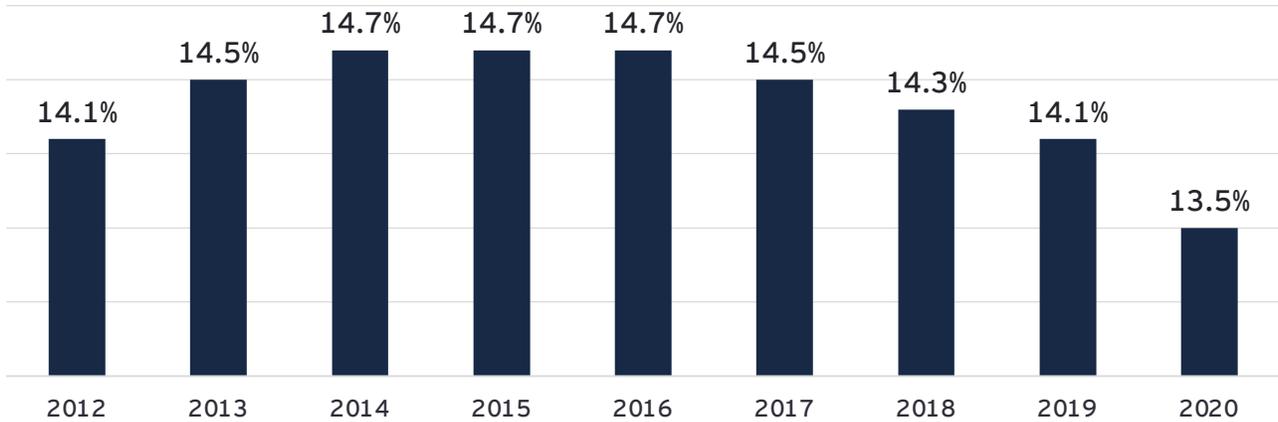
Median household income growth, 2015 - 2020



Source:
Lightcast and EY

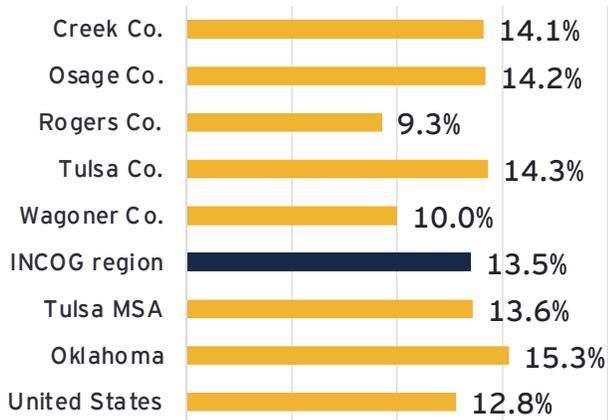
Poverty

Poverty rate, INCOG region, 2012 - 2020

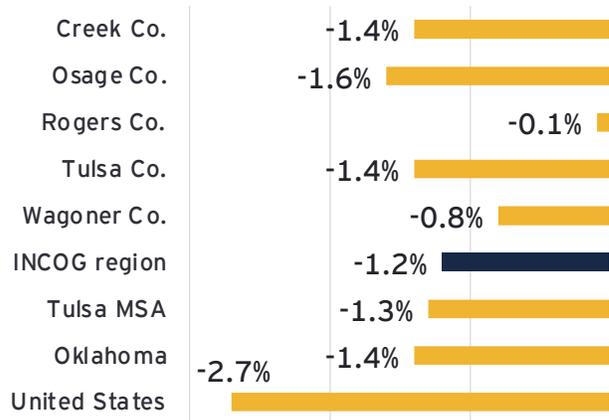


Source:
US Census American Community Survey and EY

Poverty rate, 2020



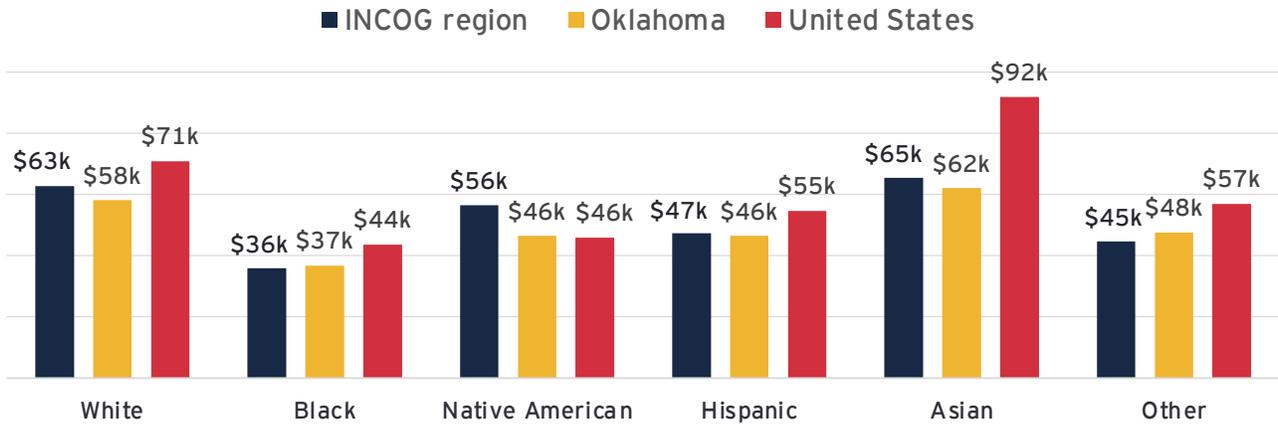
Percentage point change in poverty rate, 2015 - 2020



Source:
Lightcast and EY

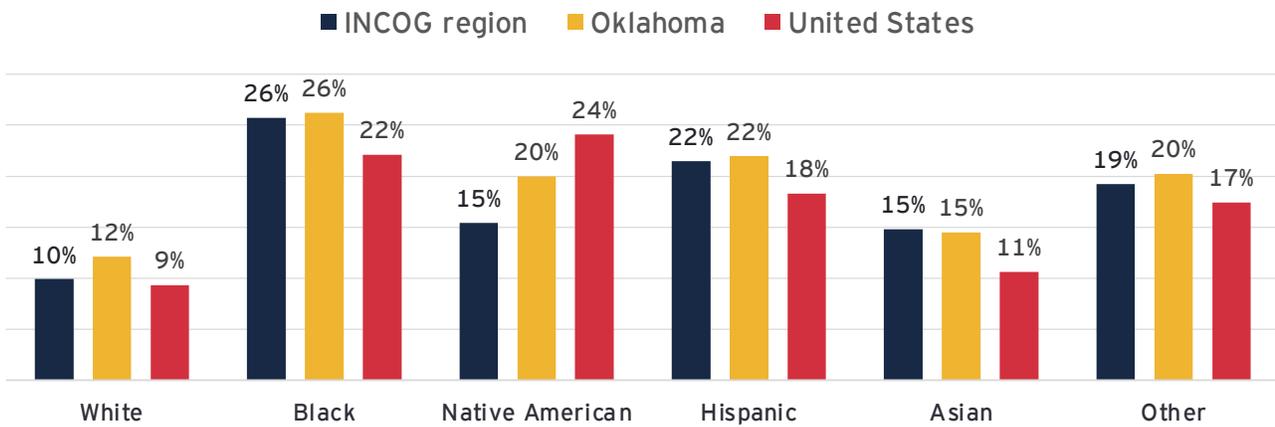
Poverty and income by race

Median household income by race, 2020



Source:
US Census Bureau Population Estimates and EY

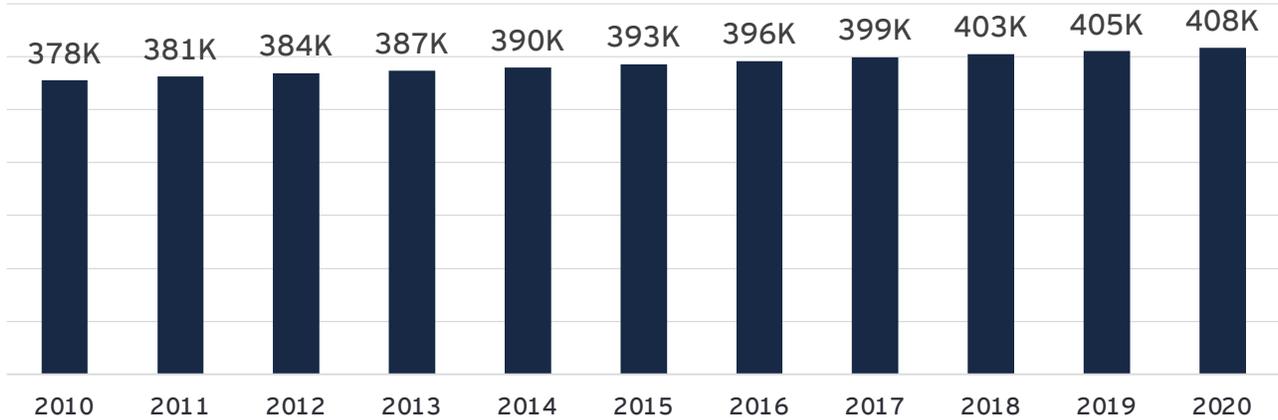
Poverty rate by race, 2020



Source:
US Census Bureau Population Estimates and EY

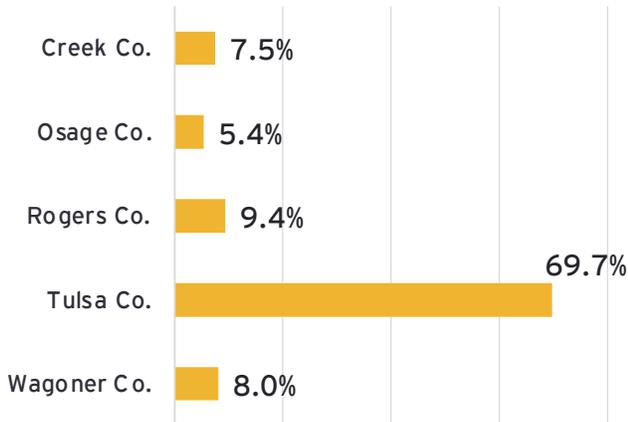
Housing units

Total housing units, INCOG region, 2010 - 2020

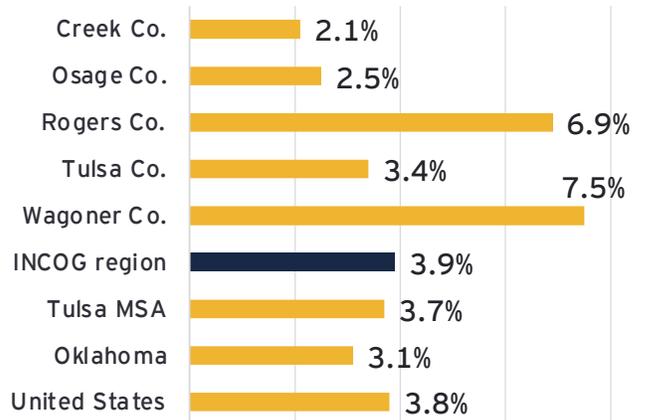


Source:
US Census American Community Survey and EY

Share of INCOG region housing units, 2020



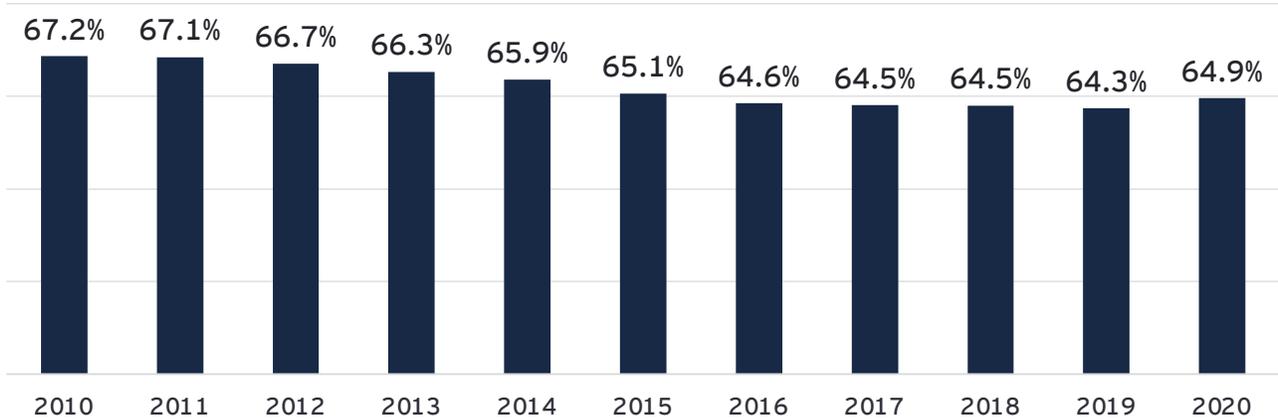
Growth in housing units, 2015 - 2020



Source:
US Census American Community Survey and EY

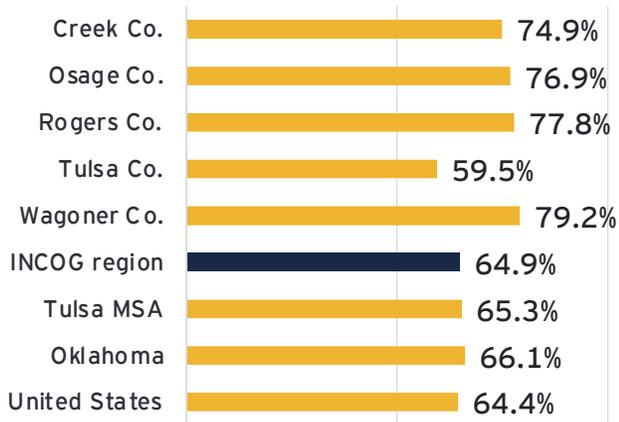
Owner-occupied units

Share of owner-occupied housing, INCOG region, 2010 - 2020

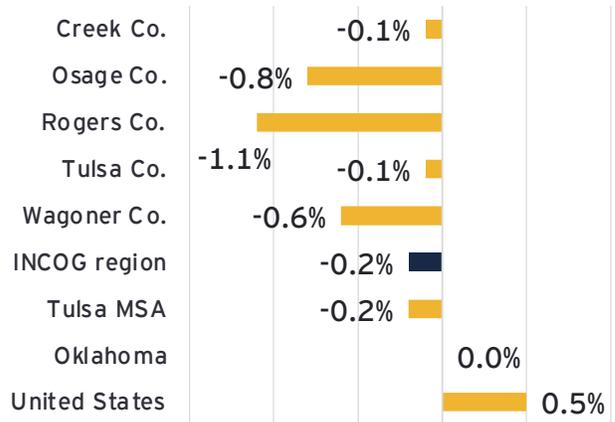


Source:
US Census American Community Survey and EY

Share of owner-occupied housing, 2020



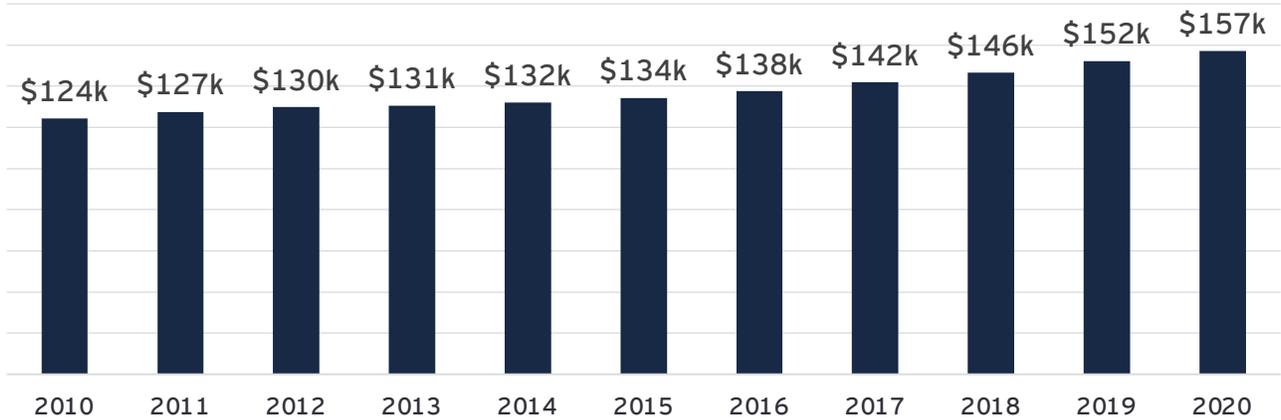
Percentage point change in owner-occupied housing, 2015 - 2020



Source:
US Census American Community Survey and EY

Home values

Median value of owner-occupied homes, INCOG region, 2010 - 2020



Source:
US Census American Community Survey and EY

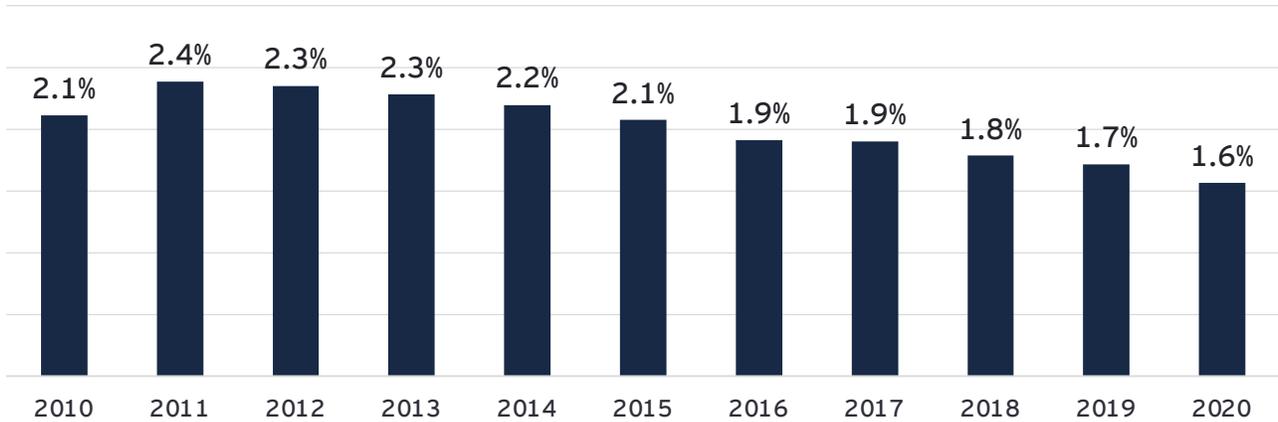
Change in median value of owner-occupied homes, 2015 - 2020
Median value of owner-occupied homes, 2020



Source:
US Census American Community Survey and EY

Homeowner vacancy rate

Homeowner vacancy rate, INCOG region, 2010 - 2020

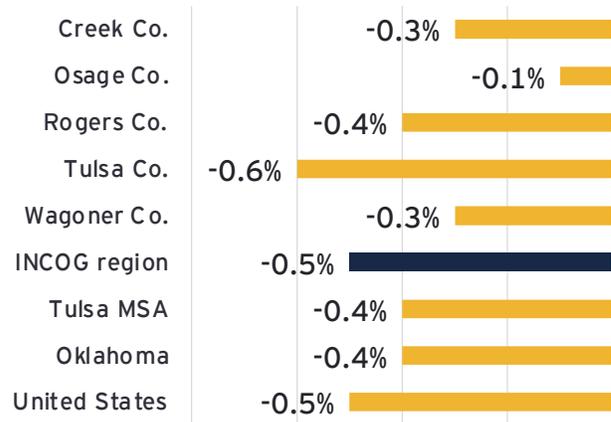


Source:
US Census American Community Survey and EY

Homeowner vacancy rate, 2020



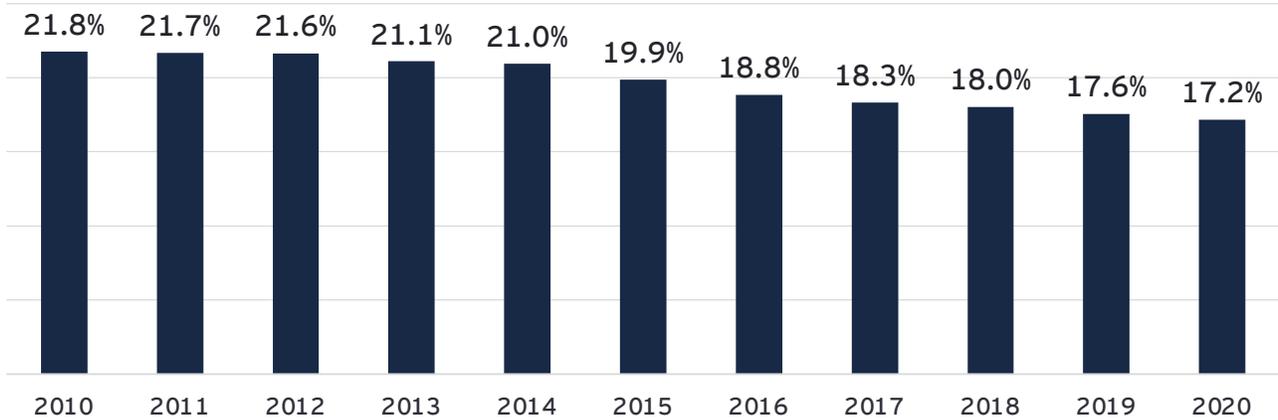
Percentage point change in homeowner vacancy rate, 2015 - 2020



Source:
US Census American Community Survey and EY

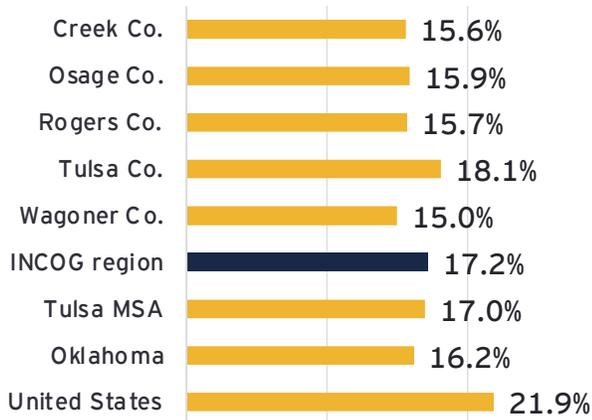
Owner-occupied unit affordability

Share of owner-occupied housing that is unaffordable*, INCOG region, 2010 - 2020

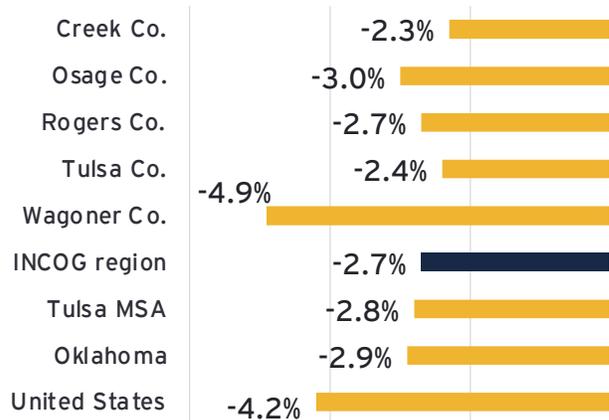


Source:
US Census American Community Survey and EY
*Unaffordable is measured as 30% or more of income spent on mortgage

Share of owner-occupied housing that is unaffordable*, 2020



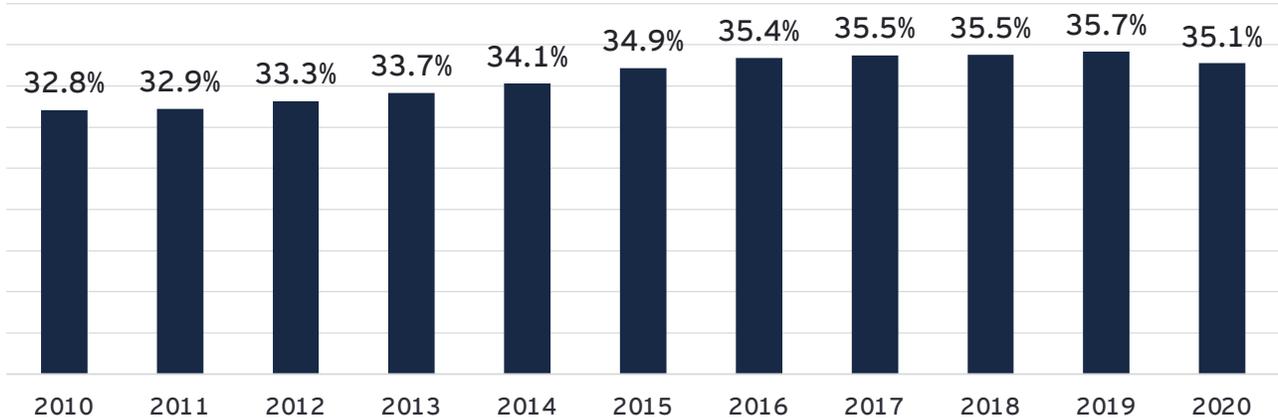
Percentage point change in share of owner-occupied housing that is unaffordable*, 2015 - 2020



Source:
US Census American Community Survey and EY
*Unaffordable is measured as 30% or more of income spent on mortgage

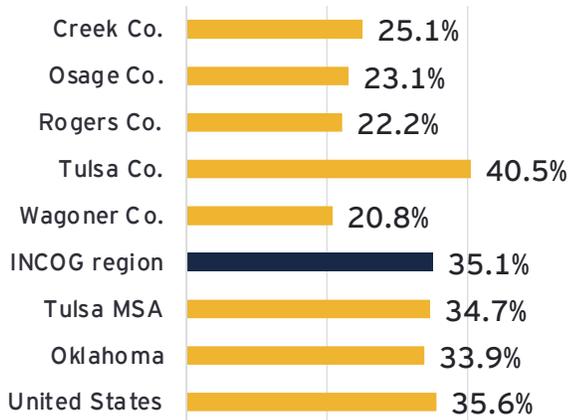
Renter-occupied units

Share of renter-occupied housing, INCOG region, 2010 - 2020

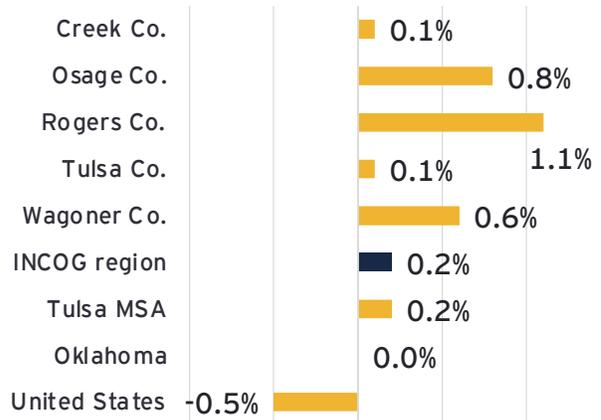


Source:
US Census American Community Survey and EY

Share of renter-occupied housing, 2020



Percentage point change in renter-occupied housing, 2015 - 2020



Source:
US Census American Community Survey and EY

Rental rates

Median rent, INCOG region, 2010 - 2020

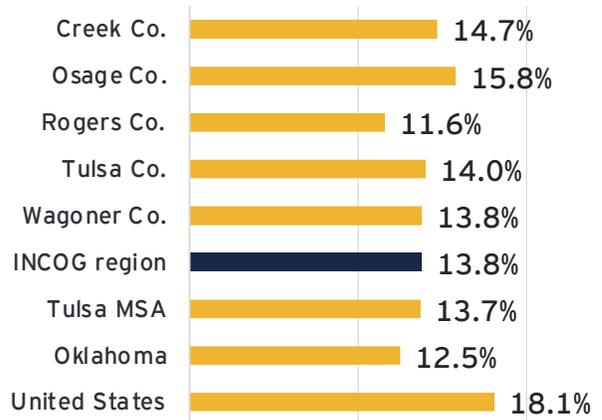


Source:
US Census American Community Survey and EY

Median rent, 2020



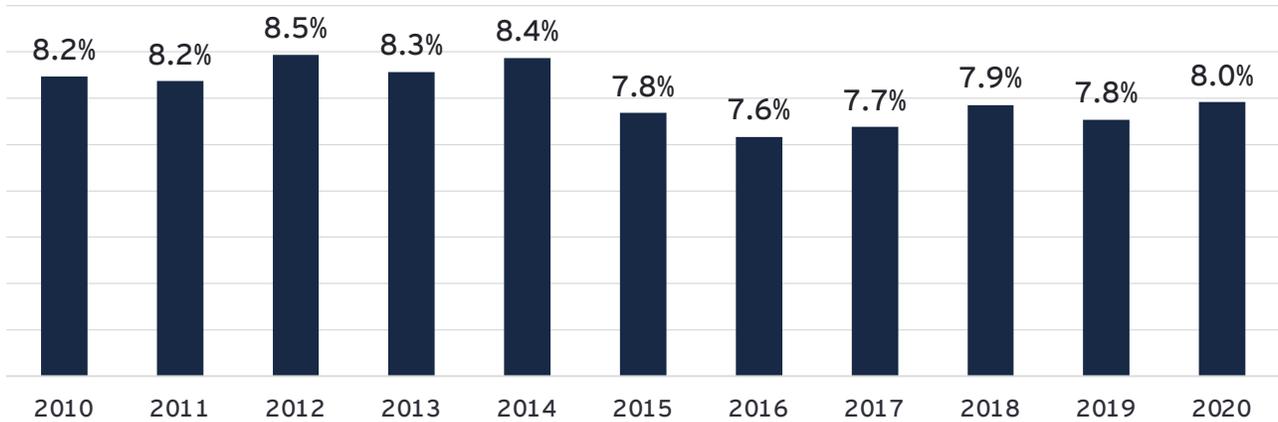
Change in median rent, 2015 - 2020



Source:
US Census American Community Survey and EY

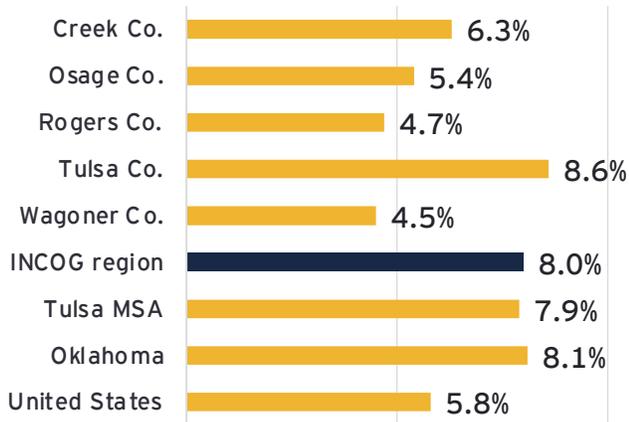
Rental vacancy rate

Rental vacancy rate, INCOG region, 2010 - 2020

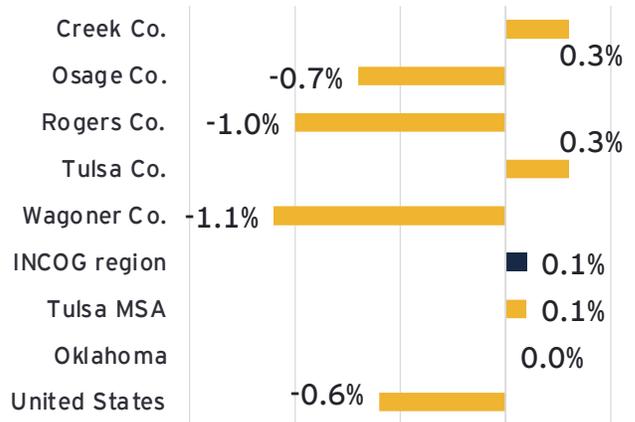


Source:
US Census American Community Survey and EY

Rental vacancy rate, 2020



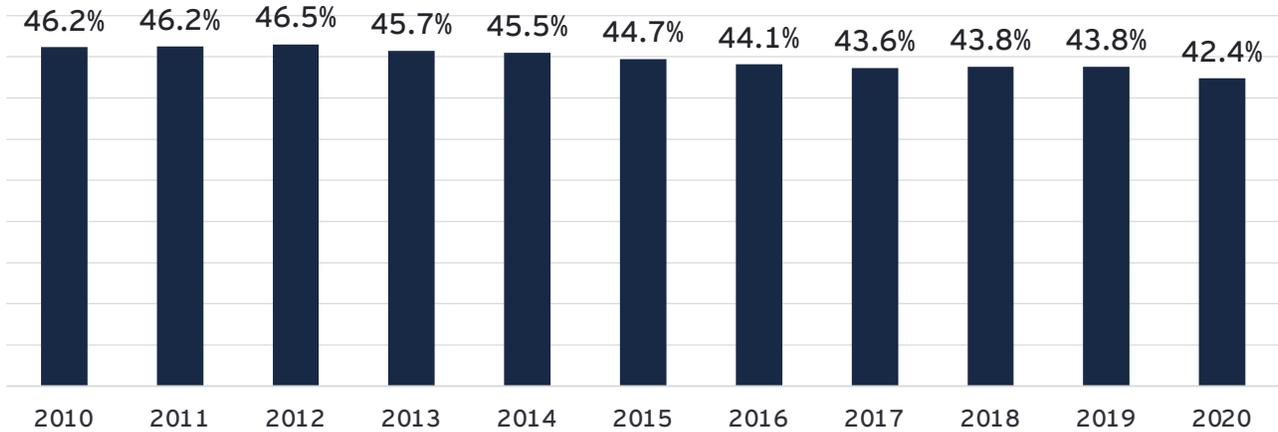
Percentage point change in rental vacancy rate, 2015 - 2020



Source:
US Census American Community Survey and EY

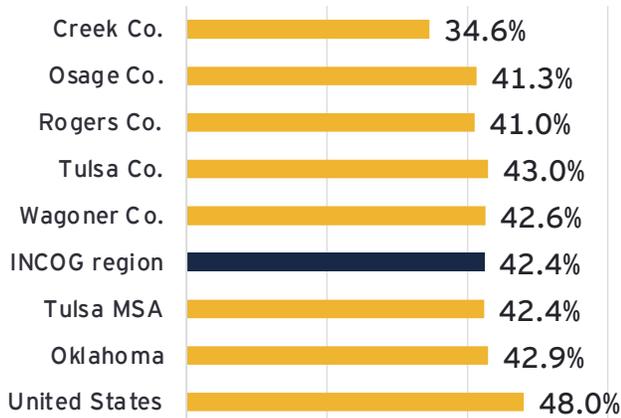
Renter-occupied unit affordability

Share of renter-occupied housing that is unaffordable*, INCOG region, 2010 - 2020

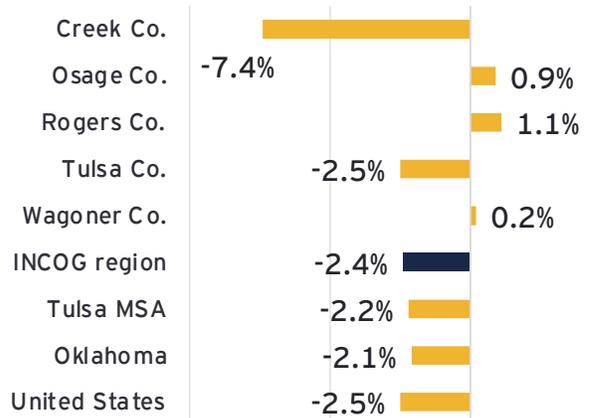


Source:
US Census American Community Survey and EY
*Unaffordable is measured as 30% or more of income spent on rent

Share of renter-occupied housing that is unaffordable*, 2020



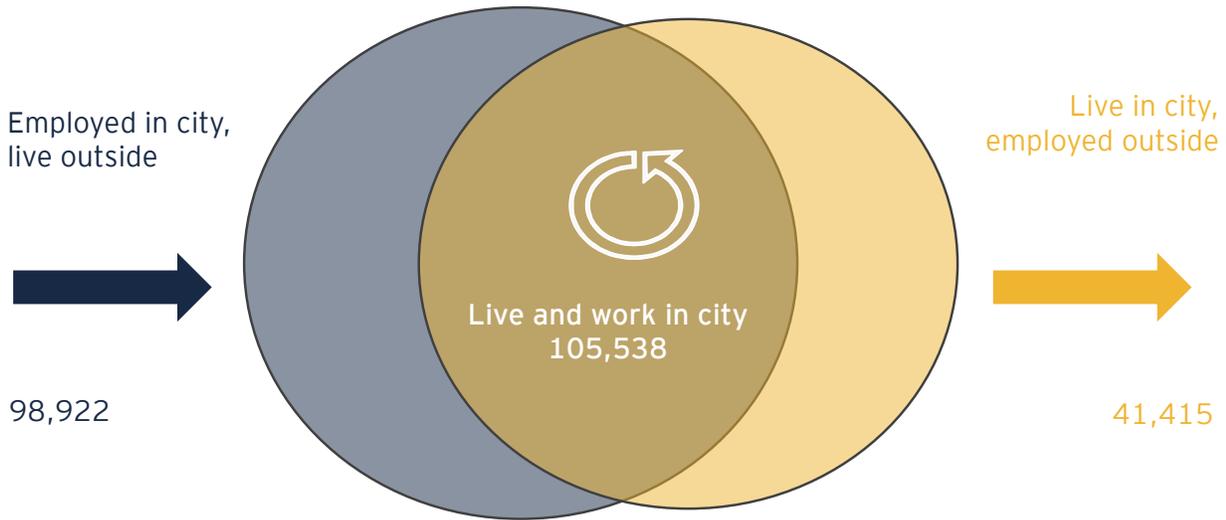
Percentage point change in share of renter-occupied housing that is unaffordable*, 2015 - 2020



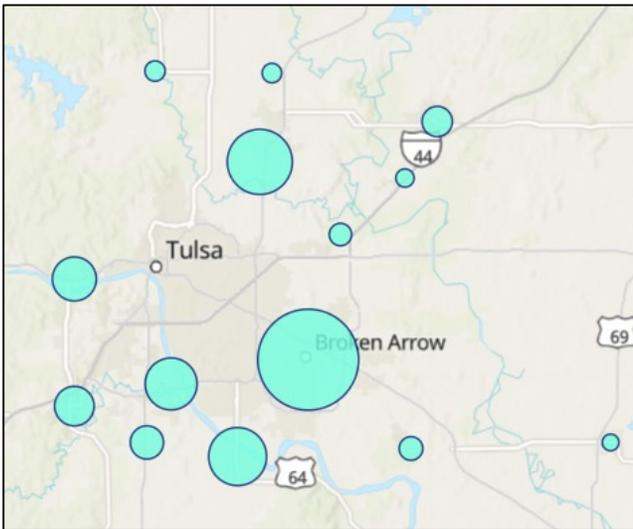
Source:
US Census American Community Survey and EY
*Unaffordable is measured as 30% or more of income spent on rent

Commute patterns

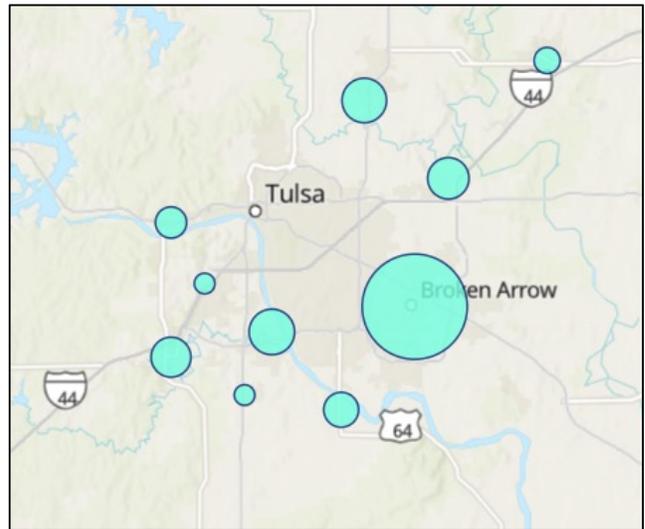
Regional workforce inflow/outflow dynamics, City of Tulsa, 2019



Where Tulsa city workers live outside city



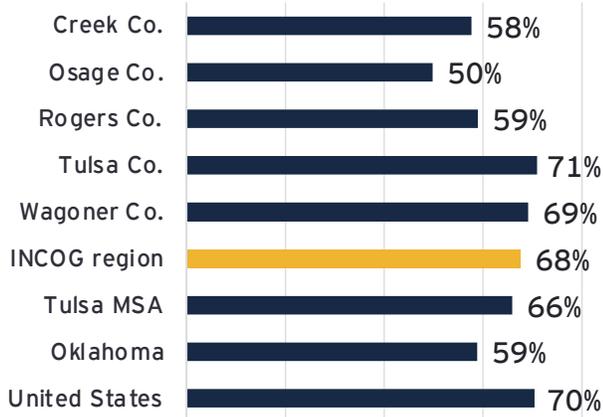
Where Tulsa city residents work outside city



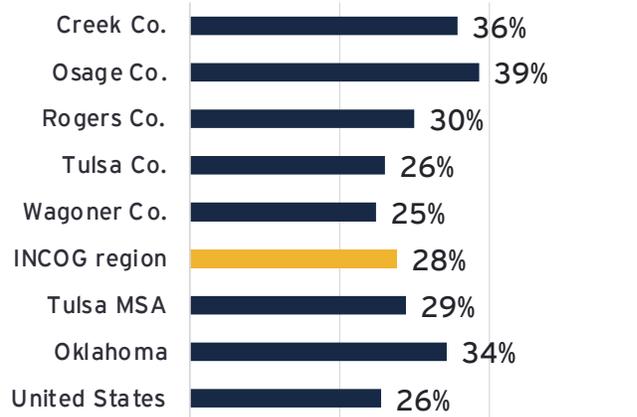
Source:
Census Bureau, Longitudinal Employer-Household Dynamics, OnTheMap application and EY

Digital access

Share of households with broadband service, 2020

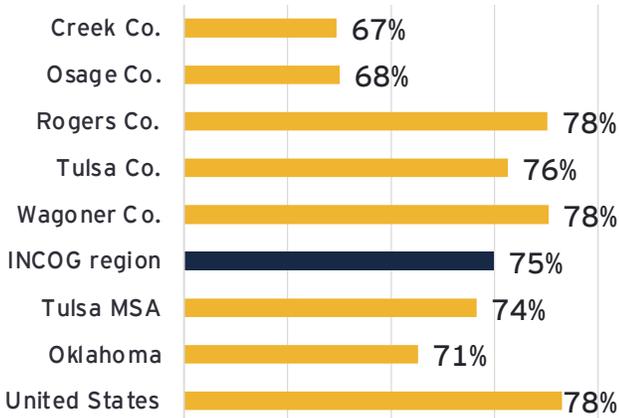


Share of households without internet (excluding cellular phone connections), 2020

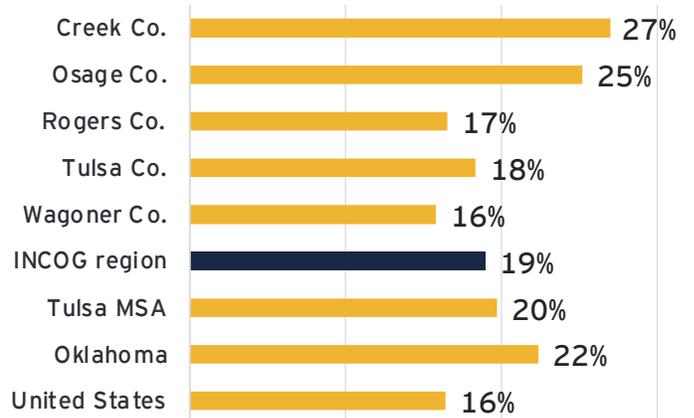


Source:
US Census American Community Survey and EY

Share of households with a desktop or laptop, 2020



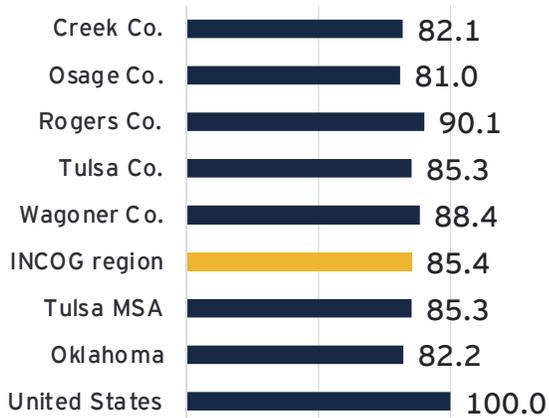
Share of households without a computer (excluding cellular phones), 2020



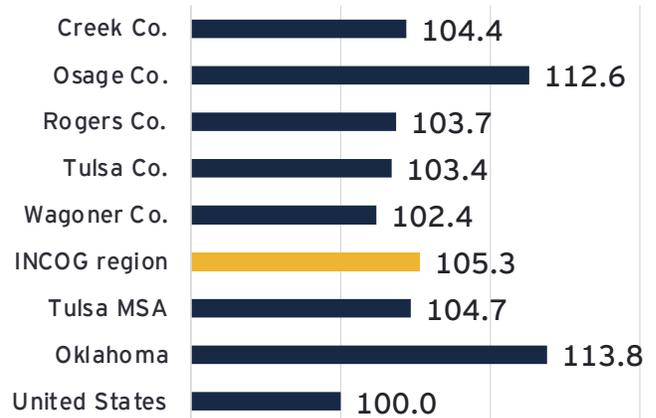
Source:
US Census American Community Survey and EY

Cost of living

Overall cost of living index rating, 2022

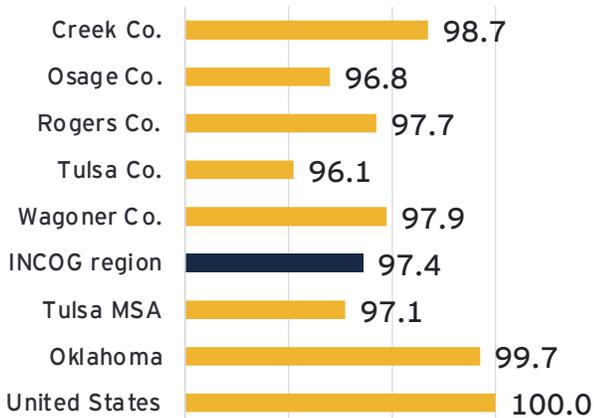


Health cost of living index rating, 2022

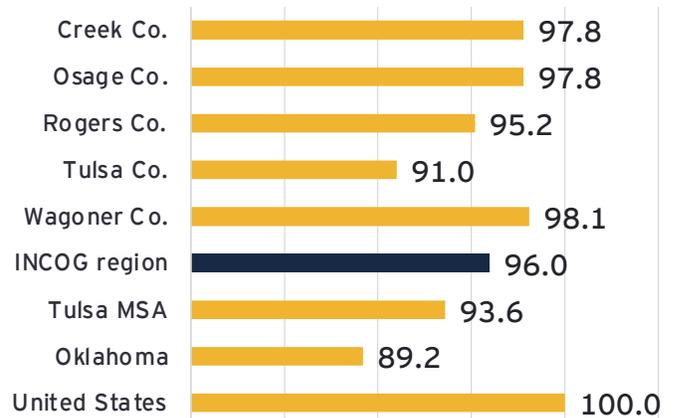


Source:
Sperling's Best Places and EY

Utilities cost of living index rating, 2022



Transportation cost of living index rating, 2022



Source:
Sperling's Best Places and EY

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