2020
Work From Home
Counties

National Association of REALTORS®
Research Group
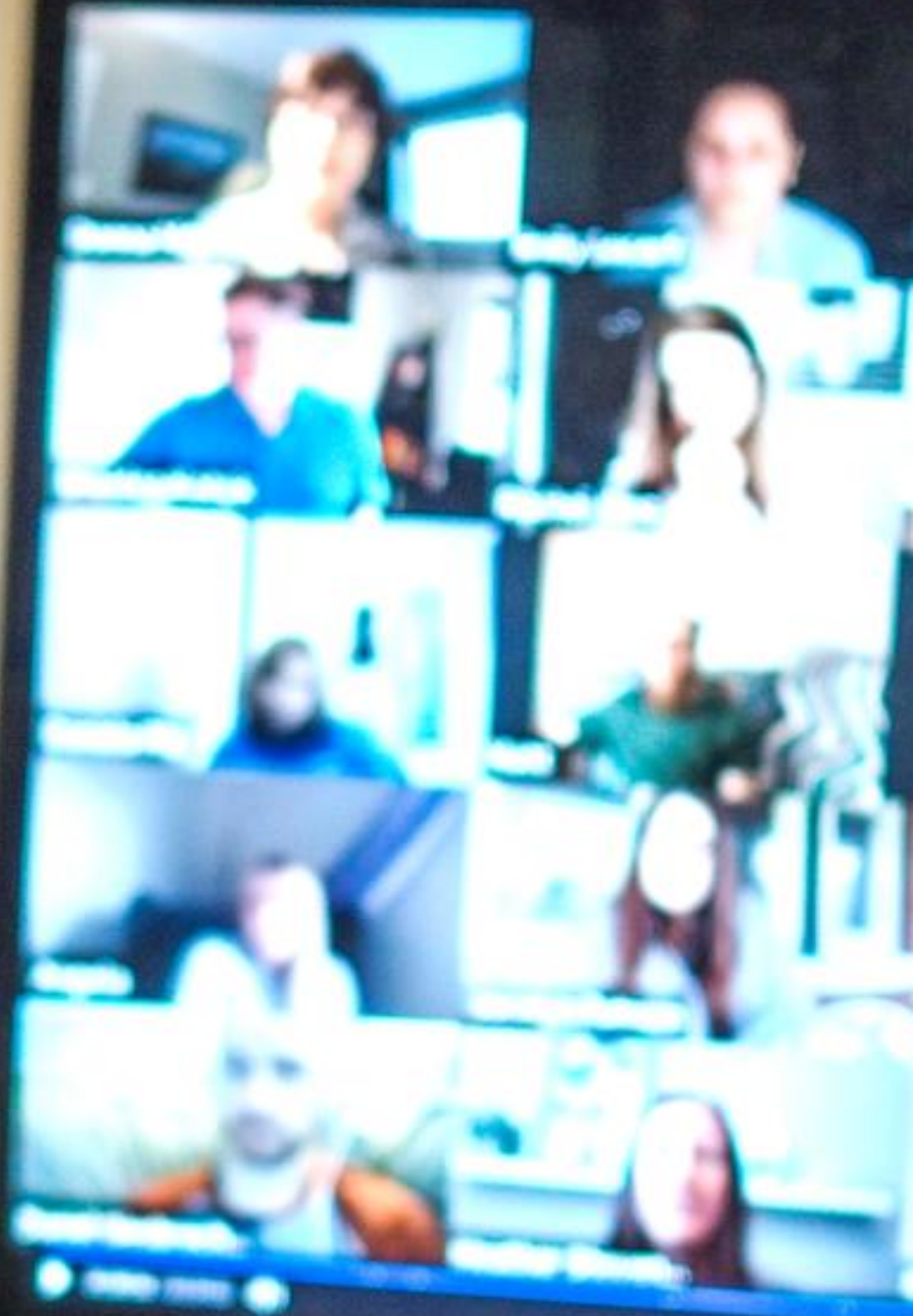
NATIONAL ASSOCIATION OF REALTORS®
RESEARCH GROUP

Lawrence Yun, PhD
Chief Economist & Senior Vice President

Jessica Lautz, Doctor of Real Estate
Vice President, Demographics and Business Insights

Gay Cororaton
Senior Economist and Director of Housing and Commercial Research

Meredith Dunn
Research Manager

August 2020

PURPOSE OF THE STUDY

The option to work from home or remotely is likely to become part of the workforce culture. Already, high-profile technology companies such as Twitter and Facebook are anticipating that a larger fraction of their workers will be working from home.[1]

In 2018, 8 million workers 16 years old or over, or 5.3% of workers, worked at home, according to the U.S. Census Bureau. A larger fraction of workers allowed to work from home will change the mix of demand for residential and commercial real estate between the city and the suburb, give rise to new home designs that allow workers to work from home effectively, and change the way offices are configured geographically to enable the most efficient way for workers to work remotely.

The full impact of working from home on worker productivity, creativity, mentoring, and building a cohesive and collaborative office culture is still unraveling. However, there is evidence that indicates that working from home has not had a negative impact on worker productivity.[2] Sixty-two percent of Americans worked from home and three in five U.S. workers who worked from home during the pandemic prefer to continue to do so.[3]

To capture this change over time, NAR developed a Work from Home Score that encapsulates factors that reflect the current fraction of workers already working from home and factors that are expected to support the trend to work from home or work remotely—internet connectivity, the fraction of workers that work in industries that have normally been heavy occupiers of office space, home affordability, and a county's population growth.

1 Here are the Companies Leading the Work-from-Home Revolution, Forbes,
2 Bloom, Nicholas. Stanford Institute for Economic Policy Research.
3 US Workers Discovering Affinity for Remote Work, Gallup

USING THE WORK FROM HOME SCORE

How might the Work from Home Score be used? For one, the score is a good measure of the competitiveness of a county in attracting residents and businesses, given the importance of the factors that are used in creating the score: for example, counties with more affordable housing and with good internet connectivity will be more attractive compared to another county where home prices are less affordable and internet connectivity is not as accessible.

County governments may use the score as a competitiveness indicator, attracting companies in technology, finance, or management. Companies can also use the measure to assess their work from home or remote work policy. Companies can use the score for planning an optimal geographic office configuration (e.g., a small headquarter office in the central business district and satellite offices in the suburbs). Real estate developers can use the score for evaluating where there may be a demand for housing with small home offices or flexible office spaces. Finally, a prospective homebuyer can use the score as a first-step indicator to identifying counties that offer supportive conditions for working from home.

METHODOLOGY FOR CALCULATING THE NAR WORK FROM HOME SCORE

Recognizing that working-from-home will continue to increase over time, the National Association of REALTORS® conducted a study of the 3,142 counties that are best poised to provide a supportive environment for working remotely, mainly, working from home. NAR looked at nine factors related to internet connectivity, urbanization, office-related jobs, home affordability, and a county's population growth that are then combined into a Remote Work Score.

These factors are[4]:

1. percent of households with computer or laptop
2. percent of households with internet broadband access
3. percent of population with 3 or more providers
4. percent of workers who worked at home
5. percent of area that is urban
6. population growth from 2014 to 2019
7. percent of population working in the information; finance and insurance; real estate, rental, and leasing; and professional, scientific, management, administrative and waste services,
8. median value of property to median household income
9. percent of housing units with a mortgage who spent 30% or more of income on housing costs
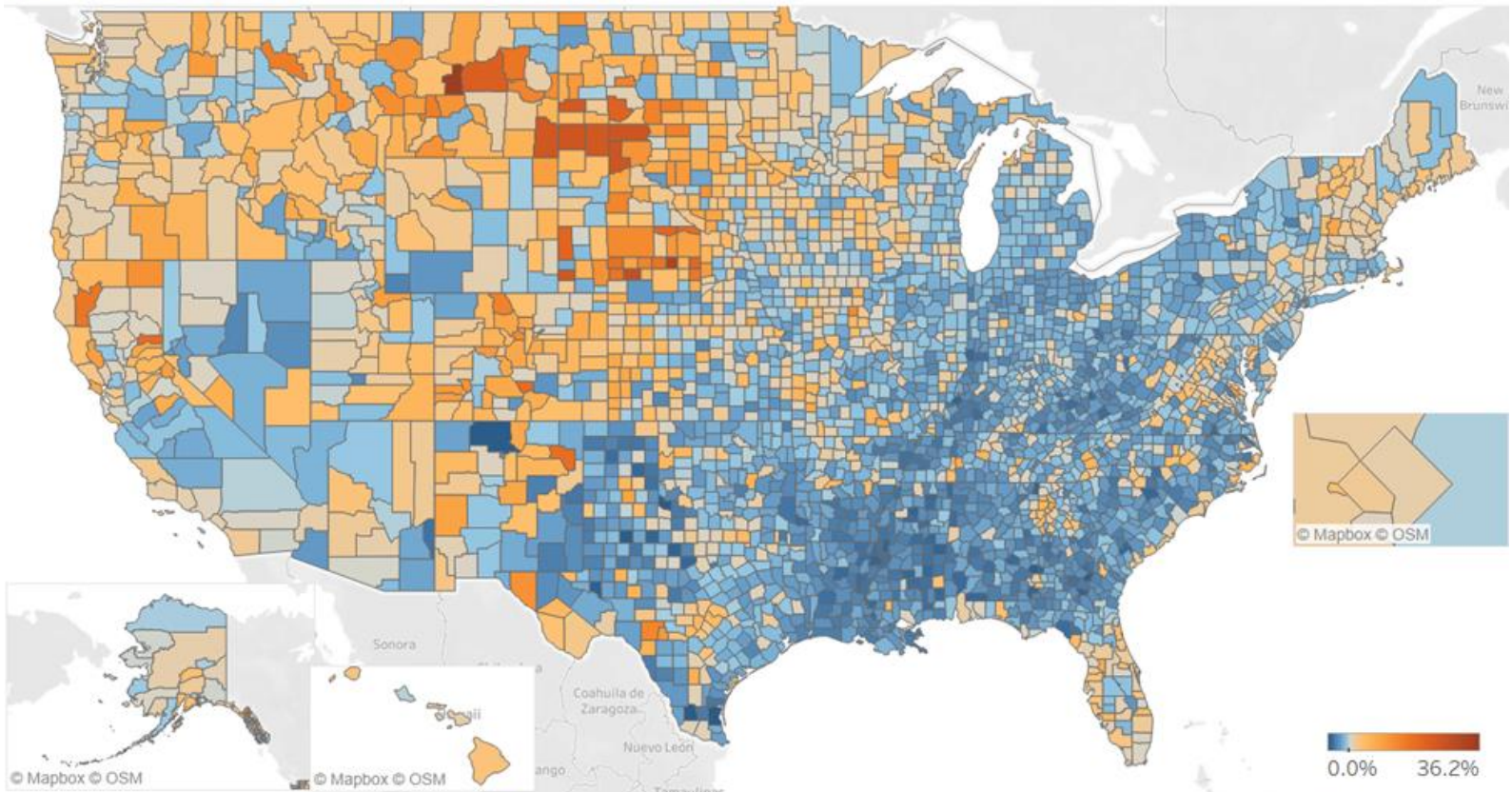
Based on the underlying factors, NAR estimated a Work from Home Score for 3,142 counties. A positive score (above 0) means that a county's score is in the top half of the distribution.
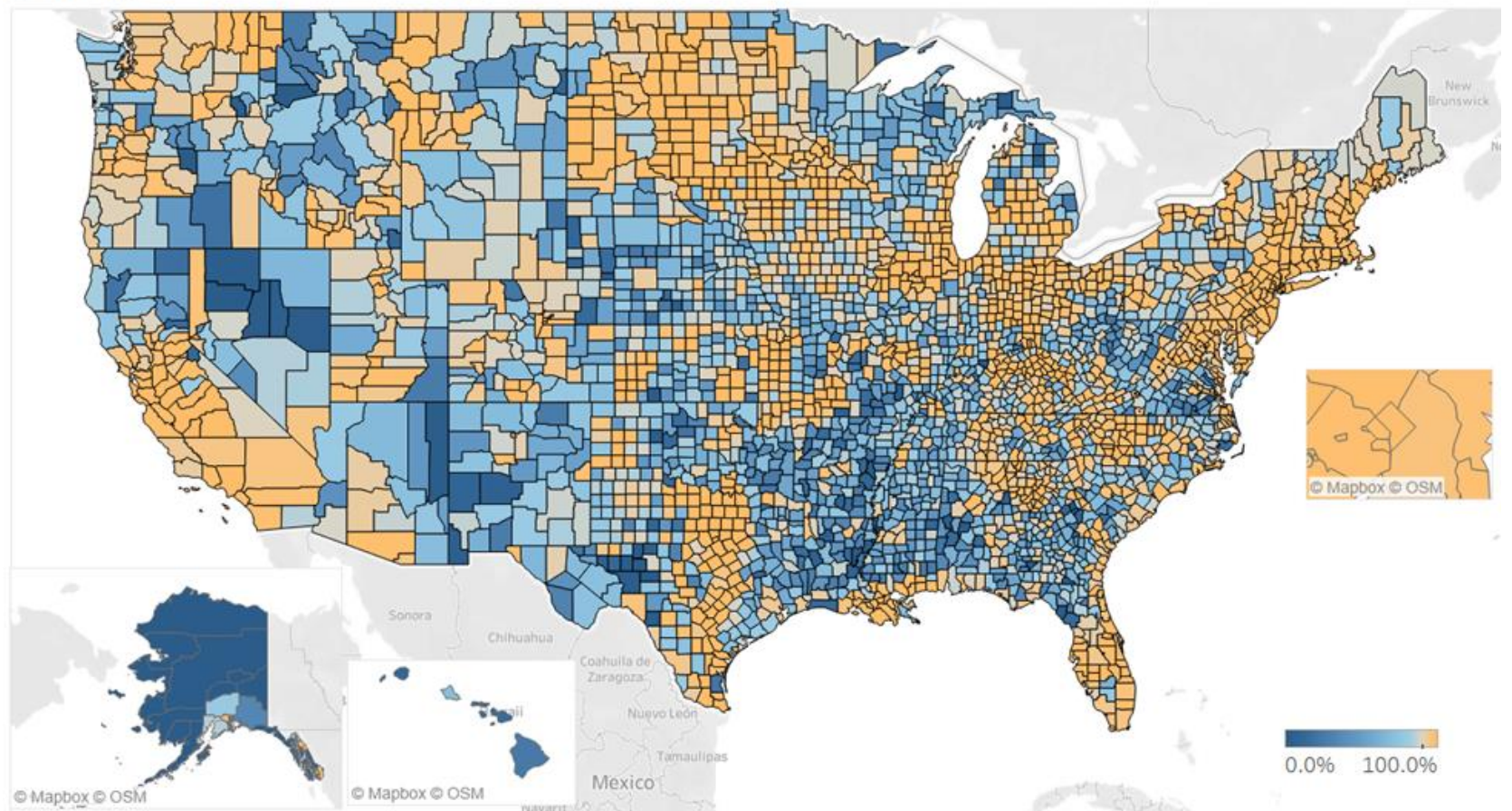
Percent of Workers Who Worked at Home During 2014-2018
(Orange areas: above 5%)

0.0% 36.2%

Source: US Census Bureau, American Community Survey, 5-year estimates Table B08141

Percent of Population with 3 or more Broadband Service Providers as of June 2019
(Orange areas: above 90%)

0.0% 100.0%

Source: Federal Communications Commission, June 2019 report

METHODOLOGY FOR CALCULATING THE NAR WORK FROM HOME SCORE

A z-score[5] was calculated for each of these factors and the z-scores were averaged, with the z-score for the current fraction of workers who work at home weighted twice[6]. This double weight gives a slightly higher preference for the current state of affairs. Factors #1-7 contribute positively to the average z-score while factors #8-9 contribute negatively to the z-score, because workers will likely prefer to work from home in relatively more affordable counties.

Z-scores that are greater than 0 means that these counties were at the upper half of the distribution of 3,142 counties. This score reflects conditions based on the latest available data. All data are calculated based on 2018 figures except for the percent of the population that has at least three broadband ISPs which is based on June 2019 data reported by the Federal Communications Commission and the percent change in the population of the county, which is estimated using 2019 figures compared to 2014 figures.

NAR will update this score at least once a year as underlying data sources are updated (US Census Bureau and FCC data).

5 The z-score for each factor is calculated by taking the mean and standard deviation for 3,142 counties and getting and estimating the standard z-score (level-mean divided by standard deviation). The overall score is then derived by averaging the z-scores with the weight for the current fraction of workers working from home multiplied by two. The z-scores for the home value to price ratio and the percent of homeowners who spend at least 30 percent of income on housing are multiplied by a negative value because less affordable counties should have a lower score than counties with more affordable housing.
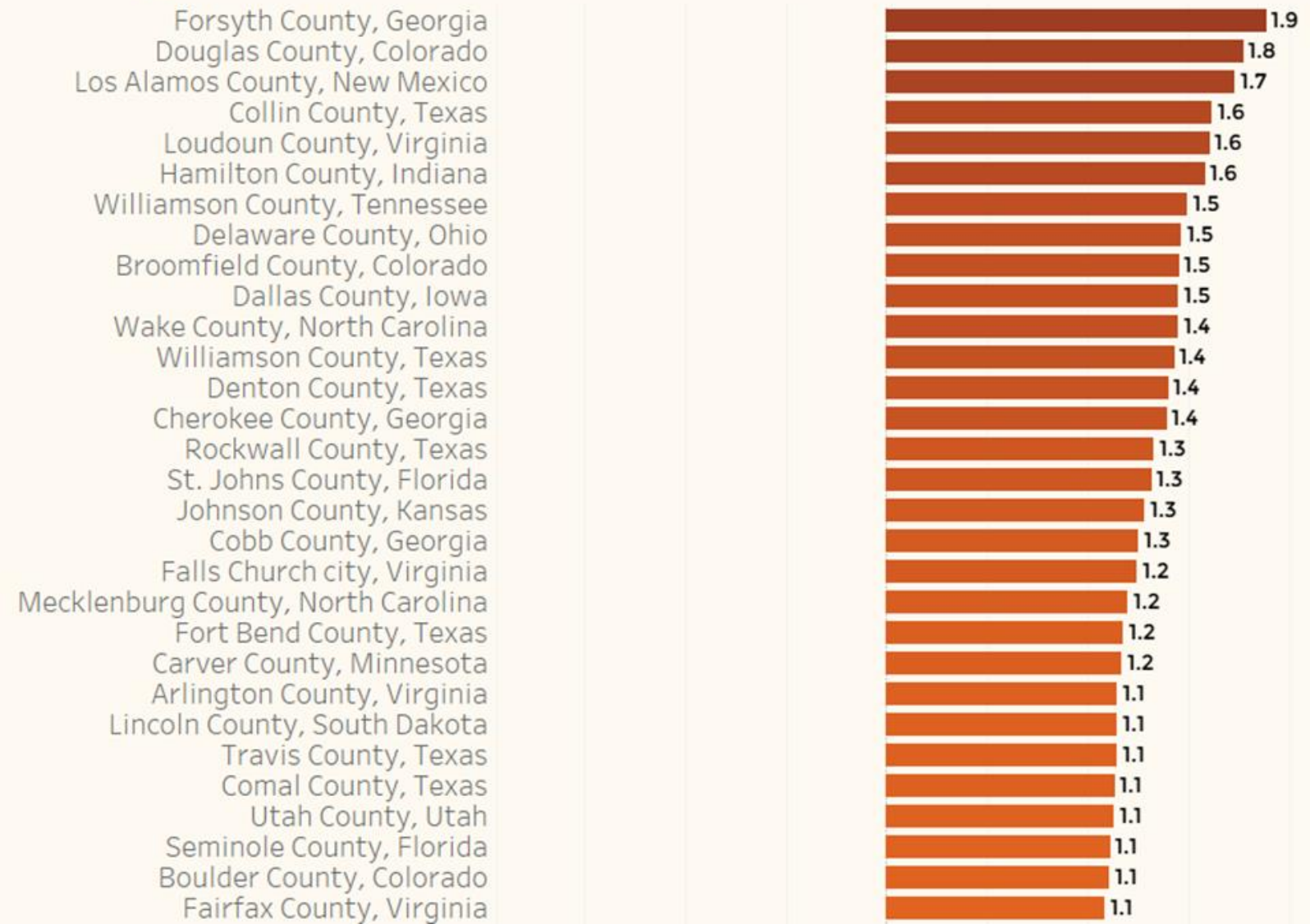
6 Housing data are missing for Kalawao County, Hawaii and Rio Arriba County, New Mexico

TOP 1% WORK FROM HOME COUNTIES

Among counties with at least 5,000 households as of 2019, below are the top 30 which represent about 1% of all counties.

Top Work from Home Counties
Among counties with at least 5,000 households

County	Value
Forsyth County, Georgia	1.9
Douglas County, Colorado	1.8
Los Alamos County, New Mexico	1.7
Collin County, Texas	1.6
Loudoun County, Virginia	1.6
Hamilton County, Indiana	1.6
Williamson County, Tennessee	1.5
Delaware County, Ohio	1.5
Broomfield County, Colorado	1.5
Dallas County, Iowa	1.5
Wake County, North Carolina	1.4
Williamson County, Texas	1.4
Denton County, Texas	1.4
Cherokee County, Georgia	1.4
Rockwall County, Texas	1.3
St. Johns County, Florida	1.3
Johnson County, Kansas	1.3
Cobb County, Georgia	1.3
Falls Church city, Virginia	1.2
Mecklenburg County, North Carolina	1.2
Fort Bend County, Texas	1.2
Carver County, Minnesota	1.2
Arlington County, Virginia	1.1
Lincoln County, South Dakota	1.1
Travis County, Texas	1.1
Comal County, Texas	1.1
Utah County, Utah	1.1
Seminole County, Florida	1.1
Boulder County, Colorado	1.1
Fairfax County, Virginia	1.1

THE FULL LIST OF COUNTIES CAN BE ACCESSED HERE.

TOP 1% WORK FROM HOME COUNTIES

The Work from Home Score captures the combination of several factors, but some factors stand out prominently in these counties:

Forsyth County, Georgia. Part of the Atlanta-Sandy Springs-Alpharetta metropolitan area, 11.3% of the workforce already work from home and 99% of the population is served by three or more broadband internet service providers (ISPs). It's a fast-growing area, and the population rose nearly 21% over the last five years.

Douglas County, Colorado. Part of the Denver-Aurora-Lakewood metropolitan area, 11.7% percent already work from home and 98% of the population is served by three or more broadband providers.

Los Alamos County, New Mexico. Part of the Los Alamos micropolitan area and the Albuquerque-Santa Fe-Las Vegas combined statistical area, less than 3% work from home but what stands out is that 68% of the workforce work in office-using industries. Homes are very affordable. It is affordable, with only 11% of the homeowners paying at least 30% of income on mortgage.

Collin County, Texas. Part of the Dallas-Fort Worth-Arlington metropolitan area, 8.6% of the workforce work from home, and its population expanded 17% from 2014 to 2019, indicating it is a fast-growing county.

Loudon County, Virginia. Part of the Washington-Arlington-Alexandria metropolitan area, 7.5% work from home, 44% work in office-using industries, and 100% of the population is served by at three or more ISPs.

Hamilton County, Indiana. Part of the Indianapolis-Carmel-Anderson metropolitan area, 8.3% work from home, 99% of the population is served by three or more ISPs. Housing is relatively affordable, with only 16% of homeowners with a mortgage spending at least 30% of income on housing.

Williamson County, Tennessee. Part of the Nashville-Davidson-Murfreesboro metropolitan area, 9.7% of the workforce already work from home, and it is affordable, with 20% of homeowners with a mortgage spending at least 30% of income on housing.

TOP 1% WORK FROM HOME COUNTIES

Delaware County, Ohio. Part of the Columbus metropolitan area, 8.1% work from home, 99% of the population is served by three or more ISPs, and it is affordable, with only 20% of homeowners with a mortgage spending at least 30% of income on housing.

Broomfield County, Colorado. Part of the Denver-Aurora-Lakewood metropolitan area, 9.9% work from home, 99% of the population live in an urban area, 94% is served by three or more ISPs, and its population has grown 14% in the last five years.

Dallas County, Iowa. Part of the Des Moines-West Des Moines metropolitan area,4.6% work from home, 39% work in office-using industries, and 97% of the population is served by at least three broadband ISPs. Its population increased 20% over the last five years, but house prices are very affordable, with only 15% of homeowners with a mortgage spending at least 30% of income on housing.

Wake County, North Carolina. Part of the Raleigh-Cary metropolitan area, 8.9% of the population already work from home and 99.8% of the population is served by at least three broadband ISPs. Its population has grown 11% in the last five years, but home prices are still affordable, with 20% of homeowners with a mortgage spending at least 30% of income on housing.

Williamson County, Texas. Part of the Austin-Round Rock-Georgetown metropolitan area, 7.9% work from home, and its population rose 21% over the last five years, indicating it is a dynamic county that is attracting movers from other places.

Denton County, Texas. Part of the Dallas-Fort Worth-Arlington metropolitan area, 7.2% work from home, and its population rose 18% over the last five years, indicating it is a dynamic county that is attracting movers from other places.

Cherokee County, Georgia. Part of the Atlanta-Sandy Springs-Alpharetta metropolitan area, 9.1% work from home, and 97.4% of the population is served by at least 3 broadband ISPs, with home prices that are affordable, with 22% of homeowners with a mortgage spending at least 30% of income on housing.

TOP 1% WORK FROM HOME COUNTIES

Rockwall County Texas. Part of the Dallas-Fort Worth-Arlington metropolitan area, 97.9% of the population is served by at least three broadband ISPs, and its population rose 21% in the past five years, showing it is a high growth county that is attracting movers from other places.

St. John's County, Florida. Part of the Jacksonville metropolitan area, 100% of the population is served by at least three broadband ISPs, and its population rose 22% in the past five years, which makes it a fast-growing area attractive to movers.

Johnson County, Kansas. Part of the Kansas City metropolitan area, 6.2% work from home, 100% of the population is served by at least three broadband ISPs, and home prices are affordable, with 19% of homeowners with a mortgage spending at least 30% of income on housing.

Cobb County Georgia. Part of the Atlanta-Sandy Springs-Alpharetta metropolitan area, 8.1% work from home, 98% of the population is served by at least three broadband ISPs, and 99.8% of the population live in an urban area, and 32% work in office-using industries.

Falls Church City, Virginia. Part of the Washington-Arlington-Alexandria metropolitan area, 7.8% work from home, 43% work in office-using industries, 98.6% of the population is served by at least three broadband ISPs, and 100% of the population live in an urban area. However, it is one of the more expensive areas, with nearly 30% of homeowners with a mortgage spending at least 30% of income on housing.

Mecklenburg County, North Carolina. Part of the Charlotte-Concord-Gastonia metropolitan area, 7.2% work from home, 100% of the population is served by at least three broadband ISPs, and 98.9% of the population live in an urban area.

Fort Bend County, Texas. Part of the Houston-The Woodlands-Sugar Land metropolitan area, 92.6% of the population is served by at least three broadband ISPs, and it experienced a nearly 19% increase in population over the last five years as of 2019, which have somewhat increased housing costs, with 26% of homeowners with a mortgage spending at least 30% of income on housing.

TOP 1% WORK FROM HOME COUNTIES

Carver County, Minnesota. Part of the Minneapolis-St. Paul-Bloomington metropolitan area, 6.8% work from home, 98% of the population is served by at least three broadband ISPs, and homes are affordable, with just nearly 19% of homeowners with a mortgage spending at least 30% of income on housing.

Arlington County, Virginia. Part of the Washington-Arlington-Alexandria metropolitan area 100% of the population live in an urban area, 6.6% of the workforce work from home, and 42% are in office-using industries. Even if house prices are comparatively higher than in other counties, income are also higher so that only 22% of homeowners with a mortgage spending at least 30% of income on housing.

Lincoln County, South Dakota. Part of the Sioux Falls metropolitan area, 94.8% of the population is served by at least three broadband ISPs. Among the top 1% of counties, it has one of the lowest share of housing units in an urban area, 71%, so housing costs are low relative to income, with only about 17% of homeowners with a mortgage spending at least 30% of income on housing. It has experienced a fast growth of nearly 19% in the last five years.

Travis County, Texas. Part of the Austin-Round Rock-Georgetown metropolitan area, 8.8% work from home, and 99.9% of the population is served by at least three broadband ISPs. Population rose by 11% in the last five years. However, it is one of the more expensive areas among the top 1% work from home counties, with nearly 28% of homeowners with a mortgage spending at least 30% of income on housing.

Comal County, Texas. Part of the San Antonio-New Braunfels metropolitan area, 7.3% work from home. Only 54% of households live in urban areas, but 99.2% of the population is served by least three broadband ISPs.

Utah County, Utah. Part of the Prove-Orem metropolitan area, 7% work from home, even if only 92.5% of the population is served by at least three broadband ISPs. It has experienced fast population growth in the last five years, with population up by 14% in 2019 from 2014.

TOP 1% WORK FROM HOME COUNTIES

Seminole County, Florida. Part of the Orlando-Kissimmee-Sanford metropolitan area, 7.3% work from home, and 100% of the population is served by at least three ISPs. However, this is a relatively expensive area, with nearly 30% of homeowners with a mortgage spending at least 30% of income on housing.

Boulder County, Colorado. Part of the Boulder metropolitan area, 11.5% work from home— the third highest among the top 1%— even if only 93.3% of the population is served by at least three ISPs. This is a relatively expensive area, with 26 % of homeowners with a mortgage spending at least 30% of income on housing.

Fairfax County, Virginia. Part of the Washington-Arlington-Alexandria metropolitan area, 6.4% work from home and 98.4% of the population is served by at least three ISPs. It has a relatively high fraction of workers in office-using jobs, at nearly 39% of the workforce. This is a relatively expensive area, with nearly 26% of homeowners with a mortgage spending at least 30% of income on housing.

THE FULL LIST OF COUNTIES CAN BE ACCESSED HERE.
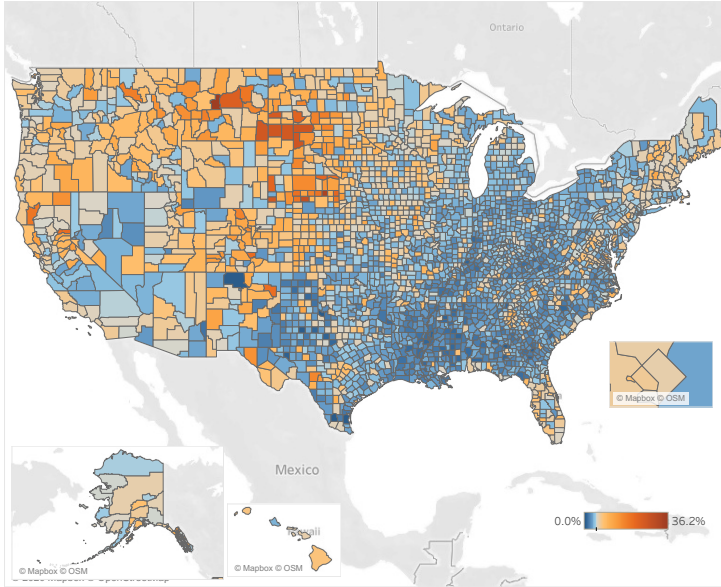
Top Work from Home Counties

5000 to 119730128
and Null values

Show scores by state.
All

Work from Home Score
0.0 to 2.4

Percent of Workers Who Worked at Home During 2014-2018
(Orange areas: above 5%)

0.0%   36.2%

Work from Home Score in All Counties

County	Score
Forsyth County, Georgia	1.9
Douglas County, Colorado	1.8
Los Alamos County, New Mexico	1.7
Collin County, Texas	1.6
Loudoun County, Virginia	1.6
Hamilton County, Indiana	1.6
Williamson County, Tennessee	1.5
Delaware County, Ohio	1.5
Broomfield County, Colorado	1.5
Dallas County, Iowa	1.5
Wake County, North Carolina	1.4
Williamson County, Texas	1.4
Denton County, Texas	1.4
Cherokee County, Georgia	1.4
Rockwall County, Texas	1.3
St. Johns County, Florida	1.3
Johnson County, Kansas	1.3
Cobb County, Georgia	1.3
Falls Church city, Virginia	1.2
Mecklenburg County, North Carolina	1.2
Fort Bend County, Texas	1.2
Carver County, Minnesota	1.2
Arlington County, Virginia	1.1
Lincoln County, South Dakota	1.1
Travis County, Texas	1.1
Comal County, Texas	1.1
Utah County, Utah	1.1
Seminole County, Florida	1.1
Boulder County, Colorado	1.1
Fairfax County, Virginia	1.1
Warren County, Ohio	1.1
Howard County, Maryland	1.1
Fulton County, Georgia	1.1

	Work from Home Score	Percent of workers who worked at home	Percent of households with desktop or laptop	Percent of households with broadband	Percent of population with 3 or more broadband ISPs	Percent of civilian workers in office-intensive industries	Percent of housing units in urban area	Percent chg. in population 2014-2019	Home price to income ratio	Percent homeowners with mortgage who spent at least 30% of income on housing
Forsyth County, Georgia	1.9	11.3%	91.5%	92.6%	99.0%	37.4%	89.5%	20.6%	3.2	21.7%
Douglas County, Colorado	1.8	11.7%	95.1%	95.5%	98.3%	38.6%	88.8%	11.6%	3.8	21.4%
Los Alamos County, New Mexico	1.7	2.5%	87.7%	86.1%	96.9%	67.8%	89.2%	8.8%	2.5	10.6%
Collin County, Texas	1.6	8.6%	91.3%	91.4%	99.4%	36.1%	94.8%	17.0%	3.1	23.0%
Loudoun County, Virginia	1.6	7.5%	93.6%	93.7%	100.0%	43.9%	86.7%	14.2%	3.6	23.1%
Hamilton County, Indiana	1.6	8.3%	91.3%	93.1%	99.9%	31.8%	94.2%	11.6%	2.6	16.0%
Williamson County, Tennessee	1.5	9.7%	92.0%	92.1%	94.1%	30.8%	79.6%	16.1%	3.8	20.2%
Delaware County, Ohio	1.5	8.1%	90.7%	92.1%	99.4%	34.3%	80.4%	10.4%	2.8	19.7%
Broomfield County, Colorado	1.5	9.9%	92.6%	92.3%	93.6%	31.2%	99.4%	14.1%	4.3	23.6%
Dallas County, Iowa	1.5	4.6%	87.7%	88.0%	97.2%	38.6%	68.7%	20.2%	2.7	14.8%
Wake County, North Carolina	1.4	8.9%	88.5%	89.7%	99.8%	33.1%	94.1%	11.4%	3.5	19.5%
Williamson County, Texas	1.4	7.9%	89.3%	91.0%	94.7%	27.0%	88.1%	21.0%	2.9	23.6%
Denton County, Texas	1.4	7.2%	89.4%	90.1%	99.9%	30.3%	93.0%	17.8%	3.1	23.7%
Cherokee County, Georgia	1.4	9.1%	88.3%	91.8%	97.4%	28.5%	82.2%	12.4%	2.9	21.5%
Rockwall County, Texas	1.3	6.5%	90.0%	91.3%	97.9%	24.2%	84.5%	20.5%	2.6	23.9%
St. Johns County, Florida	1.3	8.6%	87.3%	86.2%	100.0%	30.0%	77.4%	21.5%	3.7	28.0%
Johnson County, Kansas	1.3	6.2%	89.1%	91.3%	100.0%	34.4%	96.5%	5.1%	2.9	19.0%
Cobb County, Georgia	1.3	8.1%	88.2%	89.7%	98.0%	32.2%	99.8%	4.5%	3.2	22.4%
Falls Church city, Virginia	1.2	7.8%	95.9%	93.7%	98.6%	42.6%	100.0%	9.0%	6.1	29.9%
Mecklenburg County, North Carolina	1.2	7.2%	83.3%	86.5%	100.0%	34.0%	98.9%	9.9%	3.4	24.0%
Fort Bend County, Texas	1.2	5.3%	90.2%	91.7%	92.6%	23.2%	93.9%	18.7%	2.6	26.1%
Carver County, Minnesota	1.2	6.8%	89.6%	89.1%	98.0%	28.0%	81.5%	7.9%	3.1	18.5%
Arlington County, Virginia	1.1	6.6%	91.3%	90.3%	98.1%	42.0%	100.0%	4.8%	5.7	21.5%
Lincoln County, South Dakota	1.1	4.6%	88.8%	88.5%	94.8%	23.7%	71.2%	18.5%	2.7	17.3%
Travis County, Texas	1.1	8.8%	85.9%	86.5%	99.9%	30.5%	94.7%	10.6%	4.2	27.6%
Comal County, Texas	1.1	7.3%	82.9%	87.0%	99.2%	21.1%	53.6%	26.8%	3.5	24.0%
Utah County, Utah	1.1	7.0%	92.0%	86.4%	92.5%	27.8%	96.2%	13.5%	4.0	24.4%
Seminole County, Florida	1.1	7.3%	88.3%	89.4%	100.0%	32.3%	97.1%	6.9%	3.5	29.7%
Boulder County, Colorado	1.1	11.5%	90.4%	89.6%	93.3%	31.0%	89.2%	4.5%	5.9	26.0%
Fairfax County, Virginia	1.1	6.4%	92.2%	93.0%	98.4%	38.7%	98.7%	1.0%	4.5	25.9%
Warren County, Ohio	1.1	6.2%	87.4%	90.3%	97.9%	25.5%	82.6%	6.0%	2.5	19.4%
Howard County, Maryland	1.1	5.7%	92.2%	93.2%	96.4%	32.3%	91.8%	6.1%	3.8	24.9%
Fulton County, Georgia	1.1	8.2%	82.8%	83.1%	98.4%	36.9%	99.1%	7.3%	4.5	26.8%
St. Charles County, Missouri	1.1	5.5%	87.9%	88.3%	99.0%	26.1%	94.0%	5.8%	2.6	18.9%

NATIONAL ASSOCIATION OF REALTORS®

NATIONAL ASSOCIATION OF REALTORS®
RESEARCH GROUP

The Mission of the NATIONAL ASSOCIATION OF REALTORS® Research Group is to produce timely, data driven market analysis and authoritative business intelligence to serve members, and inform consumers, policymakers and the media in a professional and accessible manner.

To find out about other products from NAR's Research Group, visit www.nar.realtor/research-and-statistics.

NATIONAL ASSOCIATION OF REALTORS®
RESEARCH GROUP
500 New Jersey Avenue, NW
Washington, DC 20001
202.383.1000