S/P/R
STATE POLICY REPORTS

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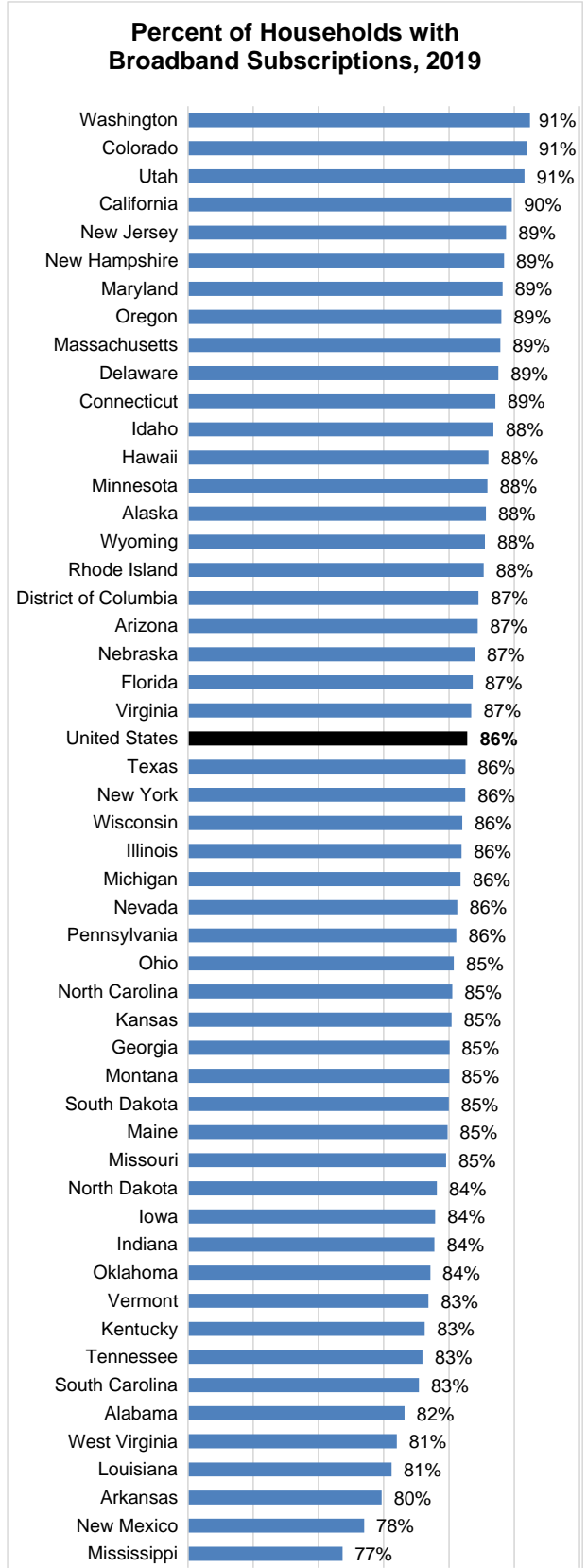
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MAPPING AND BRIDGING THE DIGITAL DIVIDE

Among the many challenges of the COVID-19 pandemic was the move to remote work and learning in communities across the country. It highlighted glaring insufficiencies in the ability of many students, workers, and communities to reliably access the internet. Even before the pandemic, Congress was working to bridge the digital divide, but its efforts have accelerated. Recent federal legislation has established and funded several programs—totaling more than $62 billion—aiming to close the digital divide by getting broadband internet service to those currently lacking it.

THE DIVIDE

Estimates of the size of the problem vary significantly, in part reflecting differences in what is being measured. Consider the following:

- The U.S. Census Bureau's American Community Survey (ACS) reports that in 2019, 14% of U.S. households lacked a broadband subscription. The chart on the right shows ACS data by state.
- In contrast, Microsoft reported that its data from September 2018 showed 48% of the U.S. population was not using broadband.
- BroadbandNow—a research organization— reports that in 2021, 13% of the U.S. population lacks broadband *access* (i.e., the option to purchase it).
- The Federal Communications Commission (FCC) reported that as of the end of 2019, only 4% of the U.S. population lacked broadband access, reflecting its very different measurement methodology (discussed further below). The chart on page 3 compares the FCC and BroadbandNow estimates of broadband access by state.

Percent of Households with Broadband Subscriptions, 2019

State	Percent
Washington	91%
Colorado	91%
Utah	91%
California	90%
New Jersey	89%
New Hampshire	89%
Maryland	89%
Oregon	89%
Massachusetts	89%
Delaware	89%
Connecticut	89%
Idaho	88%
Hawaii	88%
Minnesota	88%
Alaska	88%
Wyoming	88%
Rhode Island	88%
District of Columbia	87%
Arizona	87%
Nebraska	87%
Florida	87%
Virginia	87%
United States	**86%**
Texas	86%
New York	86%
Wisconsin	86%
Illinois	86%
Michigan	86%
Nevada	86%
Pennsylvania	86%
Ohio	85%
North Carolina	85%
Kansas	85%
Georgia	85%
Montana	85%
South Dakota	85%
Maine	85%
Missouri	85%
North Dakota	84%
Iowa	84%
Indiana	84%
Oklahoma	84%
Vermont	83%
Kentucky	83%
Tennessee	83%
South Carolina	83%
Alabama	82%
West Virginia	81%
Louisiana	81%
Arkansas	80%
New Mexico	78%
Mississippi	77%

Source: Census Bureau

- Looking deeper, a Pew Research Center survey in early 2021 found that 23% of urban adults, 28% of rural adults, and 43% of low-income adults (urban and rural) did not have home broadband service.
- A study by the Joint Center for Political and Economic Studies found that, according to 2015-2019 data from the ACS, 38% of African Americans in the Black Rural South (rural southern counties that are at least 35% African American) lacked home broadband, compared to 23% of White Americans in those areas, 22% of African Americans nationwide, 22% of rural residents outside of the South, and 18% of all Americans.
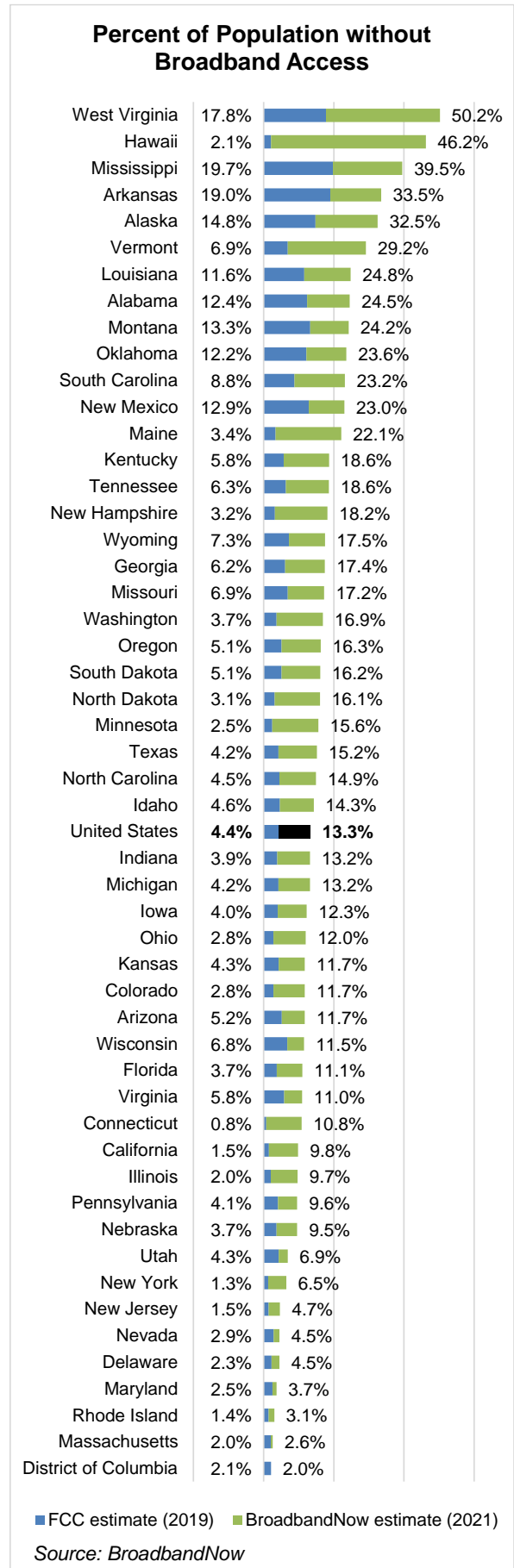
SPEED

Some of the differences in these estimates stem from different definitions of broadband. The FCC sets the bar at service providing a minimum download speed of 25 megabits per second (Mbps) and a minimum upload speed of 3 Mbps (commonly referred to as "25/3 Mbps" service). It set that standard in 2015, however, and in recent legislation Congress has indicated that such service is inadequate.

The Infrastructure Investment and Jobs Act (IIJA), enacted in November 2021, defines any area lacking internet service of at least 100/20 Mbps as underserved, and requires new broadband service installed with federal assistance provided under the IIJA to meet that standard.

PROGRAMS

The IIJA and other recently enacted federal laws include programs to speed up the closing of the digital divide by subsidizing both the buildout of "middle-mile" infrastructure (infrastructure that does not connect directly to an end-user location) and the provision of broadband to households and institutions such as schools, libraries, and hospitals
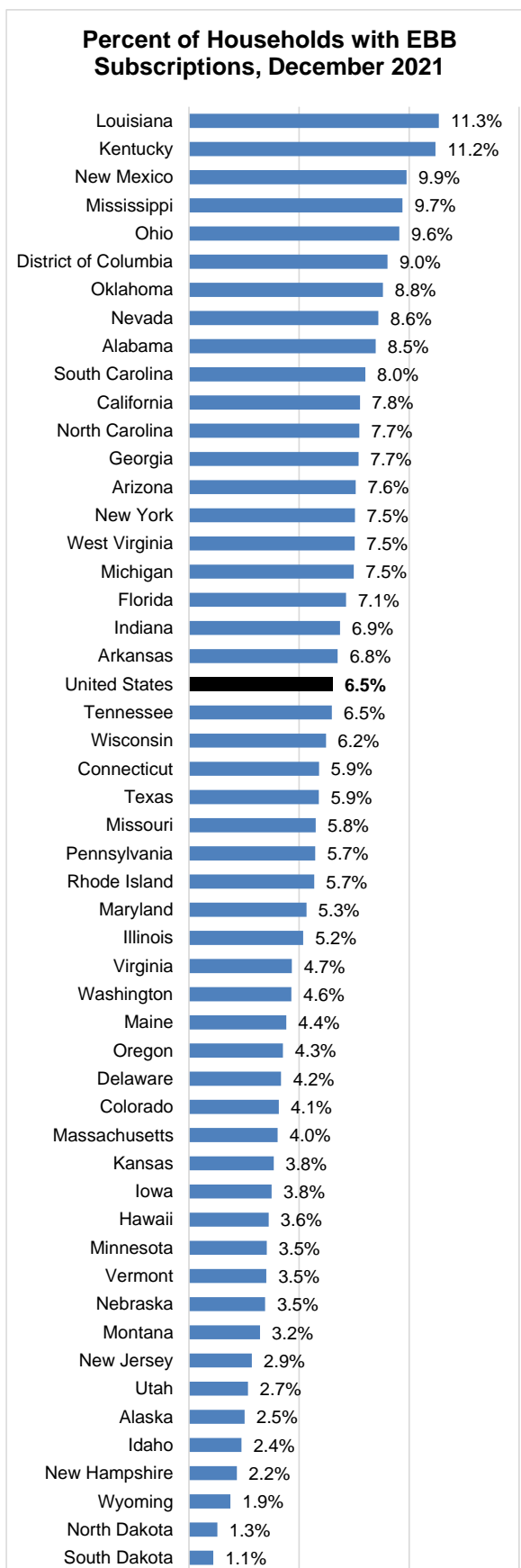
Percent of Population without Broadband Access

State	FCC estimate (2019)	BroadbandNow estimate (2021)
West Virginia	17.8%	50.2%
Hawaii	2.1%	46.2%
Mississippi	19.7%	39.5%
Arkansas	19.0%	33.5%
Alaska	14.8%	32.5%
Vermont	6.9%	29.2%
Louisiana	11.6%	24.8%
Alabama	12.4%	24.5%
Montana	13.3%	24.2%
Oklahoma	12.2%	23.6%
South Carolina	8.8%	23.2%
New Mexico	12.9%	23.0%
Maine	3.4%	22.1%
Kentucky	5.8%	18.6%
Tennessee	6.3%	18.6%
New Hampshire	3.2%	18.2%
Wyoming	7.3%	17.5%
Georgia	6.2%	17.4%
Missouri	6.9%	17.2%
Washington	3.7%	16.9%
Oregon	5.1%	16.3%
South Dakota	5.1%	16.2%
North Dakota	3.1%	16.1%
Minnesota	2.5%	15.6%
Texas	4.2%	15.2%
North Carolina	4.5%	14.9%
Idaho	4.6%	14.3%
United States	**4.4%**	**13.3%**
Indiana	3.9%	13.2%
Michigan	4.2%	13.2%
Iowa	4.0%	12.3%
Ohio	2.8%	12.0%
Kansas	4.3%	11.7%
Colorado	2.8%	11.7%
Arizona	5.2%	11.7%
Wisconsin	6.8%	11.5%
Florida	3.7%	11.1%
Virginia	5.8%	11.0%
Connecticut	0.8%	10.8%
California	1.5%	9.8%
Illinois	2.0%	9.7%
Pennsylvania	4.1%	9.6%
Nebraska	3.7%	9.5%
Utah	4.3%	6.9%
New York	1.3%	6.5%
New Jersey	1.5%	4.7%
Nevada	2.9%	4.5%
Delaware	2.3%	4.5%
Maryland	2.5%	3.7%
Rhode Island	1.4%	3.1%
Massachusetts	2.0%	2.6%
District of Columbia	2.1%	2.0%

■ FCC estimate (2019)   ■ BroadbandNow estimate (2021)

Source: BroadbandNow

and their students, patrons, and patients. For example:

- The IIJA establishes the Broadband Equity, Access, and Deployment (BEAD) Program, with $42.5 billion for grants to states for broadband deployment, mapping, and adoption projects.
- The Emergency Broadband Benefit (EBB) program, established in the FY 2021 budget, subsidizes broadband service and related devices for households. The bill provided $3.2 billion, $1.1 billion of which has been awarded. The chart on the right shows the percentage of households in each state with an EBB subscription. The IIJA transitions this short-term program to a long-term one called the Broadband Affordability Program, with $14.2 billion in funding.
- The Emergency Connectivity Fund, established by the American Rescue Plan (ARP) to fund broadband and devices for schools and libraries to enable remote learning, received $7.2 billion in that bill, $3.2 billion of which has been awarded thus far.

In addition, broadband infrastructure is an allowed use for hundreds of billions of dollars in general infrastructure funding provided to states and localities in the ARP and earlier COVID relief bills.

MAPS

As federal agencies and states try to deploy these large streams of funding effectively and efficiently, they are faced with a key need: accurate data on where broadband service is currently available and in use, and where it is not. For many years, maps of broadband coverage available from the FCC have been based on census blocks, with an entire block counted as having broadband access if just one location in the block does.

Percent of Households with EBB Subscriptions, December 2021

State	Percent
Louisiana	11.3%
Kentucky	11.2%
New Mexico	9.9%
Mississippi	9.7%
Ohio	9.6%
District of Columbia	9.0%
Oklahoma	8.8%
Nevada	8.6%
Alabama	8.5%
South Carolina	8.0%
California	7.8%
North Carolina	7.7%
Georgia	7.7%
Arizona	7.6%
New York	7.5%
West Virginia	7.5%
Michigan	7.5%
Florida	7.1%
Indiana	6.9%
Arkansas	6.8%
United States	**6.5%**
Tennessee	6.5%
Wisconsin	6.2%
Connecticut	5.9%
Texas	5.9%
Missouri	5.8%
Pennsylvania	5.7%
Rhode Island	5.7%
Maryland	5.3%
Illinois	5.2%
Virginia	4.7%
Washington	4.6%
Maine	4.4%
Oregon	4.3%
Delaware	4.2%
Colorado	4.1%
Massachusetts	4.0%
Kansas	3.8%
Iowa	3.8%
Hawaii	3.6%
Minnesota	3.5%
Vermont	3.5%
Nebraska	3.5%
Montana	3.2%
New Jersey	2.9%
Utah	2.7%
Alaska	2.5%
Idaho	2.4%
New Hampshire	2.2%
Wyoming	1.9%
North Dakota	1.3%
South Dakota	1.1%

Source: FCC/Universal Service Administrative Co.

This approach is increasingly recognized as insufficiently granular: census blocks are simply too large for the purpose, and unserved locations are missed. In urban settings, census blocks often constitute a single city block, within which apartment buildings can contain residences for as many as several hundred people. Rural census blocks can contain many distinct residences and/or places of business, with the largest blocks covering hundreds of square miles.

The chart on page 3 illustrates the problem: in every jurisdiction except the **District of Columbia** the FCC estimate of unserved locations is lower—sometimes dramatically so—than BroadbandNow's more granular estimate.

Recognition of this problem led to passage of the Broadband DATA Act in 2020, directing the FCC to create more granular maps showing broadband availability at the level of individual structures as opposed to census blocks. The FCC must also provide a system for incorporating challenges and corrections to the maps from states, localities, and tribes.

A recent report from the Government Accountability Office (GAO) examines the FCC's progress to date. The task of creating maps is proving to be challenging, starting with the creation of a "location fabric"—a dataset of all locations or structures that could be served by broadband—upon which to overlay the data on current broadband connections.

While three federal agencies already have national address databases, two of them (Postal Service and Census Bureau) have statutory restrictions on their uses for public consumption. This is a barrier to use by the FCC, whose maps must be publicly available by statute. The third existing database, from the Department of Transportation, lacks data for at least 14 states. Therefore, while these databases may be useful, they will not by themselves be enough. The GAO report identifies four types of data the FCC will

need to use to create a complete, accurate location fabric:

1. county parcel data
2. county property tax data
3. building footprints
4. addresses with geocoordinates

The DATA Act stipulates no clear deadline for producing the location fabric and broadband maps. The GAO report notes that the FCC issued a request for proposals to create the location fabric this summer with a July 1 deadline and says the FCC plans to award the winning company a one-year contract to develop the location fabric with the option of four additional years to provide semiannual updates to it. *Politico* has reported that the FCC awarded the contract but that the award is being challenged by one of the companies not chosen, potentially delaying the process.

Observers are reportedly not expecting new maps to be rolled out until mid- to late 2022. While funds for the EBB/Affordable Connectivity Program, the Emergency Connectivity Program, and others not dependent on the new maps will continue to flow, the rollout of the largest new grant program, the IIJA's BEAD program, is explicitly dependent on the new maps. So, the pressure—$42.5 billion worth of it, to be precise—is on.

WRENCHES IN THE CENSUS

While no census is perfect, the past decade has thrown many atypical wrenches into the Census Bureau's efforts to count the U.S. population. A recent report from the Urban Institute examines these wrenches in an attempt to quantify the accuracy and fairness of the 2020 decennial census.

The authors identify numerous factors that have made the 2020 count particularly challenging to evaluate. They include:

- Increasing populations in traditionally hard-to-count demographics

- Falling homeownership
- Politicization of the count, including attempts to add a citizenship question
- Challenges due to COVID-19 and natural disasters during the count
- Operational changes, such as the introduction of an internet-based response option
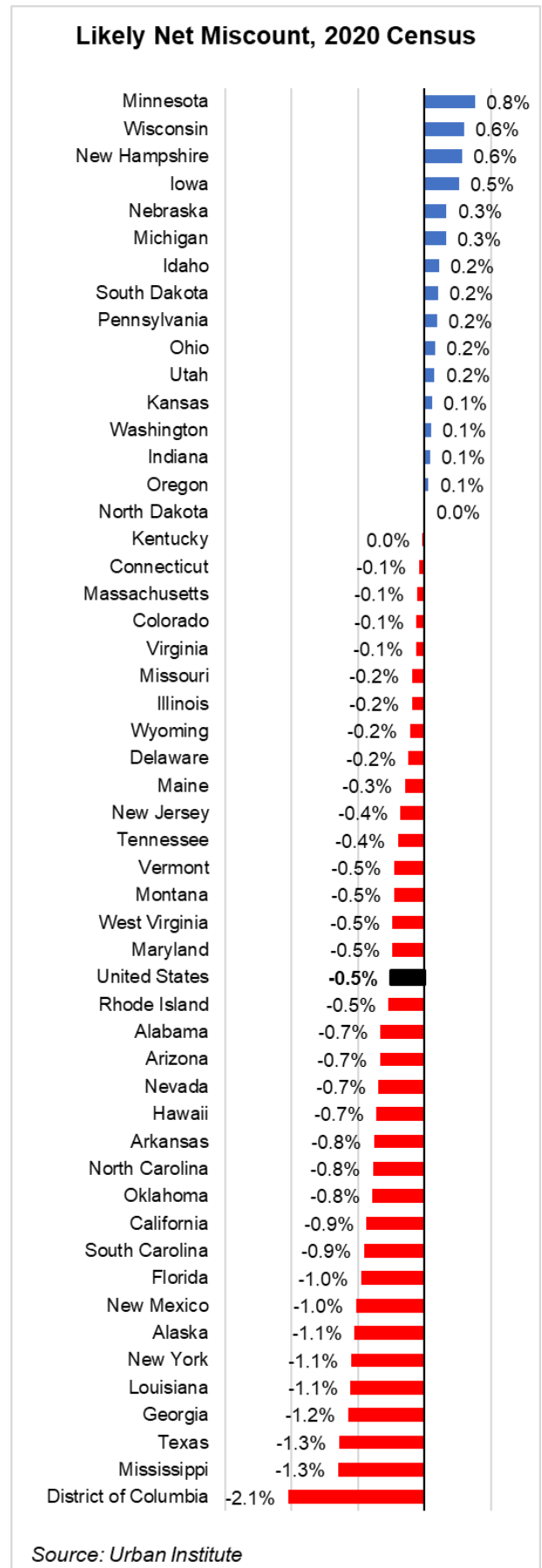
Using projected populations adjusted for a number of variables, researchers ran computer simulations of the 2020 census. First, they replicated factors known to produce miscounts to estimate how accurate the census was. Then, they simulated a hypothetical count of the true population (i.e., without miscounting) to compare different demographic groups and geographic areas.

MISCOUNTS BY STATE

After simulating a census count replicating miscounting factors, the report estimates that the 2020 census had 4.1% erroneous omissions and 3.6% erroneous inclusions, resulting in a national net undercount of 0.51%. This amounts to a likely undercount of 1.68 million people – less than some analysts feared, but still significant. For comparison, the Census Bureau's own Post-Enumeration Survey (PES) after the 2010 census estimated 3.3% erroneous omissions and 3.3% erroneous inclusions, amounting to a near-zero net miscount.

As shown in the chart on the right, likely miscounts in the 2020 census varied greatly by state. Fifteen states had net overcounts, led by a 0.8% overcount in **Minnesota**. Nearly all midwestern states fell into this category, excluding relatively minor undercounts in **Illinois**, **Missouri**, and **North Dakota** (the last of which rounded to zero).

By contrast, all southern states likely had net population undercounts. The **District of Columbia** had the largest likely net undercount (2.1%) and

Likely Net Miscount, 2020 Census

State	Miscount
Minnesota	0.8%
Wisconsin	0.6%
New Hampshire	0.6%
Iowa	0.5%
Nebraska	0.3%
Michigan	0.3%
Idaho	0.2%
South Dakota	0.2%
Pennsylvania	0.2%
Ohio	0.2%
Utah	0.2%
Kansas	0.1%
Washington	0.1%
Indiana	0.1%
Oregon	0.1%
North Dakota	0.0%
Kentucky	0.0%
Connecticut	-0.1%
Massachusetts	-0.1%
Colorado	-0.1%
Virginia	-0.1%
Missouri	-0.2%
Illinois	-0.2%
Wyoming	-0.2%
Delaware	-0.2%
Maine	-0.3%
New Jersey	-0.4%
Tennessee	-0.4%
Vermont	-0.5%
Montana	-0.5%
West Virginia	-0.5%
Maryland	-0.5%
United States	**-0.5%**
Rhode Island	-0.5%
Alabama	-0.7%
Arizona	-0.7%
Nevada	-0.7%
Hawaii	-0.7%
Arkansas	-0.8%
North Carolina	-0.8%
Oklahoma	-0.8%
California	-0.9%
South Carolina	-0.9%
Florida	-1.0%
New Mexico	-1.0%
Alaska	-1.1%
New York	-1.1%
Louisiana	-1.1%
Georgia	-1.2%
Texas	-1.3%
Mississippi	-1.3%
District of Columbia	-2.1%

Source: Urban Institute

seven states had likely net undercounts of 1% or greater. (**Florida's** 0.95% undercount rounds to 1% on the chart.)

Several of the most populous states are likely to have experienced large undercounts, including **Texas** (1.3%), **Georgia** (1.2%), **New York** (1.1%), **Florida** (1.0 %), and **California** (0.9%). In fact, the likely net undercounts in **Texas** and **California** each accounted for more than 20% of the national likely net miscount, as shown below.

Share of Likely Net Miscount, 2020 Census

Source: Urban Institute
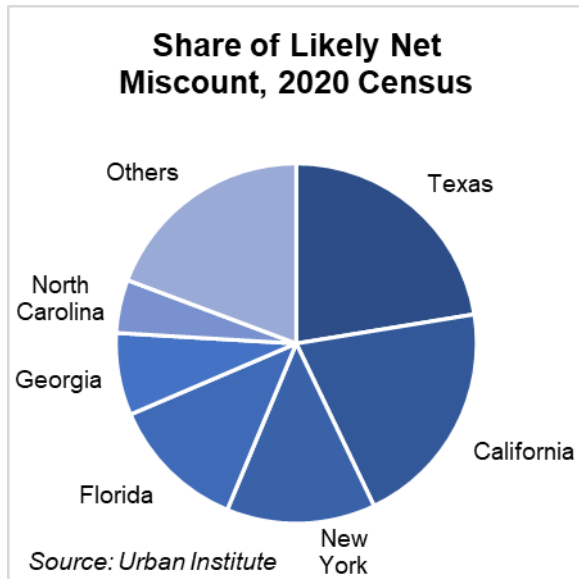
In addition to states, the study authors examined the 20 largest metropolitan areas. Areas with large likely undercounts included Miami (1.7%), Los Angeles (1.4%), Houston (1.4%), New York City (1.2%), Dallas-Fort Worth (1%), Riverside (1%), and Atlanta (1%). On the flip side, the Twin Cities metropolitan area had by far the largest likely overcount (1.1%). According to the authors, differences among these areas reflect diverse populations and differing self-response rates.

MISCOUNTS AMONG DEMOGRAPHIC GROUPS
The study also looked at how various demographic groups may have been miscounted. According to historical data, groups miscounted in the past include people of color, renters, and young children. The authors also cite research demonstrating lower self-response rates in 2020

among households with noncitizens, likely due in part to efforts to add a citizenship question.

When examining the simulated census data, the authors found similar patterns. According to the study:

- Black and Hispanic populations likely had net undercounts of 2.5% and 2.2%.
- Children under age 5 likely had a net undercount of 4.9%.
- Renters likely had a net undercount of 2.1%.
- Members of households with noncitizens likely had a net undercount of 3.4%.

The implications of these findings are significant. For example, the authors note that existing patterns of residential segregation mean that communities of color may miss out on their fair share of resources.

Implications for Medicaid Funding. States and the federal government split the cost of Medicaid. The federal share is an important source of federal funding for states. Each state's federal share, known as its federal medical assistance percentage (FMAP), is determined annually by its relative per capita personal income. As a result, a state's population can have a big impact on how much money it receives.

Recognizing this, the study's authors calculated each state's fiscal year (FY) 2021 federal Medicaid reimbursements under the hypothetical no-miscount scenario and compared them to figures calculated with actual census counts. Notably, they used preliminary 2020 estimates of state personal income in their calculations, rather than three-year averages of older data. (The actual FY 2021 FMAPs were based on per capita personal income from 2016-2018.) The authors also omitted additional adjustments to the FMAPs, including the temporary 6.2 percentage-point increase provided in response to the COVID-19 pandemic. The authors emphasize that while the calculations are
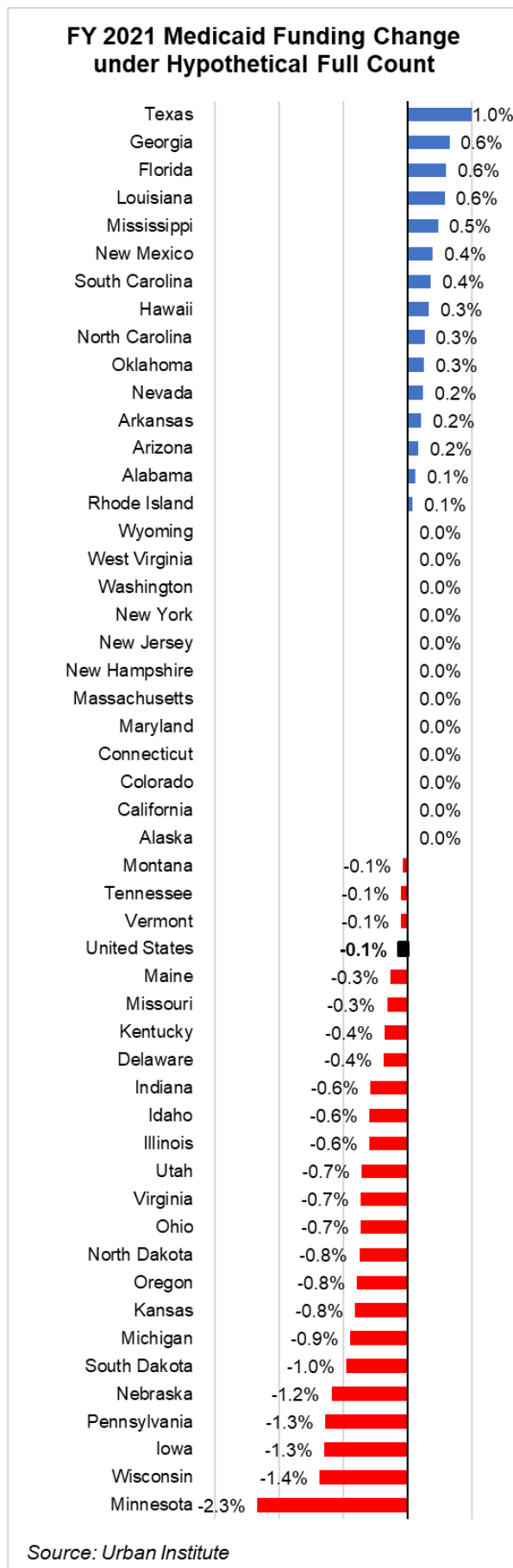
illustrative, they are nevertheless instructive in revealing how a fairer census could theoretically affect Medicaid reimbursements.

When compared to their actual 2020 census calculation, the author's hypothetical, no-miscount simulation would have slightly reduced FY 2021 federal Medicaid reimbursements to states overall. As the chart on the right shows, these changes would vary greatly by state. Given **Minnesota**'s likely large overcount—combined with undercounts in other states—a fairer census could have caused it to lose more than 2% of its federal Medicaid funding. Meanwhile, **Texas**'s federal funding would have increased by nearly 1% under the hypothetical full count. States with high per capita personal incomes wouldn't change, as they would remain at the statutory FMAP floor of 50%.

CONCLUSIONS

Though the report provides insight into the accuracy and fairness of the 2020 census, the authors urge caution in interpreting its results. There is, of course, no way to know what the true results of the 2020 census should have been. The various older data sources used in the report, which themselves are subject to error, had to be projected into the future so that population totals would align with April 1, 2020. Unique factors in 2020 such as internet responses, pandemic-related population movements, and the political environment could not be incorporated into the analysis. These issues, among others, suggest that the report's results are subject to large amounts of error.

The Census Bureau is currently conducting the PES for the 2020 census, which will shed more light on the count's accuracy and allow the study authors to further refine their simulations. By independently surveying a random sample of households through the PES, the Census Bureau will be able to estimate miscount rates more accurately. Like many other components of the 2020 census, data collection has been significantly

FY 2021 Medicaid Funding Change under Hypothetical Full Count

State	Change
Texas	1.0%
Georgia	0.6%
Florida	0.6%
Louisiana	0.6%
Mississippi	0.5%
New Mexico	0.4%
South Carolina	0.4%
Hawaii	0.3%
North Carolina	0.3%
Oklahoma	0.3%
Nevada	0.2%
Arkansas	0.2%
Arizona	0.2%
Alabama	0.1%
Rhode Island	0.1%
Wyoming	0.0%
West Virginia	0.0%
Washington	0.0%
New York	0.0%
New Jersey	0.0%
New Hampshire	0.0%
Massachusetts	0.0%
Maryland	0.0%
Connecticut	0.0%
Colorado	0.0%
California	0.0%
Alaska	0.0%
Montana	-0.1%
Tennessee	-0.1%
Vermont	-0.1%
United States	**-0.1%**
Maine	-0.3%
Missouri	-0.3%
Kentucky	-0.4%
Delaware	-0.4%
Indiana	-0.6%
Idaho	-0.6%
Illinois	-0.6%
Utah	-0.7%
Virginia	-0.7%
Ohio	-0.7%
North Dakota	-0.8%
Oregon	-0.8%
Kansas	-0.8%
Michigan	-0.9%
South Dakota	-1.0%
Nebraska	-1.2%
Pennsylvania	-1.3%
Iowa	-1.3%
Wisconsin	-1.4%
Minnesota	-2.3%

Source: Urban Institute

delayed, and final results are not expected until summer 2022.

All this is not to say that the study is useless – far from it. The report tells us that the 2020 census likely undercounted the country's population overall, and that miscounts probably varied significantly by state and among demographic groups. And while the 2020 counts are final and cannot be changed, the report offers lessons for future censuses. The authors offer the following recommendations in advance of the 2030 census:

- Researchers should study how operational changes might increase miscount rates.
- State and local governments should support census count efforts as completely as possible.

- The Census Bureau should be adequately funded, including in off-years when planning occurs.

The authors conclude the report as follows: "The 2020 Census may have happened in an anomalous year. There may never be another census conducted amidst attempts to politicize it and as the country shuts down because of a pandemic. What is known, however, is that fully counting the nation's population is becoming increasingly complicated. Innovations are needed to better understand the quality of the census count, its fairness, and its implications for the following decade."

TECHNICAL NOTES

Broadband:
Census:
https://data.census.gov/cedsci/table?q=households&g=0100000US%240400000&tid=ACSDP1Y2019.DP02.
BroadbandNow:
https://broadbandnow.com/research/fcc-broadband-overreporting-by-state.
FCC: www.fcc.gov/reports-research/reports/broadband-progress-reports;

www.usac.org/about/emergency-broadband-benefit-program/emergency-broadband-benefit-program-enrollments-and-claims-tracker/.

Other referenced sources are available from FFIS upon request.

Census:
www.urban.org/sites/default/files/publication/104961/simulating-the-2020-census.pdf.

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STATE POLICY REPORTS

c/o Federal Funds Information for States
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