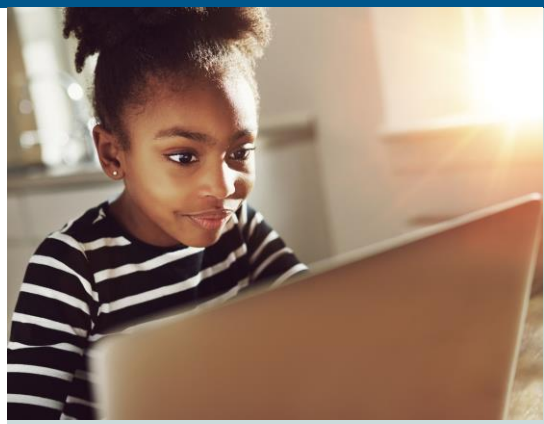
CHANGES IN CHILDREN'S HOUSEHOLD BROADBAND ACCESS, 2019-2021

Rebecca Frausel, Ph.D. and Nathan Burroughs, Ph.D.



The COVID-19 pandemic prompted a swift nationwide transition to online schooling as a way to maintain learning despite school building closures. However, not all children have household access to broadband internet and a web-enabled device such as a computer or tablet—necessities if they are to fully engage in remote learning (or "full access"). In 2019, 1 in 5 children (22%) lived in households without access to broadband internet, defined by the Federal Communications Commission as internet that is always on and faster than traditional dial-up.[1]

Children in urban and rural areas alike can experience access issues, yet the "digital divide" is particularly prevalent in under-resourced school districts and communities that primarily serve low-income and racial/ethnic minority families, potentially hindering their school success and reinforcing historic inequalities. In 2019, 39% of children in families living below the federal poverty line and 32% of children in families living in non-metropolitan areas did not have household access to broadband internet.

In the wake of the pandemic, federal, state, and local policies sought to increase digital equity. These policies aimed to not only improve students' access to digital learning resources, but also to connect households with virtual jobs, online health care, and more. For example, the Emergency Broadband Benefit[2] (EBB) was a Federal Communications Commission (FCC) program launched on May 12, 2021[3] that helped low-income households afford internet service during the COVID-19 pandemic.

A first step toward closing the digital divide begins by examining how many households with school-aged children have broadband internet access. We used data from the American Community Survey (ACS) to compare access to broadband internet for U.S. households with children ages 5-17 from before the pandemic (2019) to after the pandemic (2021). We examined changes in access overall, by demographic group (type of school children attend, family income, homeowner status, children's race/ethnicity, and parental education), and by geography (metropolitan area residence and state).

2021 SAW BROADBAND ACCESS EXPAND

Between 2019 and 2021, the percentage of school-aged children in U.S. households who had access to broadband internet at home increased 5% from 78% to 83%.

An additional 2.4 million children reported household broadband access in 2021 who lacked it in 2019. Gains in access to broadband are particularly pronounced for the highest need groups, but the digital divide persists.

To learn more about household broadband access or PPA's work on education issues, contact Daniel Quinn at 202-854-8077 or dquinn@publicpolicy.com.

Public Policy Associates

An additional 2.4 million children had broadband in 2021 who lacked access in 2019.

Gains in access between 2019 and 2021 (4%-5%) and access in 2021 (83%-84%) are similar regardless of children's school type (pre-K, elementary, middle, and high school).

The 5% increase between 2019 and 2021 stands in contrast to the lack of change in access between 2018[4] (77%) and 2019 (78%).

Increases in broadband access occurred in every demographic subgroup and every state. While these gains are significant and a step in the right direction, 17% of children in the United States in 2021, or 9.1 million children, lived in households without broadband. Increasing broadband access for children in economically disadvantaged households could play a role in helping children to succeed academically and leveraging that into greater economic prosperity for themselves and the next generation.

Unequal Access: Breaking Down Broadband Disparities by Demography and Geography

Broadband access in 2021 reflects historic divisions of income, wealth, race/ethnicity, parent educational attainment, and geography, but the gaps are beginning to narrow.

Household Income and Homeownership

One of the starkest digital divides exists between families above and below the poverty line, with an access gap of 21 percentage points in 2019. By 2021, the divide was reduced to 13 percentage points. Eleven percent of children living below the poverty line, or 1.3 million children, gained household broadband access between 2019 and 2021.

The majority of children who lived in homes owned by their families had broadband access in 2021 (86%), a 3% increase since 2019. For children of renters, 78% had broadband in 2021, an 8% increase in access since 2019.

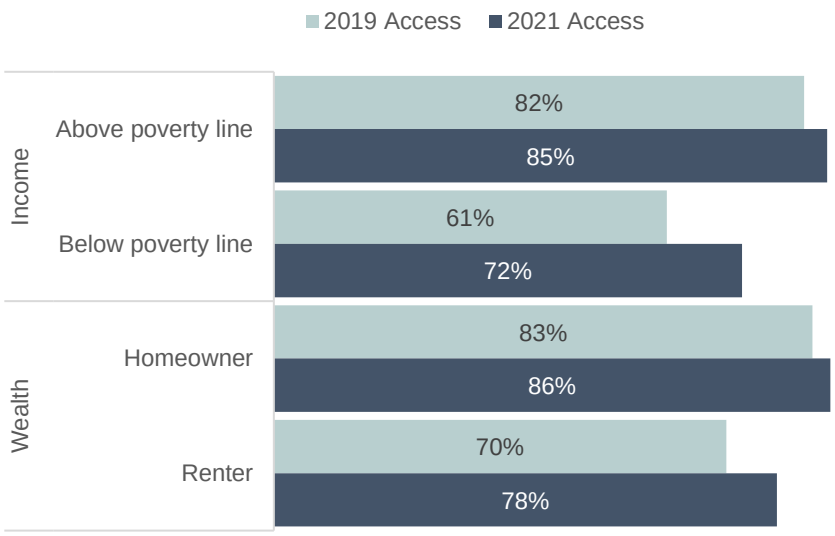


Figure 1. Percentage of Children with Household Broadband Access in 2019 and 2021 by Family Poverty and Homeowner Status

Public Policy Associates partners with the public, private, and nonprofit sectors at the national, state, and local levels. We provide insights to help our clients make better decisions through rigorous, culturally responsive research, evaluation, and strategic consultation.

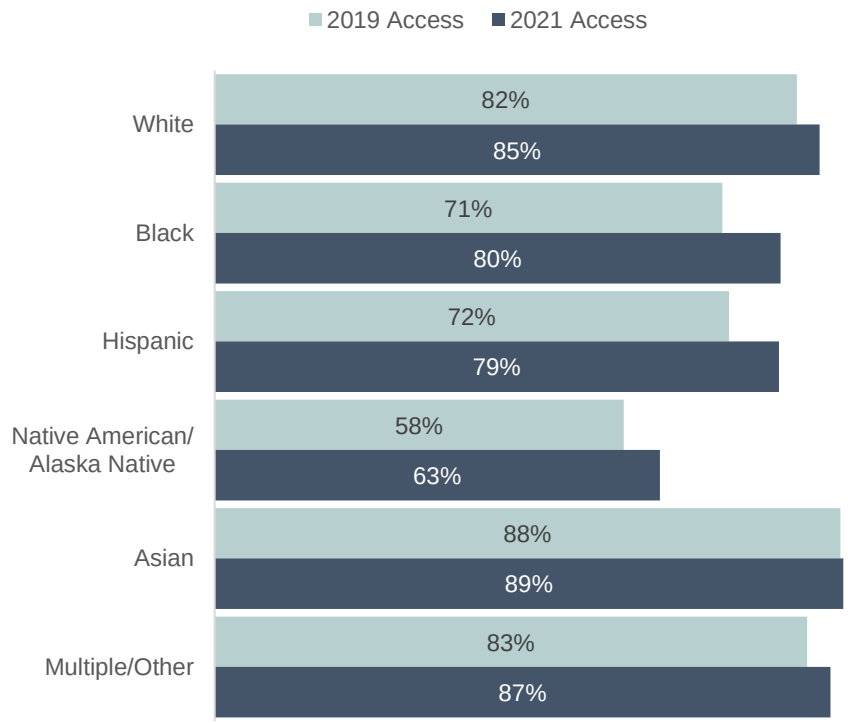


Figure 2. Percentage of Children from Different Racial/Ethnic Backgrounds with Household Broadband Access in 2019 and 2021

Race/Ethnicity

Children identifying as Native American or Alaska Native face the starkest broadband access challenges; in 2019, only 58% of these children had household broadband access, which increased 5% in 2021 to 63%, 20 percentage points below the national average.

Gains in broadband access from 2019 to 2021 were particularly pronounced for Black and Hispanic children. The relative increase in access from 2019 to 2021 for Black (9%) and Hispanic (7%) children is larger than the average for all children (5%). However, the 2021 access rate for Black and Hispanic children still lags behind the national average of 83%.

Parent Education Level

Parental educational attainment is also related to children's level of broadband access. Children whose parents had less education had greater gains between 2019 and 2021, but their access in 2021 was below the national average. For example, if a parent held a high school diploma, 75% of children had broadband access in 2021, a 7% increase since 2019. By contrast, for children whose parents attended at least some college or obtained a degree, 2021 access was equal to or greater than the national average.

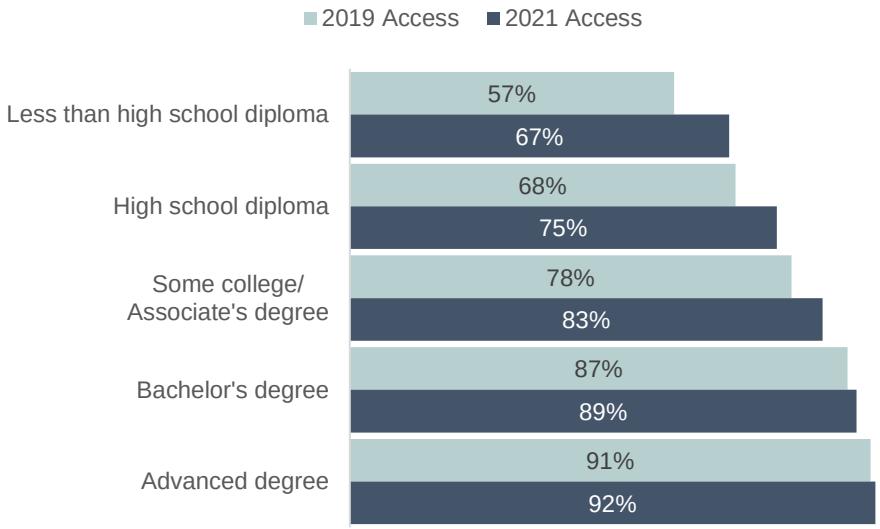


Figure 3. Percentage of Children with Household Broadband Access in 2019 and 2021 by Parent Education Level

Geography

Geography also plays a role in determining children's broadband access. For children who live in metropolitan areas (i.e., urban and suburban areas with populations greater than 50,000), 85% had broadband in 2021, a 4% increase since 2019. For non-metropolitan-area households, 74% reported broadband access in 2021, a 4% increase since 2019.

Differences in geographic access are also visible at the regional and state levels. Children's household broadband access in the Northeast and Midwest of the United States tends to be higher than access in the West and South. In 2019, the three states with the highest percentage of children without broadband access were Mississippi (38%), Oklahoma (35%), and Arkansas (34%), while the three states that had the smallest percentage of children without access were in the Northeast (Connecticut, New Hampshire, and Massachusetts; all 13%).

Access in the Northeast is largely in line with the 2021 national average. Most Midwestern states experienced modest increases in access from 2019 to 2021 (1% to 7%). However, North Dakota increased children's household broadband access by 11 percentage points between 2019 (80%) and 2021 (91%). North Dakota jumped from its rank as 25th in the nation in 2019 to tie Massachusetts for the highest percentage of school-aged children with household broadband access in 2021.

States in the West and South experienced larger relative gains between 2019 and 2021, but also generally reported some of the lowest percentages of children lacking broadband access at home in 2019. Even in 2021, 4 states in the West (New Mexico, Alaska, Montana, and Wyoming) and 10 states in the South (Mississippi, Alabama, Arkansas, Oklahoma, Louisiana, Texas, South Carolina, Kentucky, Tennessee, and Georgia) had lower rates of broadband access than the national average. This is despite some of the largest relative increases observed in the South and West (Arkansas 10%; New Mexico 10%; Oklahoma 11%; Louisiana 9%; and Idaho 9%).

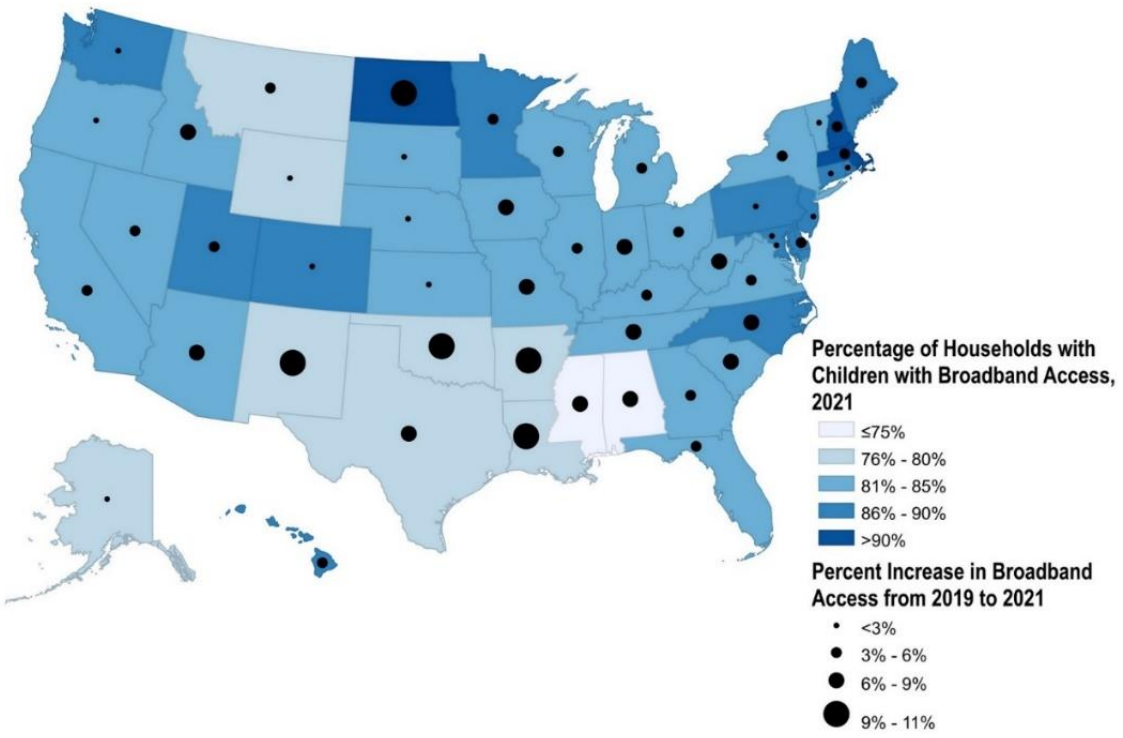


Figure 4. Household Broadband Access, 2021 and Change by State, 2019-2021

IMPLICATIONS

The COVID-19 pandemic appears to have pushed ahead broadband access for school-aged children. Prompted in part by schooling needs during the pandemic, policy efforts seem to have made a difference in access. The digital divide narrowed for many children, although many also remain without access. The cost of broadband service and a personal device to utilize it remain costly items for households with lower incomes. Overlapping factors, including educational attainment level, income, and homeownership, show that access is largely an economic problem. However, disparities by race/ethnicity and location are critically important to address if the divide is to close entirely. Those factors in access take more than a subsidy or other financially driven solution. Those require broader focus on access as a social necessity. Without access to broadband, children across the country are disadvantaged in education, beyond any challenges they may already face.

As policymakers consider new opportunities to address the remaining need for broadband access, we offer these questions for consideration.

Key Questions to Consider

- **How will gains in access be maintained after COVID-related relief funds are depleted?** Time will tell if increased access to broadband is here to stay. The EBB concluded on December 31, 2021 and was replaced by the Affordable Connectivity Program (ACP), where the monthly discount was reduced to $30.[5] Maintaining and further closing the gaps will depend on how families manage the additional cost in their budgets and whether additional resources are available to those still lagging in access.
- **Has device access also increased along with greater broadband access?** This brief focuses on household broadband access as a structural challenge to be solved in the fight to ensure children have "full access" to digital learning resources—both high-speed internet at home as well as a web-enabled device with a keyboard children can use for school purposes. The pandemic also prompted the implementation of policies to provide children with devices for use at home, and future research should look at this fuller picture (e.g., demographic and geographic differences in device access or full access).
- **What have been the results of specific policies and programs in increasing access to broadband for children in receiving households and how does success vary across states?** Evaluating programs such as the EBB and ACP as well as state and local initiatives would increase understanding of their effects, as well as whether particular policies were more effective in different regions or for different populations.
- **How will our understanding of digital divides change if the definition of broadband is adjusted?** The FCC presently counts internet as "broadband" if it delivers download speeds of at least 25 megabits per second (Mbps). However, the FCC recommends download speeds in excess of 25 Mbps when two or more users/devices are connected for high-use functions[6] (including video conferencing), which could be the case when two or more children are learning from home, or one child is learning and one parent is working. Some have argued that the minimum speed threshold for internet to be considered broadband should be increased to 100 Mbps to better serve the contemporary needs of users.[7]

Suggested Practices and Policies

Conduct outreach to connect high-need populations with resources. Many programs are currently available to support the development of high-speed internet infrastructure across the United States. For example, the Michigan High-Speed Internet Office is funding projects through the Realizing Opportunity with Broadband Infrastructure Networks (ROBIN) grant program. The office encourages partnerships between communities and internet service providers, which are necessary for effective outreach to those in most need.

Promote programs that provide low-cost devices and reduced internet costs for lower-income families. Improving the affordability for this essential technology would help all children, regardless of background, have access to the tools and resources they need to succeed in today's digital world.

Consider categorizing the internet as a utility. By categorizing the internet as a utility, similar to other essential services like electricity and water, the government would have more authority to ensure all citizens have access to affordable, high-quality, and reliable internet services. This would likely increase access, but might have other consequences (e.g., reduced competition).

Invest in 5G and wireless internet technologies. These technologies can be particularly useful for remote or rural areas lacking the necessary infrastructure for wired internet services. However, this requires significant investment in infrastructure and might not be a feasible solution in the short-term.

CHANGES IN CHILDREN'S HOUSEHOLD BROADBAND ACCESS, 2019-2021

Data Sources and Methods

To understand how access to broadband internet changed between 2019 and 2021, the analyses for the brief, "Changes in Children's Household Broadband Access, 2019-2021," use data drawn from the American Community Survey (ACS) administered by the U.S. Census Bureau. Since 2013, the ACS has collected data required under the 2008 Broadband Data Improvement Act. Data collected through the Current Population Survey potentially includes more detail through its longer questionnaire and longer time series. However, the ACS, with a larger sample, provides better estimates for small population groups and with more details related to geographic area.

These analyses use data from two questions. Respondents were first asked whether the household has internet access by paying a cell phone company or internet service provider. If they responded yes, respondents were next asked: "Do you or any member of this household have access to the internet using a broadband (high-speed) internet service such as cable, fiber optic, or DSL service installed in this household?".[8]

PPA staff downloaded data from 2019 and 2021 from the IPUMS website, which maintains formatted ACS data. These analyses use both household and individual-level variables. The sample was restricted to households with children ages 5-17 years old. Respondents were excluded if they resided in group quarters (e.g., group home or dorm) or were missing family income data.

PPA staff generated descriptive statistics for the percentage of school-aged children (ages 5-17) in households that reported access to broadband internet at home. Demographic variables included race/ethnicity, family income, parent educational attainment, (child) school type, and homeownership status. Geographic variables included metropolitan status and state of residence.

Research Notes

- Race and ethnicity were re-coded as White, Black, Asian, Native American/Alaska Native, Multiple Races/Other, and Hispanic. Hispanic was treated as an inclusive category (so that all other racial/ethnic categories are non-Hispanic).
- Family poverty status was determined using the ACS total family income variable. All children living in families with total income below the 2019 or 2021 federal poverty guidelines (depending on analysis year) were coded as living below the poverty line.
- For children in two-parent households, the highest level of education attained by either parent was used.
- Metropolitan status was determined by collapsing all households in a federally defined metropolitan area (which includes suburbs) into a simple 0/1 dichotomy.
- State regions were determined using U.S. Census guidelines.[9]
- Estimates were weighted using individual-level weights, and standard errors produced through balanced replicate weights. All calculations were conducted using Stata's "svy" suite of commands. All differences reported meet a $p<.01$ threshold of statistical significance.

CHANGES IN CHILDREN'S HOUSEHOLD BROADBAND ACCESS, 2019-2021

Works Cited

[1] "Types of Broadband Connections," Federal Communications Commission (FCC), updated June 23, 2014, accessed January 12, 2023, https://www.fcc.gov/general/types-broadband-connections.

[2] "Emergency Broadband Benefit," Federal Communications Commission (FCC), updated May 9, 2022, accessed January 17, 2023, https://www.fcc.gov/broadbandbenefit.

[3] "Emergency Broadband Benefit Program," Federal Communications Commission (FCC), updated January 17, 2023, accessed January 25, 2023, https://www.fcc.gov/emergency-broadband-benefit-program.

[4] "Digital Equity for Students and Educators," National Education Association, published October 16, 2020, accessed January 23, 2023, https://www.nea.org/resource-library/digital-divide-and-homework-gap-your-state.

[5] "Affordable Connectivity Program," Federal Communications Commission (FCC), updated January 10, 2023, accessed January 17, 2023, https://www.fcc.gov/acp.

[6] "Household Broadband Guide," Federal Communications Commission (FCC), updated July 18, 2022, accessed January 12, 2023, https://www.fcc.gov/consumers/guides/household-broadband-guide.

[7] Chris Velazco, "FCC calls 25 Mbps 'broadband' speed. The push is on to up it to 100," *Washington Post*, published July 19, 2022, accessed January 12, 2023, https://www.washingtonpost.com/technology/2022/07/19/fcc-broadband-new-definition-100mbps/.

[8] "Why we ask questions about…Computer and Internet Use," U.S. Census Bureau, accessed January 31, 2023, https://www.census.gov/acs/www/about/why-we-ask-each-question/computer/.

[9] "Geographic Levels: Regions and Divisions," U.S. Census Bureau, updated October 8, 2021, accessed January 17, 2023, https://www.census.gov/programs-surveys/economic-census/guidance-geographies/levels.html#par_textimage_34.