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Expanding America's Bandwidth: Gaps in Rural and Underserved Communities

This issue of *Consumer & Community Context* delves into the availability of broadband, devices, and digital skills and its impact on communities.[1] It explores why internet connectivity is essential for participating in the economy and how the lack of access to broadband, devices, and digital skills affects low-and-moderate income (LMI) people disproportionately. The issue also focuses on the barriers to connectivity among underserved communities and the federal funding programs designated for infrastructure development and internet adoption.[2]

Broadband and Digital Skills Are Essential for Financial and Economic Inclusion

The key to accessing many parts of the U.S. economy starts with broadband connectivity, devices, and digital skills. These are critical to interacting with financial services and many aspects of everyday life, workforce development, and launching and managing a small business, which this section will briefly discuss. The post-pandemic economy further normalized the daily use of many online services, such as the ability to access online banking, participate in the gig economy (activities where people earn income providing on-demand work, services, or goods, often through an app or website),[3] use telehealth services, purchase insurance, or engage in other important activities.

Internet access and digital skills are vital for workforce development. A study by the National Skills Coalition, in partnership with the Federal Reserve Bank of Atlanta, revealed that over 90 percent of all jobs across nearly every industry require digital skills.[4] These skills range from routine computer tasks like email usage and interacting with websites to industry-specific skills such as

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Note: The views expressed here are those of the authors and do not necessarily reflect the position of the Federal Reserve Board or the Federal Reserve System.

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[2] This article uses the terms 'metropolitan (metro)' and 'nonmetropolitan (nonmetro)' consistent with delineations from the U.S. Census Bureau. For more information, see U.S. Census, https://www.census.gov/programs-surveys/metro-micro/about.html.

[3] "Gig Economy Tax Center," IRS, last modified March 4, 2024, https://www.irs.gov/businesses/gig-economy-tax-center.

[4] Federal Reserve Bank of Atlanta and National Skills Coalition, "Baseline for Work: 92 Percent of Jobs Require Digital Skills," https://www.atlantafed.org/community-development/publications/partners-update/2023/08/10/baseline-for-work-92-percent-of-jobs-require-digital-skills.

health aids inputting medical records electronically.[5] As digital skills become integral to jobs, those lacking these skills and access could face challenges entering the job market. Broadband access alone does not automatically mean that job seekers and workers will have the necessary computer skills to engage in our evolving job market. Coordinated efforts to bridge the access and skills gaps could benefit those who are disproportionately affected.[6]

Digital skills and connectivity are also important to starting and growing small businesses. With connectivity, small businesses can incorporate emerging technologies to create more efficient operations, process credit card and online payments, and market their products to broader audiences. A nationwide survey of U.S. small businesses found that small businesses that embrace technology have been better at navigating the recent high-inflation environment and at addressing workforce shortages. The survey also found that small businesses that incorporate technology into their operations—such as using social media, accounting software, or customer relationship management (CRM) tools—were more likely to see growth in sales, profits, and employment.[7] Reliable broadband connectivity matters to all these things.

Federal and state governments are deploying significant resources to incentivize infrastructure development and encourage the adoption of broadband.[8] These resources include funding as well as state broadband offices working with communities to convene business leaders, elected officials, grassroots organizers, and other private and public leaders to create regional plans for deploying infrastructure, devices, and skills. Despite the availability of resources and partnerships working toward universal connectivity, data show there are several challenges, which will be discussed in the next section, that could prevent it from becoming widespread.

Who Lacks Access to Broadband?

For certain segments in the U.S., particularly low-income and rural communities, access to broadband remains challenging. American Community Survey (ACS) data show nonmetro (or rural) households are less likely than metro households to have a broadband subscription (cable, fiber, or DSL). Seventy-four percent of U.S. households located in nonmetro areas have a broadband subscription,

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[5] National Skills Coalition, *Closing the Digital Skill Divide: The Payoff for Workers, Business, and the Economy* (Atlanta: Federal Reserve Bank of Atlanta, February 2023), https://nationalskillscoalition.org/wp-content/uploads/2023/02/NSC-DigitalDivide_report_Feb2023.pdf.

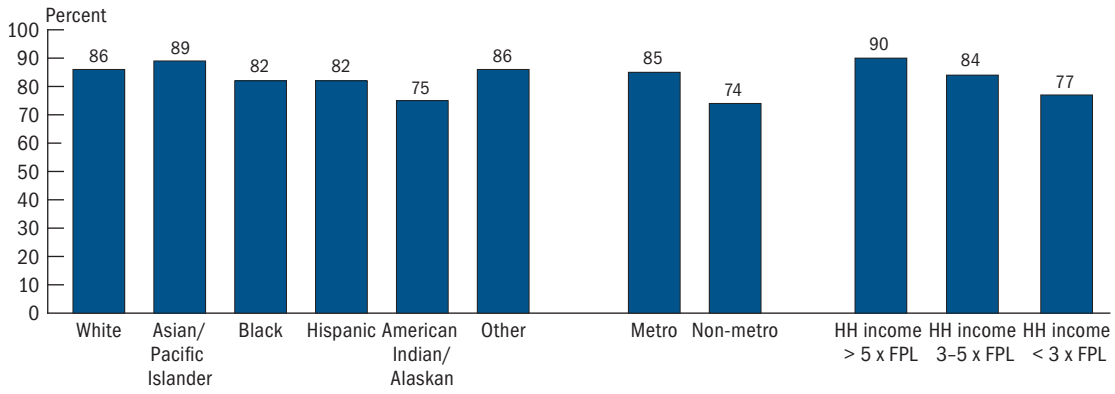
[6] Per Section 60302(8) of the IIJA, the National Telecommunications and Information Administration will focus on "covered populations", which includes "individuals who are members of a racial or ethnic minority group," "individuals who primarily reside in a rural area," and "individuals who lived in 'covered households'," among other categories. For more information, see the definition on the NTIA's website: https://broadbandusa.ntia.doc.gov/sites/default/files/2022-05/DE%20PLANNING%20GRANT%20NOFO.pdf.

[7] U.S. Chamber of Commerce Technology Engagement Center, *Empowering Small Business* (Washington: U.S. Chamber of Commerce, 2023), https://americaninnovators.com/empowering-small-business/.

[8] National Telecommunications and Information Administration, "NTIA's Role in Implementing the Broadband Provisions of the 2021 Infrastructure Investment and Jobs Act," news release, June 24, 2024, https://broadbandusa.ntia.doc.gov/news/latest-news/ntias-role-implementing-broadband-provisions-2021-infrastructure-investment-and.

compared to 85 percent in metro areas (figure 1). Furthermore, nonmetro residents that do have a household connection often experience slower and less stable connections than metro residents. When analyzing average maximum speeds by location, the Purdue Center for Regional Development found that the advertised Federal Communications Commission (FCC) maximum speeds are over 100 megabits per second (Mbps) slower in nonmetro than in metro areas.[9]

Figure 1. Access to broadband at home by population groups in 2022



Note: Data comes from 2022 American Community Survey 1 percent sample of the population. Authors' calculations.

Racial/ethnic groups are mutually exclusive. All those who report a Hispanic origin are represented by the fourth bar. Households (HHs) are divided into three income groups: those who earn more than five times, between three to five times, and below three times the federal poverty line (FPL).

Lower connectivity rates in rural communities are often due to limited or missing infrastructure. Sparsely populated rural areas mean fewer potential customers, leading to a lower return on investment for internet services providers (ISPs).[10]

While metropolitan areas have higher rates of households with broadband subscriptions, pockets within metro areas often suffer from a lack of access as well.[11] Even in many metro neighborhoods with adequate broadband infrastructure, high monthly subscription fees make access unaffordable for lower-income households. Families with higher total income tend to have higher rates of broadband access at home (figure 1).

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[9] Roberto Gallardo and Brian Whitacre, "The Real Digital Divide? Advertised Vs. Actual Internet Speeds," Purdue Center for Regional Development, October 7, 2020, https://pcrd.purdue.edu/the-real-digital-divide-advertised-vs-actual-internet-speeds/.

[10] Kevin Schwartzbach, Rockefeller Institute of Government, "With Billions for Broadband Incoming, How Have State and Local Governments Expanded High-Speed Internet Access?," https://rockinst.org/blog/with-billions-for-broadband-incoming-how-have-state-and-local-governments-expanded-high-speed-internet-access/.

[11] Community Tech Network, "Digital Mythbusting: Why the Digital Divide Is Not Just a Rural Issue," blog post, https://communitytechnetwork.org/blog/digital-mythbusting-why-the-digital-divide-is-not-just-a-rural-issue/.

The data also show statistically significant differences in broadband access by race.[12] While 86 percent of White households have access to broadband at home, 82 percent of Black and Hispanic households have access to broadband at home. At 75 percent, American Indian and Alaska Native households have the lowest rates of broadband access at home compared to other racial groups. Compared to White households, broadband access for Black, American Indian, and Hispanic households is lower, while access for Asians and other non-Hispanics is not. This is the case across all geographic and population densities after controlling for family social economic variables and state fixed effects.

Similarly, average household income is a contributing factor to device ownership, which includes computers, tablets, modems, routers, etc. Families facing tight budgets tend to deprioritize devices in their list of needs. Communities with higher poverty levels tend to have lower rates of device ownership.[13]

Recent Initiatives to Expand Broadband Access

Some communities may lack the resources and experience to manage complex and expensive broadband infrastructure projects or digital upskilling programs. Through the Infrastructure and Investment Jobs Act (IIJA), Congress allocated $65 billion in federal funding to spur development of broadband infrastructure and improve internet adoption and use in communities.[14] A full breakdown of the programs—including the largest programs, Broadband Equity Access and Deployment (BEAD) and Digital Equity Act—can be found at the National Telecommunications and Information Administration website.[15]

Some IIJA funds have been distributed to states, but not yet into communities. While most IIJA funds have not yet been deployed in communities, some states plan to use the funding to build on existing programs that used other federal and state funds. For an example of a state's plan to use IIJA funding, Louisiana's Broadband Office has additional information on its plans to use BEAD funding for a second round of the Granting Unserved Municipalities Broadband Opportunities grant program.[16]

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[12] Authors' calculations based on the U.S. Census, 2022 American Community Survey, https://www.census.gov/programs-surveys/acs/data.html.

[13] Jamie M. Lewis, "Handheld Device Ownership: Reducing the Digital Divide?," Census Working Paper Number SEHSD-2017-04 (U.S. Census Bureau, March 2017), https://www.census.gov/library/working-papers/2017/demo/SEHSD-WP2017-04.html.

[14] Congressional Research Service, "Infrastructure Investment and Jobs Act (IIJA): Funding for USDA Broadband, Watershed, and Bioproduct Program" (December 2021), https://crsreports.congress.gov/product/pdf/if/if11990.

[15] "Funding Programs," National Telecommunications and Information Administration, https://broadbandusa.ntia.doc.gov/funding-programs.

[16] "Broadband Equity Access and Deployment (BEAD)," ConnectLA, https://connect.la.gov/bead/.

Conclusion

Access to affordable and reliable broadband is essential as the economy continues to digitize. How this goal is realized raises questions for additional study. Will some communities find it challenging to manage complex and expensive broadband infrastructure projects or digital upskilling programs? Will the management of such efforts differ between metro and rural communities? What opportunities may exist for philanthropy, community development finance institutions, and other private and public partners to provide additional sources of funding and collaboration? Collaborative efforts could help increase public awareness about access gaps, implement programs, and ensure readiness, especially in low-income and rural communities.