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## MEASURING THE EFFECTIVENESS OF DIGITAL INCLUSION APPROACHES (MEDIA)

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### Executive Summary

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### Introduction

Expanding access to affordable, high-speed broadband is an urgent national priority. As Congress stated in the Infrastructure Investment and Jobs Act of 2021, “access to affordable, reliable, high-speed broadband is essential to full participation in modern life.” However, despite many ongoing and new initiatives at the federal, state, and local level, over 31 million American households (about a quarter of all U.S. households) remained without high-speed broadband in 2021, and about 12 million of those lacked Internet access altogether.<sup>1</sup>

This report summarizes findings from the Measuring the Effectiveness of Digital Inclusion Approaches (MEDIA) project, which evaluated different programs and regulatory mechanisms to increase residential broadband adoption on a sustainable basis. The project set out to answer fundamental questions about these initiatives, with a focus on those launched after the onset of the COVID-19 pandemic, such as program targeting, cost-effectiveness, and subsidy delivery mechanisms. While addressing supply-side deficits remains paramount in many communities, particularly in rural areas, the MEDIA project focused instead on demand-side barriers to residential connectivity. It is also worth noting that several of the initiatives examined in this study are in California, though programs in other states and at the federal level are also examined.

Overall, the findings suggest that the initiatives under evaluation have been reasonably effective at alleviating the cost burden for low-income households that were already connected to broadband, but that reaching disadvantaged families without prior subscription experience and limited resources (both financial and intangible) remains an ongoing challenge. In particular, we find that means-tested programs that require households to initiate requests and submit proof of eligibility to obtain discounted broadband have low participation rates, especially when service choice is limited and programs are not combined with comprehensive community-led outreach efforts. To combat this problem, we present examples of successful local programs that facilitate enrollment by automating eligibility verification or by aggregating demand on behalf of potential beneficiaries. Extrapolating best practices from these programs can significantly improve targeting and program performance on a nationwide scale.

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<sup>1</sup> Source: ACS 2021 1-year estimates (Table S2801).

## Project Scope

After an extensive review of existing studies and a mapping of recent initiatives to promote residential broadband, the scope of work for this project was established based on the distinction between three types of demand-side connectivity programs:

- **Consumer subsidy programs.** These are programs in which recipients obtain a rebate from the federal or state government that is applied to the cost of service or equipment through participating ISPs. Four case studies of consumer subsidy programs were examined: the *Alabama Broadband Connectivity (ABC)* program, the *Emergency Broadband Benefit (EBB)*, the *Affordable Connectivity Program (ACP)*, and the *California Lifeline* program.
- **Public benefit obligations.** These are affordable Internet plans offered by individual ISPs, and typically negotiated with federal or state agencies as part of corporate merger or acquisition proceedings. The impact of three affordable plans was evaluated, with a focus on impact in California: *Access from AT&T*, *Internet Assist from Spectrum*, and *Affordable Broadband by Frontier*.
- **Public procurement programs.** These are programs in which a public entity (e.g., a school district, a public housing agency) partners with an ISP or purchases Internet service and/or devices on behalf of the population it serves. Two such programs were examined, both in California: one led by the *Riverside Unified School District (RUSD)* and a second by the *Housing Authority of the City of Los Angeles (HACLA)*.

The report distinguishes between these program types because they each leverage different mechanisms to promote broadband affordability and adoption. First, each locates primary agency with a different actor. For example, consumer subsidy programs allow recipients to choose between ISPs and plans according to their preferences and needs. This differs from public benefit obligations in which the characteristics and eligibility requirements of affordable plans are negotiated ex-ante between regulators and ISPs, thus restricting consumer choice. In public procurement programs, government entities leverage their scale and other assets to negotiate advantageous terms for service and/or equipment, which they in turn pass on to their constituents or members.

There are also notable differences in cost allocation. Consumer subsidies involve government spending in the form of vouchers to consumers or rebates administered through ISPs. By contrast, the cost of public benefit programs is typically internalized by service providers, and often involves cross-subsidies from higher-priced plans. In public procurement programs, scale helps public entities agglomerate the purchasing power of consumers to reduce per unit costs, and spending is targeted to specific populations such as K-12 students. Finally, in each program type administrative costs are allocated differently, including the responsibility for outreach and eligibility verification. Our findings suggest diverse approaches might better address different obstacles to broadband adoption, including lack of awareness of broadband benefits and high costs.

In addition to the case studies, the research team conducted about two dozen interviews with digital inclusion experts across 16 organizations, representing industry, government, academia, and advocacy groups. The team also convened three meetings with a select group of expert advisors, who reviewed preliminary findings and offered valuable feedback on individual project components. The sections below summarize the findings across these research efforts.

## Key Findings

1. *Broadband support programs are effective at alleviating the cost burden for low-income households, but the impact on increasing overall connectivity has been modest.*

The Emergency Broadband Benefit (EBB) program was the first large-scale nationwide program put into place after the onset of the COVID-19 pandemic to help low-income households pay for broadband. The program offered a subsidy of up to \$50 per month to qualifying households, increasing to \$75 for households in tribal lands, as well as a one-time discount of up to \$100 for the purchase of a device (computer or tablet). Program eligibility required meeting one of three criteria: 1) participation in Lifeline or affordable service programs offered by ISPs; 2) income-based eligibility (at or below 135% of the Federal Poverty Guidelines); 3) or participation by any household member in federal assistance programs such as SNAP, Medicaid, SSI, Pell Grant, and National School Lunch Program, among others.

A key question is whether the program was properly targeted to households most in need. To examine this question, we created a nationwide county-level dataset and examined the association between EBB participation rates and two related indicators: household poverty rates and the share of households that lacked Internet before the onset of the pandemic. The results indicate a moderately strong association between EBB participation and poverty rates, suggesting that counties with more households in need also had higher levels of EBB uptake. At the same time, there is only a modest association between EBB participation and the share of unconnected households pre pandemic, which suggests significant room for improving program targeting.

To further examine the factors that explained variations in EBB participation across counties, we built a model that predicted EBB participation as a function of individual and household-level variables, as well as county characteristics. The results confirmed that, contrary to expectations, EBB uptake was, at best, uncorrelated with the pre-pandemic share of households without Internet in a county. This counterintuitive result aligns with other studies which suggest that the EBB program primarily helped alleviate the cost burden for households that were already connected to the Internet in 2019, with only modest impact in bringing those previously unconnected online.

Our examination of the affordable broadband plans offered by ISPs in California as a condition for obtaining regulatory approval for merger or acquisition transactions points in a similar direction, although in this case the study period is entirely pre-pandemic (2014-20). To estimate the impact of these public interest obligations, we used a difference-in-difference (DiD) strategy that compared the change in broadband adoption rates among eligible households before and after the introduction of the low-cost plan in the areas served by each ISP to the change in adoption rates among eligible households in areas not served by the ISP. Overall, the results indicate that these plans had little impact on increasing residential connectivity among low-income households. Though further studies are needed, the preliminary evidence suggests that lack of choice in service plans, minimal service standards and limited outreach are key factors in explaining this limited impact.

- 2. Enrollment in broadband support programs is growing, but under the current model program uptake is unlikely to be near universal.*

When phased out in December 2021 after only eight months, the EBB program had enrolled over 9 million households. This was a significant improvement over the decades-long federal Lifeline program (about 6.5 million participants at the time). However, these 9 million recipients represented a participation level of just about 20%, a level substantially below that of other social support programs such as SNAP or EITC (around 80% participation). It is worth noting that, as part of this study, we uncovered significant inconsistencies in the methodology used by the federal government to estimate participation in Lifeline, which provides the basis for calculations of eligibility for EBB and the ACP programs.<sup>2</sup>

A year later (December 2022), enrollment in the Affordable Connectivity Program (ACP) - which replaced EBB in January 2022 - had grown to 15.4 million households. Taking into account the expansion in the eligibility criteria (which increased the number of eligible households from about 42.8 million for EBB to about 55.3 million for ACP), ACP uptake stood at approximately 28% of eligible households at the end of 2022.<sup>3</sup> While this represents an increase in uptake from the EBB program, it still falls short of expectations for a subsidy that can in many cases reduce the cost of residential broadband to near zero.

There is no simple answer as to why less than 1 in 3 eligible households are currently enrolled in ACP. The evidence collected in this study points to a combination of lack of awareness, mistrust or apprehension about future rate increases (considering that the ACP program has not been made permanent), confusion about eligibility requirements, complexity and frictions in the signup process, and even outright rejection of the program by potential recipients on ideological grounds.

There are numerous efforts at the federal and state level to address informational barriers to participation and facilitate ACP program onboarding.<sup>4</sup> Variations in ACP uptake across states suggests ample room for improvement and learning from best practices. At the same time, while these efforts are likely to promote enrollment, our findings suggest diminishing marginal returns to these efforts. In other words, reaching those who remain unaware or apprehensive about the program, or that believe that the administrative hassle required for enrollment is not worth the benefit, will demand new strategies that go beyond traditional outreach and fundamental changes to the program structure. The findings discussed below provide guidance about how this can be accomplished.

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<sup>2</sup> The Universal Service Administrative Company (USAC), which operates consumer subsidy programs on behalf of the FCC, calculates program eligibility using data for the head of household only. However, this is inconsistent with the eligibility criteria for Lifeline, EBB and ACP. As such, USAC undercounts eligible households, thus inflating participation rates. In our estimates, a household is considered eligible if any household member is enrolled in a designated federal assistance program.

<sup>3</sup> The eligibility criteria for ACP were expanded to include recipients of other federal support programs such as WIC. In addition, the maximum income threshold increased from 135% to 200% of the Federal Poverty Guidelines.

<sup>4</sup> For example the FCC has allocated \$100 million for ACP outreach initiatives (FCC, "Affordable Connectivity Program, Outreach Grant Program - Second Report and Order – WC Docket No. 21-450," July 15, 2022, <https://docs.fcc.gov/public/attachments/DOC-385348A1.pdf>).

- 3. Program recipients tend to apply subsidies to wireless rather than wireline broadband, but there are encouraging signs that this trend is shifting in favor of wireline.*

Since the expansion of the Lifeline program in the late 2000s, the program became overwhelmingly a subsidy for wireless voice and data services. For example in the case of California Lifeline, over 80% of today's recipients opt to apply the state and federal discount to a wireless subscription. Further, the number of wireline Lifeline recipients in California has steadily declined from 3 million participants in 2007 to fewer than 250,000 in 2021. The EBB program revealed a similar preference for wireless, with approximately 70% of recipients applying the discount to a wireless plan. Recipients of both EBB and Lifeline thus largely chose to apply the combined benefits to their wireless service, rather than apply one to wireless and the other to wireline services.

It is important to note that wireless and wireline broadband are imperfect substitutes. Wireless broadband is most often experienced through a mobile device, almost always a smartphone. While a smartphone provides mobility and allows broadband access across locations, it is less than optimal for applications such as remote work, telehealth or online education. Further, wireline broadband is a household service ("broadband to the home") shared among family members, while wireless broadband is typically only available to a single individual within the family ("broadband to the pocket").

The findings of this study corroborate that wireless and wireline broadband are complements rather than substitutes, and that support programs must therefore allow recipients to combine both services. In phase 2 of the MEDIA project, the research team plans to analyze early moves in that direction, such as California's policy proposal to apply state and federal subsidies to different broadband modalities. There are also promising signs of shifting preferences under the ACP, which has enrolled a significantly larger number of wireline recipients than EBB (as of December 2022, the split between wireline and wireless ACP subscribers is about 45/55).

- 4. To increase connectivity, leverage synergies between broadband support programs and other public services or government support systems.*

Most households that lack broadband receive other social programs or are in one way or another connected to the safety net system. Each of these programs has its own qualification requirements and enrollment process, often imposing a heavy administrative burden on recipients. Leveraging current participation in existing social programs is perhaps the single most effective strategy to overcome informational and trust barriers for participation in ACP and other broadband support programs. Two case studies exemplify how these synergies may be accomplished.

Shortly after the onset of the COVID-19 pandemic, the state of Alabama put into place a program to support K-12 families in the transition to remote learning. The Alabama Broadband Connectivity (ABC) program, as the program was called, provided connectivity support for families with at least one child receiving free or reduced-price school lunch through the National School Lunch Program (NSLP). The program was established in August of 2020 and lasted through the 2020-21 school year, when recipients were transitioned into the EBB program. Over its lifetime, the ABC program enrolled over 200,000 students in about 107,000 households. Out of these households, about 76,000 redeemed vouchers to cover the cost of service, installation, or a device, while another approximately 31,000 households received wireless hotspots through school districts. In total, this represents a participation rate of nearly 60%, about twice the

current participation level in ACP. According to interviews conducted by the research team, leveraging the existing trust relationships between schools and families was key to achieve this level of participation.

The second case examined the digital inclusion efforts of the Housing Authority of the City of Los Angeles (HACLA). HACLA is one of the largest public housing organizations in the nation, owning and/or managing about 9,400 affordable rent units across Los Angeles. Residents in these communities face multiple connectivity barriers, including poverty, limited service options, and prices that are often higher than in neighboring wealthier areas.<sup>5</sup> To address the increased need for reliable, high-speed access after the onset of the COVID-19 pandemic, HACLA partnered with Starry, a start-up ISP that uses fixed-wireless technologies to deliver broadband to multi-unit buildings. The service launched in June 2020, offering a 6-month free trial for 30Mbps symmetrical speeds. After the trial period, the price was fixed at \$15/month for a period of 5 years. As of today (December 2022), the service is available in nine out of HACLA's 14 public housing sites, and the overall level of service uptake is above 50%, a remarkable level given that legacy services by other ISPs continue to be available in many of these communities.

Two factors are critical to explain the success of this partnership. The first is the offering of a low-cost, high-speed service plan aimed at residents of affordable and public housing, a plan that did not require credit checks or long-term service contracts, and had no data caps nor modem or installation fees. This offering proved to be well suited to the needs and budget constraints of HACLA households. The second is the implementation of a large community engagement effort called Digital Ambassadors, described in greater detail below. Overall, the HACLA case demonstrates the multiple synergies that exist between housing assistance and broadband support. Housing authorities are uniquely positioned to offer connectivity solutions that match residents' needs. These efforts work by leveraging the multiple assets, from rights of way to trust relationships with residents, that are unique to public housing agencies.

5. *To promote enrollment and effective participation in broadband benefit programs, enlist trusted, community-embedded messengers.*

Our review of previous studies and the expert interviews conducted for this study confirm the value of enlisting trusted community messengers in outreach initiatives for broadband support programs.<sup>6</sup> Our case studies corroborate this proposition, consistently showing that trusted messengers with strong community ties can help promote participation by reducing information gaps and alleviating mistrust among potential recipients.

An example is the Digital Ambassadors program launched by HACLA in December 2020. The program recruited youth leaders (18-24 years old) from within the community to promote residential connectivity for health, jobs and learning across the communities, and was critical for the success of the HACLA-Starry partnership discussed above. This program offers a blueprint to scale up digital equity initiatives that build on the unique assets (both tangible and intangible) that housing authorities and other community-embedded organizations (such as schools, libraries and community centers) can leverage to promote connectivity among vulnerable families.

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<sup>5</sup> See California Community Foundation (2022). Slower and more expensive: Internet pricing disparities report. Available at <https://www.calfund.org/wp-content/uploads/Pricing-Disparities-Report.pdf>

<sup>6</sup> See for example CETF, "Recommendations for Internet Service Providers to Consider in Responding to COVID-19", April 2020, <https://www.cetfund.org/recommendations-for-internet-service-providers-to-consider-in-responding-to-covid-19/>

In particular, schools have a direct stake in making sure that their students have adequate access to devices, connections, and the requisite skills to make use of them. School teachers and staff can effectively convey information to families about digital inclusion programs, along with training on how best to take advantage of subsidy programs. Schools can also directly extend training on digital tools and services to students' families. Our case study of the Riverside Unified School District (RUSD) during the COVID-19 pandemic shows how schools offer a particularly effective way to promote digital inclusion in school districts that serve vulnerable populations.

*6. To increase participation, automate enrollment for recipients of other social programs.*

Our study of the California Lifeline program suggests that automating enrollments and renewals through connections with other public-assistance programs could significantly increase participation in broadband subsidy programs. The evidence shows that four qualification methods (which also apply to EBB or ACP) account for over 90% of all California Lifeline qualifications: Medicaid/MediCal (51.6%), Supplemental Nutrition Assistance Program (32.1%), Income (10.2%), and Supplemental Security Income (4.1%).

In 2021, California began implementing automatic Lifeline renewal for CalFresh (SNAP) recipients, confirming their eligibility directly via "CalFresh Confirm," a direct query of the CalFresh recipient database. Extending this practice to enrollments in addition to renewals and leveraging the recipient databases of other social benefit programs would likely increase participation. There are of course complexities as this involves multiple parties and in some cases may conflict with privacy law (e.g., HIPAA for Medicaid data).

The ABC program in Alabama, discussed above, tells a similar story. Rather than wait for eligible families to apply, the state mailed a package containing personalized voucher codes and information about the program to all eligible families (the vouchers covered the cost of a baseline 25/3Mbps service and allowed recipients to choose from any of the 41 participating ISPs). Further, school districts were heavily involved in promoting the voucher program, additionally providing wireless hotspots to families outside the coverage area of wireline ISPs. According to interviews carried out by the research team, this enrollment strategy premised on eligibility by default was key to the program's high participation rate.

## **Conclusion and Next Steps**

The findings in this study seek to inform ongoing policy conversations about maximizing the impact of broadband support programs for low-income Americans. As these programs evolve and new initiatives emerge, further research will help validate these findings and feedback into further adjustments to policy design and implementation. Of particular interest will be the comprehensive assessment of state-level broadband initiatives funded through the Broadband Equity, Access, and Deployment (BEAD) program, with particular attention to how supply-side initiatives to build new infrastructure and improve service quality in underserved areas combine with the demand-side programs evaluated in this study.

A recurring challenge for broadband support programs is sustainability. Short-term success can often lead to long-term failure when funding wanes, regulatory mandates expire or key stakeholders change priorities. This creates mistrust among potential recipients, who fear future price increases or losing support for a vital

communication service. While this is arguably true for all safety net programs, the findings in this study suggest that broadband support programs rest on particularly fragile grounds. At the federal level, Congress has yet to make the ACP program permanent, the funding base for the FCC's Universal Service Fund continues to dwindle, and several affordable plan mandates imposed on ISPs have expired (though many continue to offer these plans on a voluntary basis). At the state and local level, support programs established during the pandemic have been downsized or discontinued as a result of changes in funding priorities that followed improvements in public health conditions. This suggests the need to continue monitoring the effectiveness of broadband support programs and create a knowledge base of positive community impacts and best practices that informs future broadband policymaking and digital equity advocacy.

## **About the project**

This report is part of the Measuring the Effectiveness of Digital Inclusion Approaches (MEDIA) project, a research program that seeks to analyze existing broadband inclusion initiatives and provide evidence-based recommendations on how best to connect low-income households to broadband on a sustainable basis. The program is supported by The Pew Charitable Trusts and includes the California Emerging Technology Fund (CETF) as a key research partner. The views expressed herein are those of the author(s) and do not necessarily reflect the views of The Pew Charitable Trusts or the California Emerging Technology Fund.

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