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For the Hearing “Connecting Every American: The Future of Rural Broadband Funding”

before the

Committee on Energy and Commerce
Subcommittee on Communications and Technology
UNITED STATES HOUSE OF REPRESENTATIVES

WASHINGTON, D.C.
September 21, 2023

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Executive Summary

Since the modern incarnation of the Universal Service Fund (USF) as established by the Telecommunications Act of 1996, the U.S. has spent more than \$100 billion subsidizing telecommunications, including broadband since 2011, in rural areas. The USF spends about \$7.5 - \$9 billion per year, with more than half going explicitly to rural (high-cost) areas, plus an additional \$700 million in grants and (mostly) loans from USDA's Rural Utilities Service. Covid and post-Covid programs like the CARES and IIJA Acts have added around another \$100 billion in broadband support with around \$70 billion for one-time rural buildout grants. All told, the Government Accountability Office (GAO) in May, 2023 identified 133 broadband subsidy programs across 15 agencies.¹

As many have noted, the U.S. has a once-in-a-lifetime opportunity to address the digital divide in rural areas. Although the amount of money available is large, it is not infinite and, in any case, should be spent as cost-effectively as possible. While the staff at the various federal and state agencies are working diligently, spending the money well requires meeting four criteria, which generally do not appear in any rules or guidelines. None of these guidelines are easy to follow, but failing to even try will lead to the money benefiting far fewer people than it would otherwise.

Specifically:

1. Distribute funds via truly competitive mechanisms, ideally reverse auctions, to maximize the “bang for the buck” and be cost effective.
2. Subject programs to rigorous, independent evaluation. “Evaluation” does not mean confirming that grant recipients did what they promised, which is important, but better thought of as compliance. Evaluation requires comparison to either a previous trend or to similar areas or other programs. Ideally, evaluation criteria will be set out in advance of the award process.
3. Instead of setting specific technologies, set desired specifications based on what consumers want and use.
4. Design rules that minimize the chances that the government will provide additional subsidies in the future.

Following those rules will help ensure that the money is spent in a cost-effective manner, that we know whether it made a real difference, and keep subsidies from growing in the future.

¹ <https://www.gao.gov/assets/gao-23-106818.pdf>. Also, see the House Committee on Energy and Commerce Majority Staff Report for the September 21, 2023 hearing for an excellent overview https://d1dth6e84htgma.cloudfront.net/09_21_23_C_and_T_Hearing_Memo_1_50b4614507.pdf.

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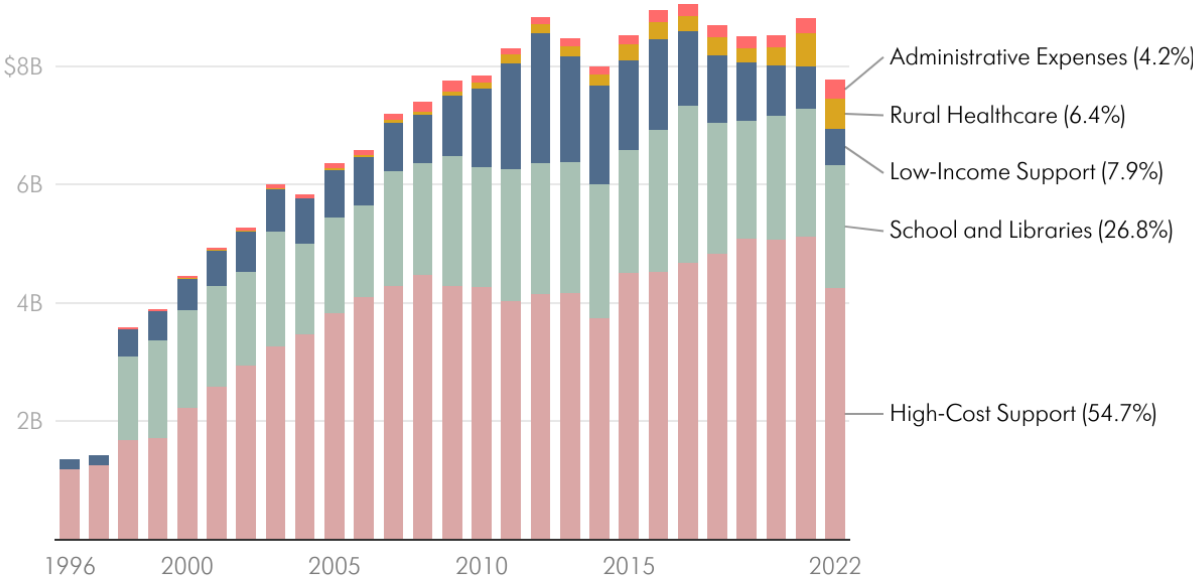
Background²

The United States has been actively subsidizing telecommunications in high-cost—typically rural—areas since 1984 via the Universal Service Fund, which was significantly revised as part of the Telecommunications Act of 1996.³ In 2011, the FCC updated the USF so that it could also subsidize broadband. We now spend \$7.5 - \$9 billion every year through the USF, with more than half going explicitly to rural areas. Since 1996 we’ve spent more than \$100 billion in on the High Cost Fund alone, with little to show for it.

The USF consists of four main programs: High Cost (which includes the Connect America Fund), Schools and Libraries (also known as E-Rate), Lifeline (low-income support), and Rural Health Care. The Figure below shows spending on these programs over time.

Universal Service Fund Expenditures by Program

Percentages next to program name are for 2022



Source: FCC, USAC



Unfortunately, according to nearly every study conducted, these subsidy programs, particularly the high-cost program, are not cost-effective. The Government Accountability Office (GAO) has published multiple reports on deficiencies including, “lack of performance goals and measures

² Much of this section is from TPI’s *Broadband Policy Guidebook*, <https://techpolicyinstitute.org/wp-content/uploads/2022/04/TPI-Broadband-Policy-Guidebook-2022.pdf>. The full Guidebook is attached to this testimony as supplemental material.

³ <https://www.fcc.gov/general/monitoring-reports-2010-and-earlier>

for the program and weak internal controls.”⁴ The Office of Management and Budget (OMB) has criticized the program for “inability to base funding decisions on measurable benefits.”⁵ GAO has raised alarms previously about the Lifeline program, and noted delayed responses by the FCC to address problems that it raised in earlier reports.⁶ The Congressional Research Service (CRS) has noted concerns about the administration of the USF as well.⁷

In a 2013 report, for example, CRS asked the central question for the USF: “How is Success Defined?”⁸ Aside from collecting and spending funds, are outcomes in broadband deployment and adoption properly measured and achieved? Regarding broadband deployment, how does the FCC set universal benchmarks for speed, capacity, and latency? Regarding broadband adoption and the digital divide, how does the FCC account for causal drivers of adoption such as cost, digital literacy, and lack of relevance?

The FCC has since made progress on improving universal service programs, particularly by using competitive bidding via reverse auctions to distribute subsidies in some cases.⁹ Reverse auctions to distribute subsidies have been shown around the world to be more effective than other methods, like cost-based support.¹⁰ Still, the vast majority of funds for high-cost support are allocated without any competition for funds.

The current set of new programs is, as many people have said, a once-in-a-lifetime opportunity to provide broadband access everywhere. But a lot of money is not infinite money, and regardless of how much it is, it should be spent judiciously and cost-effectively. This is a challenging task since, as the GAO said in May, “no current national strategy exists with clear roles, goals, objectives, and performance measures.”¹¹

⁴ GAO, *FCC Has Reformed the High-Cost Program, But Oversight and Management Could be Improved*, (July 25, 2012), GAO-12-738, <https://www.gao.gov/assets/600/592957.pdf>.

⁵ *Id.*

⁶ GAO, *Additional Action Needed to Address Significant Risks in FCC’s Lifeline Program*, GAO-17-538 (May 30, 2017), <https://www.gao.gov/assets/690/684974.pdf>; GAO, *Telecommunications: Improved Management Can Enhance FCC Decision Making for the Universal Service Fund Low-Income Program*, GAO-11-11 (Oct. 28, 2010), <https://www.gao.gov/assets/320/312708.pdf>; GAO, *Telecommunications: FCC Should Evaluate the Efficiency and Effectiveness of the Lifeline Program*, GAO-15-335 (Mar. 24, 2015), <https://www.gao.gov/assets/670/669209.pdf>.

⁷ CRS Report, *Universal Service Fund: Background and Options for Reform*, RL33979, June 30, 2011, <https://fas.org/sgp/crs/misc/RL33979.pdf>; CRS Report, *Rural Broadband: The Roles of the Rural Utilities Service and the Universal Service Fund*, R42524, June 25, 2013, <https://crsreports.congress.gov/product/pdf/R/R42524>.

⁸ *Id.* at 16.

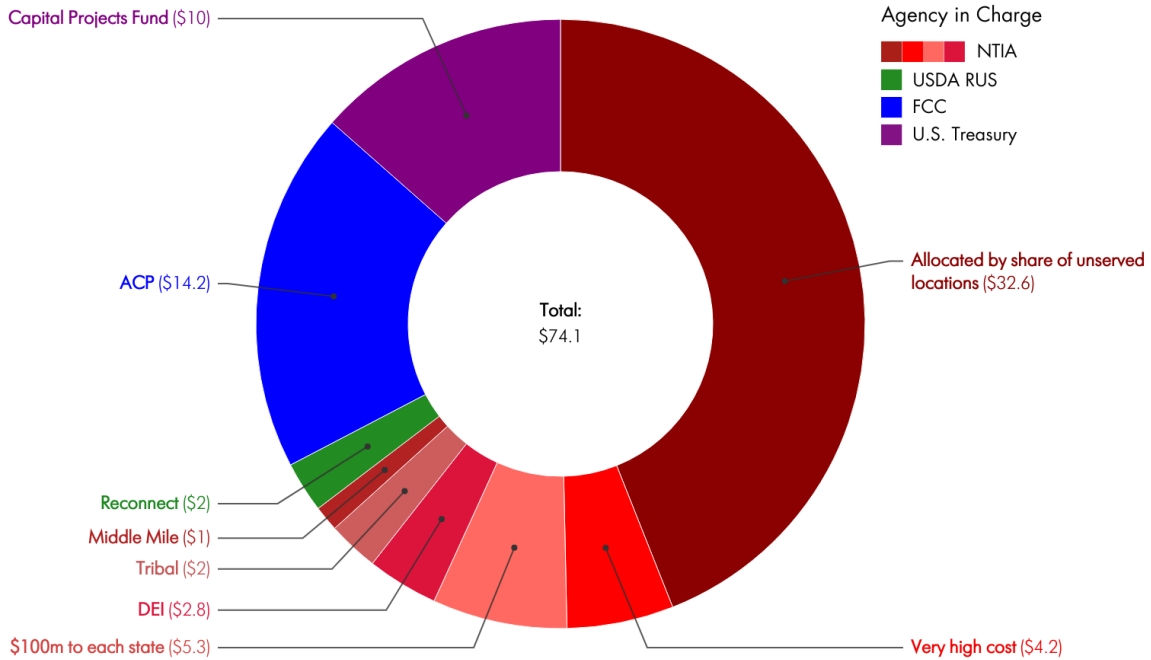
⁹ Scott Wallsten, “Two Cheers for the FCC’s Mobility Fund Reverse Auction,” *Journal on Telecommunications and High Technology Law* 11, no. 2 (November 22, 2013).

¹⁰ Scott Wallsten, “Reverse Auctions and Universal Telecommunications Service: Lessons from Global Experience,” *Federal Communications Law Journal* 61, no. 2 (March 2009).

¹¹ <https://www.gao.gov/assets/gao-23-106818.pdf>

IIJA and CARES Act Broadband Funds in \$ Billions

Only includes explicit broadband funding. Other parts of CARES can be used for broadband but are not explicitly broadband programs.



Four Guidelines

In addition to not having a coherent national strategy, programs are not incorporating lessons from the past. Some of the fault lies with legislation for attaching conditions, like Buy America, that raise costs. But NTIA, the Treasury, and other agencies responsible could do much more to ensure the money is spent well by following four guidelines. The following sections detail those guidelines.

Use True Competition, Ideally Reverse Auctions, to Distribute Funds

Funds should be distributed through competitive mechanisms that allow projects to be compared to each other across specific measurable factors. The ideal mechanism for doing this is a reverse auction. We know from experience that reverse auctions, when done properly, can bring down subsidized price per location by more than half.¹²

¹² Wallsten, Scott. “Two Cheers for the FCC’s Mobility Fund Reverse Auction.” *Journal on Telecommunications and High Technology Law* 11, no. 2 (November 22, 2013). Wallsten, Scott. “Reverse Auctions and Universal Telecommunications Service: Lessons from Global Experience.” *Federal Communications Law Journal* 61, no. 2 (March 2009). http://www.jthtl.org/content/articles/V11I2/JTHTLv11i2_Wallsten.PDF.

While the NTIA pays lip service to “competition” in its guidelines, it provides no guidance, rules, requirements, framework or accountability for states to incorporate competition into their award decisions. For competition to exist, NTIA must demand a plan from the states or require them to adopt a default competition plan, preferably a reverse auction.

Reverse auctions are currently unpopular because of problems with The Rural Development Opportunity Fund (RDOF), but what went wrong was not the auction. The auction worked well, bringing down subsidy levels by about half, on average.

The problems with RDOF were, however, real. The auction had weak eligibility rules, allowing companies like LTD Broadband LLC to bid when it had little chance of offering the service it promised. The key point here is that the grant-maker must set eligibility rules in advance of the award regardless of the mechanism used to distribute the money. Similarly weak eligibility rules would have generated similar problems regardless of whether funds were distributed using reverse auctions or something else.

Designing eligibility rules is not simple. For the sake of competition, it is important that firms other than incumbents can participate, and eligibility rules should reflect that. One way to balance the need for firms that can do what they promise and competition for providing service is to make sure that the distribution mechanism is designed to ensure that winning firms bear the risk of performance instead of the government hoping they will comply.

A second problem with RDOF is that the FCC changed the eligibility rules after the auction. Specifically, after SpaceX won \$886 million in the auction, the FCC decided the company was ineligible. Setting aside the question of whether SpaceX should have been allowed to participate, deciding after the fact that it was not creates credibility problems for the FCC that may manifest in its next grant-making opportunity.

In short, well-designed auctions with good eligibility rules will ensure that the money helps more people than would other distribution mechanisms.

Require Rigorous, Independent Evaluation

All programs should be subject to independent evaluation. Evaluation does not mean requiring providers that win money to show that they did what they promised. That kind of reporting and checking measures compliance, which is important, but does not address whether the subsidies made a difference and whether the money was spent in a cost-effective manner.

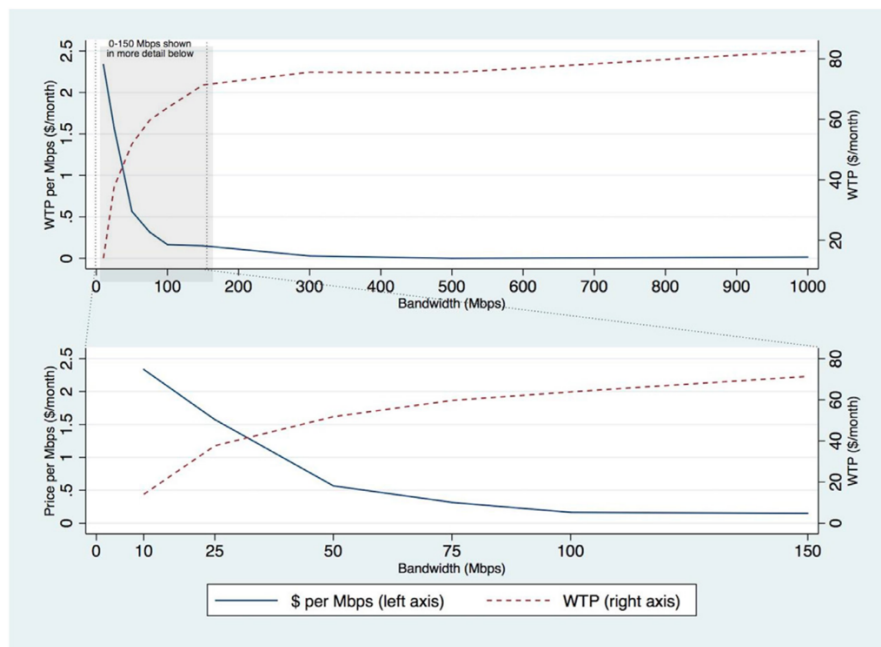
True evaluation must be built in from the beginning and requires some kind of comparison. What would have happened without the subsidy? How cost-effective are the buildouts compared to similar ones? That must be part of a subsidy program if we are going to know whether it was money well-spent.

To my knowledge, no broadband subsidy program has included this kind of evaluation.

Set Desired Broadband Characteristics, Not Specific Technologies

Funding should be technology neutral, with minimum specifications based on what consumers want. We know from extensive research that people value more bandwidth a lot at first, but then less and less. So, for example, while a 10 Mbps connection is much more valuable than a 1 Mbps connection, a 1 Gigabit connection is only somewhat more valuable than a 100 Mbps connection.¹³

The Figure below shows this information from Liu, et al (2018).¹⁴ While more bandwidth becomes more valuable over time, meaning that we would expect these curves to shift upward with more recent data, it is clear that demand for *additional* bandwidth is lower at faster speeds: the dashed line in the figures increase sharply at low bandwidth levels but plateaus as bandwidth continues to increase.



Source: Figure 2 in Liu, et al (2018).¹⁵

Grantors should also consider how long it will take from winning a grant to providing service. For example, is a gigabit symmetric connection in three years worth more to a family than a

¹³ Rosston, Gregory, Scott Savage, and Donald Waldman. "Household Demand for Broadband Internet Service." *The B.E. Journal of Economic Analysis and Policy* 10, no. 1 (September 9, 2010); Liu, Yu-Hsin, Jeffrey Prince, and Scott Wallsten. "Distinguishing Bandwidth and Latency in Households' Willingness-to-Pay for Broadband Internet Speed." *Information Economics and Policy*, July 2018.

¹⁴ Liu, Yu-Hsin, Jeffrey Prince, and Scott Wallsten. "Distinguishing Bandwidth and Latency in Households' Willingness-to-Pay for Broadband Internet Speed." *Information Economics and Policy*, July 2018. <https://doi.org/10.1016/j.infoecopol.2018.07.001>.

¹⁵ Liu, Yu-Hsin, Jeffrey Prince, and Scott Wallsten. "Distinguishing Bandwidth and Latency in Households' Willingness-to-Pay for Broadband Internet Speed." *Information Economics and Policy*, July 2018. <https://doi.org/10.1016/j.infoecopol.2018.07.001>.

100/20 connection from a LEO satellite tomorrow? The question is not rhetorical. Research on consumer preferences can find an answer.

The Office of Management and Budget requires that regulatory analyses take time into account: “Benefits and costs are worth more if they are experienced sooner, all else equal, and discounting is the way to reflect this. All future benefits and costs, including non-monetized benefits and costs, should be discounted.”¹⁶ We recognize the importance of time in nearly all regulatory questions. We should for broadband provision, too.

Consumer preferences can be built into choice mechanisms through weights. A gigabit connection should be worth more than a 100/20 connection, and weights can help decide how much more. The FCC has used this approach and it works well.

Make Sure Subsidies Are One-Time Only

It is important to minimize the chances that subsidized networks will come back in a few years and make a credible case for additional subsidies. For example, price regulation in the form of “middle class affordability” or other poorly defined concepts will allow providers to claim, perhaps reasonably, that networks are not sustainable at mandated low prices. Programs should fund networks that are sustainable without additional subsidies.

Conclusion

The U.S. has already spent nearly \$100 billion on telecommunications in rural areas, including on broadband since 2011. Studies reveal we have little to show for that investment. We do, however, know how to do better, and we should apply those lessons to money that has not yet been spent: allocate funds by true competitive bidding, specifically reverse auctions; require true independent, rigorous evaluation rather than only compliance checks; technology-neutral funding that is based on what consumers value; and attention to minimizing the chances that grant recipients come back to ask for more money.

¹⁶ <https://www.whitehouse.gov/wp-content/uploads/2023/04/CircularA94.pdf>