PERSPECTIVES

PHOENIX CENTER FOR ADVANCED LEGAL & ECONOMIC PUBLIC POLICY STUDIES

Digital Discrimination and Broadband Subsidies: Which Matters?

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Buried deep within the stunning array of broadband subsidy provisions contained in the Infrastructure Investment and Jobs Act of 2021 lies Section 60506—labeled "Digital Discrimination"—which requires the Federal Communications Commission ("FCC") to issue rules to prevent "digital discrimination of access based on income level, race, ethnicity, color, religion, or national origin," while taking into account the issues of "technical and economic feasibility."[1]

Although Section 60506 perhaps represents a sign of our political times,[2] there simply is no credible evidence of a racial disparity in broadband deployment. In the *Draft Orde*r to implement Section 60506 the FCC released in anticipation of its November 2023 Open Meeting, the Commission fails to cite to any credible evidence of Digital Discrimination.[3] In fact, as shown in Beard and Ford (2023) and Ford and Spiwak (2023), the average minority household has better access to broadband than the average white household, largely on account of a higher ratio of minorities living in urban areas.[4] Both studies, using the FCC's broadband deployment data, find that minorities have better access to broadband ignoring economic and technical factors, but this advantage vanishes in a richer model that includes these factors.

Similar results are found in Skinner, Levy and Burtch (2023), who compare broadband availability in areas in and around places that were "redlined" in historical maps.[5] This study was cited in the *Draft Order* in support of digital discrimination, though the study concludes: "Overall, results using FCC Form 477 data suggest that potential broadband access as measured by ISP-reported service shows little difference by HOLC neighborhood classification across a range of technology types."

[U]nlike efforts to remedy alleged Digital Discrimination, demand-side subsidies such as the Affordable Connectivity Program have some empirical support. Accordingly, Commission resources devoted to remedying alleged Digital Discrimination are largely wasted and would be better spent on improving the efficacy of the Affordable Connectivity Program.

In this PERSPECTIVE, I return to this empirical question using a different data source—the Current Population Survey ("CPS") data. These data are used by the National Telecommunications and Information Agency ("NTIA") for its various reports and analysis on broadband services, including the Digital Divide. The data include responses to why a household does not use the Internet at home including the lack of availability. Thus, it is possible to quantify whether minority households report a lack of

availability more frequently than do white households. While my approach is simpler than these prior studies, I again find no evidence of deployment discrimination. In fact, minority households are less likely to say the lack of availability is the cause of non-adoption.

The data also permit an analysis of affordability and demand. Here, I find that minority households are more likely to say affordability is a concern, yet they are less likely to report no interest in broadband. Thus, unlike efforts to remedy alleged Digital Discrimination, demand-side subsidies such as the Affordable Connectivity Program have some empirical support. Accordingly, Commission resources devoted to remedying alleged Digital Discrimination are largely wasted and would be better spent on improving the efficacy of the Affordable Connectivity Program.

Data

Data on broadband adoption and the reasons for not adopting broadband are obtained from the Current Population Survey ("CPS") for years 2017, 2019, and 2021.[6] Racial groups included in the sample are Whites, Hispanics, Blacks, and Asian-Pacific islanders. American Indian and mixed-race households are excluded due to small sample sizes. Income is measured by family income and a six-group categorical variable is created: (1) less than $25,000; (2) $25,000 to $50,000; (3) $50,000 to $75,000; (4) $75,000 to $100,000; (5) $100,000 to $150,000; and (6) $150,000 or more.

The primary variable of interest is households that report not using broadband in the home due to non-availability of broadband service. Three other responses to why a household does not have Internet in the home are considered in this analysis including: (1) "can't afford it"; (2) "not worth it"; and (3) "don't need or it not interested", the latter being the largest response category by far. The 2021 data also include a willingness-to-pay for broadband service for non-adopters. The analysis of these variables speaks to the usefulness of demand-side subsidies for broadband adoption, such as the Affordable Connectivity Program.

Analysis

There are ten possible responses to why a household does not have Internet in the home. The sample means are provided in Table 1. The "don't need it or not interested" response is, by far, the most common answer, with "can't afford it" and "other" being a distant second and third.[7] My attention is first on the "not available" response, as my interest is in whether racial minorities have a higher response rate for this reply. The sample frequency is about 3% of households, or 742 of 23,547 non-use households. While the response is infrequent, regression analysis produces reliable results given the large number of responses.[8]

Table 1. Why No Internet in Home

Response	Rate
Can't Afford It	16.13%
Not Worth It	2.75%
Not Interested	59.12%
Use Elsewhere	2.48%
Not Available	3.01%
No Computer	3.46%
Privacy	1.21%
Safety	0.80%
Moving	0.51%
Other	10.53%

Since the ten possible responses as to why a household does not have Internet in the home are mutually exclusive (and sum to one), the relationships between the responses and variables of interest are estimated by Multinomial Logit ("ML"). The ML coefficients are difficult to interpret, so I report the Average Marginal Effects ("AME"), which have the same interpretation as the LPM; that is, a coefficient of 0.01 indicates a one-percentage point difference in the outcome. The Linear Probability Model

("LPM") provides almost identical results and would be suitable for this analysis.

The basic model is,

$$y_{ij} = \beta_{0j} H_i + \beta_{1j} B_i + \beta_{2j} A_i + \alpha_j MET + \gamma_{ij} + \mu_{tj} + \varepsilon_{ij} \quad (1)$$

where y_{ij} is outcome j for household i, H is an indicator for Hispanics, B for Blacks, A for Asian-Pacific Islanders, MET is an indicator for the household being within a metropolitan area, γ is a fixed effect for income level, μ is a fixed effect for year, and ε is the econometric disturbance term.[9] The regressors are the same for all outcomes but the coefficients are allowed to differ. The regressions are weighted by the survey-supplied household weight and the standard errors are clustered at the state-metropolitan level.

Results: Broadband Not Available

Table 2 summarizes the regression results for the "not available" response. The first column excludes the income variables while the third includes them. The second model excludes the *MET* variable. The sample includes 23,546 non-Internet households.

Table 2. Broadband Not Available

Variable	Model 1	Model 2	Model 3
H	-0.0115***	-0.0167***	-0.0069*
B	-0.0069*	-0.0099**	-0.0008
A	-0.0074	-0.0136**	-0.0085*
MET	-0.0209***		-0.0242***
$25-50,000			0.0093***
$50-75000			0.0258***
$75-100,000			0.0227***
$100-150,000			0.0391***
> $150,000			0.0484***
2019	0.0095***	0.0098**	0.0073*
2021	0.0163***	0.0164***	0.0122***
Obs.	23,546	23,546	23,546

Average Marginal Effects reported.
Stat. Sig. *** 1% ** 5% * 10%

Excluding the income variable, we see that minority households are less likely to report unavailability of broadband as the reason for not having broadband in the home.[10] In the second column, where the *MET* variable is excluded, the β coefficients are more negative, and they are estimated more precisely. These results are consistent with Beard and Ford (2022) and Ford and Spiwak (2023) who find that minority households are, in fact, more likely to have broadband available (unconditionally), so this result is unsurprising. Minorities tend to live in urban areas (more so than White Americans), where broadband is generally available.[11] Yet, these results certainly raise questions about the need for strong Digital Discrimination policies.

Including income as a regressor reduces the precision of the β estimates, with only one of the coefficients being statistically different from zero, but all the β coefficients remain negative, though much closer to zero. Income materially reduces the effect of race, at least in this simple model.[12] The pattern in the coefficients also raises questions about Digital Discrimination since persons with higher incomes are more likely to report the lack of availability as the reason for not having broadband in the home.

Table 3. Predictions, Broadband Not Available

Race	Model 1	Model 2	Model 3
White	0.0314	0.0345	0.0268
Hispanic	0.0203	0.0190	0.0201
Diff.	-0.0110***	-0.0155***	-0.0068**
Black	0.0242	0.0242	0.0258
Diff.	-0.0072*	-0.0103**	-0.0010
AAPI	0.0240	0.0214	0.0191
Diff.	-0.0074	-0.0130***	-0.0077**

Stat. Sig. *** 1% ** 5% * 10%

Table 3 summarizes the predicted means of the regression (at the means of the other regressors) and their differences from the mean of White Americans.[13] The response rates for non-availability are lower for the minority groups than for White Americans, and often that

difference is statistically different from zero. These results do not support the presence of digital discrimination by race. Likewise, the larger, positive coefficients for higher incomes in Table 2 do not support the notion that lower income households have less opportunity to subscribe to broadband.

Availability, the focus of efforts to remedy Digital Discrimination, is not the problem—affordability, and a lack of interest, is the problem.

Results: Affordability and Demand

Beard and Ford (2022), Ford and Spiwak (2023), Skinner, *et al.* (2023) and this analysis cast doubt on the presence of Digital Discrimination.[14] Minorities have as much or better access to broadband than do White Americans. Another policy of potential relevance is the adoption subsidies of the Affordable Connectivity Program.

Table 4 summarizes the regression results for three alternative reasons for not having broadband in the home: (1) "can't afford it" (mean = 0.16); (2) "not worth it" (mean = 0.0275); and (3) "don't need it or not interested" (mean = 0.59). As is well established, the "don't need it or not interested" response is by far the frequent response. Subsidies are supported, perhaps, if affordability is a problem in the presence of a demand for broadband. This scenario is exactly what the data suggest.

Table 4. Affordability and Demand

Variable	Can't Afford	Not Worth It	Don't Need
H	-0.0854***	-0.0062*	-0.0221**
B	-0.0763***	-0.0056	-0.0378***
A	-0.0230	-0.0026	-0.0341
MET	0.0237***	-0.0039	-0.0158
$25-50,000	-0.0386***	0.0132***	0.0118
$50-75000	-0.1110***	0.0132***	0.0363***
$75-100,000	-0.1000***	0.0125*	0.0049
$100-150,000	-0.1090***	0.0185***	-0.0384***
> $150,000	-0.1030***	0.0048	-0.0495**
2019	-0.0121	-0.0019	0.0181**
2021	-0.0350***	-0.0072*	0.0080
Obs.	23,546	23,546	23,546

Average Marginal Effects reported.
Stat. Sig. *** 1% ** 5% * 10%

For Hispanics and Blacks, affordability is more frequently reported than for White Americans, and the effect sizes are quite large (on a mean of 0.16). As summarized in Table 5, about 13% of White Americans, on average, report affordability problems while about 21% of Hispanics and Blacks do so—a 60% difference.[15] Yet, both racial groups are less likely to report broadband is "not worth it" and they "don't need it," with larger effects for the latter.

Table 5. Predictions, Affordability and Demand

Race	Can't Afford	Not Worth It	Don't Need
White	0.1254	0.0289	0.6069
Hispanic	0.2164	0.0226	0.5893
Diff.	0.0910***	-0.0063**	-0.0323***
Black	0.2055	0.0233	0.5792
Diff.	0.0801***	-0.0056	-0.0424***
AAPI	0.1453	0.0317	0.5854
Diff.	0.0199	0.0028	-0.0362*

Stat. Sig. *** 1% ** 5% * 10%

Another question is whether a subsidy is required to increase adoption? Table 5 summarizes the willingness-to-pay for broadband for non-adopters. About 75% of respondents indicated they would not pay a positive price for broadband. This does not mean

they would have broadband at a price of zero, but presumably some would do so. Two-thirds of respondents willing to pay $0 for broadband are those that are "not interested" in broadband at all, while about 10% are households that "can't afford" the service and 12% do not have broadband for "other" reasons. The average willingness to pay for the sample is $10, so clearly some type of subsidy will be required to get the unsubscribed online.

Table 6. Willingness to Pay

Response	Rate
$0	75.4%
$1-10	3.17%
$10-20	3.77%
$20-30	3.77%
$30-40	2.75%
$40-50	2.50%
$50-75	4.96%
> $75	3.71%

Availability, the focus of efforts to remedy Digital Discrimination, is not the problem—affordability and a lack of interest are the problems. The ACP targets the affordability issue directly, though arguably imprecisely and expensively. Waste, fraud, and abuse, like all subsidy programs, remains a problem, but it is generally believed that that ACP suffers less from these concerns than prior subsidy schemes.[16] Continued vigilance in monitoring the program may serve to increase broadband adoption without excessive costs, but universal adoption seems illusive due to the lack of interest.

Conclusion

Like the Commission's Form 477 and fabric broadband deployment data, data from the Current Population Survey, like the FCC's broadband deployment data, do not indicate the presence of digital discrimination. Minorities have equal or better availability than do White Americans.

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The data used here do suggest, however, that affordability holds back more widespread broadband adoption. Adoption subsidies, therefore, are the more fruitful path to increasing and maintaining broadband adoption. This is, of course, obvious. Broadband is nearly universally available, with 92% having service at the 100/20 Mbps level or better.[17] Since the lack of deployment is largely a rural issue, the argument that minorities, who tend to live in urban areas, have less access to broadband is implausible. Adoption in the home, however, was 75% in 2021, and has grown slowly in the past few years.[18] A lack of interest is certainly the key driver of a lack of adoption, but affordability is relevant at the margins, and low prices may have some effect even those without present interest in the service. Commission resources devoted to Digital Discrimination would be better spent on improving the efficacy of the Affordable Connectivity Program.

NOTES:

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1 Infrastructure Investment and Jobs Act § 60506, codified at 47 U.S.C. § 1754.

2 L.J. Spiwak, *Race and Reckoning Come to the Broadband Debate,* FEDERALIST SOCIETY BLOG (February 22, 2023) (available at: https://fedsoc.org/commentary/fedsoc-blog/race-and-reckoning-come-to-the-broadband-debate).

3 *In the Matter of Implementing the Infrastructure Investment and Jobs Act: Prevention and Elimination of Digital Discrimination,* FCC-CIRC2311-01, REPORT AND ORDER AND FURTHER NOTICE OF PROPOSED RULEMAKING (available at: https://docs.fcc.gov/public/attachments/DOC-397997A1.pdf) (hereinafter "*Draft Order*").

4 T.R. Beard and G.S. Ford, *Digital Discrimination: Fiber Availability and Speeds by Race and Income,* PHOENIX CENTER POLICY PAPER NO. 58 (September 2022) (available at: https://phoenix-center.org/pcpp/PCPP58Final.pdf); G.S. Ford and L.J. Spiwak, *Digital Discrimination Under Disparate Impact: A Legal and Economic Analysis*, PHOENIX CENTER POLICY PAPER NO. 61 (October 2023) (https://phoenix-center.org/pcpp/PCPP61Final.pdf).

5 B. Skinner, H. Levy, and T. Burtch, *Digital Redlining: The Relevance of 20th Century Housing Policy to 21st Century Broadband Access and Education*, EDWORKING PAPER NO. 21-471 (Brown University) (April 2023) (available at: https://www.edworkingpapers.com/ai21-471).

6 Data available at: https://www.ntia.gov/page/download-ntia-internet-use-survey-datasets.

7 G.S. Ford, *Challenges to Universal Adoption: A Look at NTIA's New Data*, PHOENIX CENTER POLICY PERSPECTIVE No. 22-03 (June 9, 2022) (available at: https://www.phoenix-center.org/perspectives/Perspective22-03Final.pdf); G.S. Ford, *Subsidizing Broadband: Price, Relevance, and the Digital Divide* , PHOENIX CENTER POLICY PERSPECTIVE No. 20-05 (July 7, 2020) (available at: https://www.phoenix-center.org/perspectives/Perspective20-05Final.pdf); G.S. Ford, *Confusing Relevance and Price: Interpreting and Improving Surveys on Internet Non-Adoption*, 45 TELECOMMUNICATIONS POLICY 102084 (2021); M. Cao and R. Goldberg, *Switched Off: Why Are One in Five U.S. Households Not Online?*, National Information and Technology Administration (2022) (available at: https://www.ntia.gov/blog/2022/switched-why-are-one-five-us-households-not-online).

8 *See, e.g.*, R. Williams, *Analyzing Rare Events with Logistic Regression*, Unpublished Manuscript (April 5, 2019) (available at: https://www3.nd.edu/~rwilliam/stats3/RareEvents.pdf).

9 State fixed effects had no meaningful impact on the results so are excluded.

10 From the Multinomial Logit Model, the comparable effects (average marginal effects) to the coefficients in Table 1 are: *H* (-0.0110); *B* (-0.0072); and *A* (-0.0074). The effects across the two estimation models are nearly identical.

11 For instance, the means of the *MET* variable by race are: White (75.3%); Hispanic (91.0%); Black (86.8%); and Asian-Pacific islander (95.1%).

12 Ford (2021) provides a richer model that suggests otherwise. G.S. Ford, *Race and Broadband Adoption: A Decomposition Analysis*, PHOENIX CENTER POLICY BULLETIN No. 52 (May 2021) (available at: https://www.phoenix-center.org/PolicyBulletin/PCPB52Final.pdf).

13 Based on Multinomial Logit, the predictions in the first column of Table 2 are: 0.0313, 0.0203, 0.0242, and 0.0239.

14 *Supra* n. 4.

15 Unlike the unavailable results, the β coefficients for affordability are not much impacted by the exclusion of income.

16 *See, e.g., Memorandum*: *Advisory Regarding Provider Enrollments of Multiple ACP Households Based on the Same Child/Dependent*, Office of the Inspector General, Federal Communications Commission (September 8, 2022) (available at: https://docs.fcc.gov/public/attachments/DOC-387009A1.pdf).

17 Data available at: https://broadbandmap.fcc.gov/area-summary/fixed.

18 Data available at: https://www.ntia.gov/other-publication/2022/digital-nation-data-explorer#sel=internetUser&disp=map.