

The Income Conundrum: Intent and Effects Analysis of Digital Discrimination

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Executive Summary

Section 60506 of the Infrastructure Investment and Jobs Act (“IIJA”)—signed by President Joe Biden on Nov. 15, 2021—requires the Federal Communications Commission (“FCC”) to adopt final rules facilitating equal access to broadband Internet. More specifically, the statutory text directs the FCC to prevent discrimination in broadband access based on income level, race, ethnicity, color, religion, or national origin, while also directing the Commission to consider issues of technical and economic feasibility.

Evaluating digital discrimination based on race, ethnicity, color, religion, or national origin should be relatively straightforward. But Section 60506 adds income level as a protected class. This presents what we call the “income conundrum.” It is virtually impossible to disentangle the factors affecting economic feasibility from factors correlated with membership in this particular protected class.

In this issue brief, we focus on the tension between the goals of preventing discrimination based on income level and ensuring that broadband-deployment projects are economically feasible, as well as the relevant distinctions between the application of intent-based or effects-based tests of discrimination. We find that some tests of so-called “digital discrimination” on the basis of income level—particularly in the context of effects-based “disparate impact” tests—can be misleading, and their application could be counterproductive.

First, it is important to note that Section 60506 refers to discrimination in the provision of broadband *access* and not to levels or rates of broadband *adoption*. While access is a necessary precondition to adopt broadband services, policymakers should be cautious not to infer that lack of adoption is necessarily caused by lack of access. Research finds that consumer income and the affordability of broadband services are key factors influencing whether those who enjoy broadband access will ultimately adopt broadband service. Other factors broadly correlated with income—such as age, educational attainment, and home-computer ownership and usage—similarly affect broadband-adoption decisions.

Thus, the use of income as a heuristic to determine whether providers’ deployment decisions are discriminatory is inherently fraught. Income level will influence consumer decisions to *adopt*

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broadband, which in turn affects providers' ability to deploy to a given area. Therefore, while correlations between income and broadband adoption certainly can be found, research to date does not find evidence that—all else being equal—broadband providers *intentionally* discriminate against similarly situated groups on the basis of income, race, or other protected characteristics when it comes to broadband *access*.

Further, it is broadly agreed that Section 60506's reference to "economic feasibility" refers to profitability—*e.g.*, to whether broadband providers can earn a competitive return from their investments in deployment. Because broadband providers' investment decisions are always constrained by their limited resources, they must prioritize deployment projects. As a consequence, they must decide not only whether a given project is likely to be profitable, but also how profitable it is likely to be relative to all other potential projects.

The expected profitability of any given broadband-deployment decision depends on a range of cost and demand factors. On the cost side, providers must consider a given territory's population density and terrain, as well as such factors as state and local rules and taxes. On the demand side, the propensity of consumers who would be served by the deployment to both adopt and purchase broadband are key factors. Thus, the general willingness within a given territory to adopt broadband factors into deployment decisions. Where there is insufficient willingness to purchase broadband service, deployment may not be profitable.

Population density is generally acknowledged as the most important cost factor driving broadband-deployment decisions. The U.S. Government Accountability Office reports that population density is the cost factor most cited as "a critical determinant of companies' deployment decisions," a conclusion supported by academic research. Population density also figures into the demand side of the equation, as the GAO notes that low-density rural areas often struggle to "aggregate sufficient demand" to purchase broadband service. Because population density also can be correlated with demographic factors like income, race, age, educational attainment, and home-computer use, however, there may be a temptation for policymakers to infer digital discrimination in deployment decisions that were, in fact, based on population density or other permitted cost and demand considerations.

Further complicating the evaluation of digital-discrimination claims based on income is that, not only is income a key factor influencing whether a given consumer will adopt broadband, but it is also highly correlated with race, ethnicity, national origin, age, education level, and home-computer ownership and usage. Any rules promulgated under Section 60506 that fail to recognize this "income conundrum" will invite costly and time-consuming litigation based on allegations of digital discrimination either where it does not exist or where it is excused by economic-feasibility considerations. Moreover, this threat of litigation could hinder, rather than foster, further broadband deployment.

The U.S. Supreme Court has established tests governing when it is appropriate to conduct an effects-based "disparate impact" analysis in the context of discrimination law. Applying this rubric to

Section 60506, we find that it lacks “results-oriented language.” The prohibition against digital discrimination “based on income level, race, ethnicity, color, religion, or national origin” would therefore apply only in cases of *intentional* discrimination in deployment decisions. Mere statistical correlation between deployment and protected characteristics is insufficient to support a finding of discrimination.

Finally, to close the so-called “digital divide,” it would be wise to avoid creating inefficient bureaucratic processes through which broadband providers would be forced to defend economically justified deployment decisions. For this reason, FCC rules should articulate a presumption of non-discrimination, in which allegations of digital discrimination must be demonstrated, rather than a presumption of discrimination that must be rebutted for each deployment decision. Direct user support—such as that offered by the Affordable Connectivity Program and programs operated under the Universal Service Fund—is a much more direct and economically efficient way to help close the “adoption gap” component of the digital divide.

I. Introduction

As part of 2021’s Infrastructure Investment and Jobs Act (“IIJA”), Congress tasked the Federal Communications Commission (“FCC”) with investigating and remedying “digital discrimination” in broadband deployment.¹ The law directs the Commission to adopt rules that “facilitate equal access to broadband internet access service,” which is defined as “preventing digital discrimination of access based on income level, race, ethnicity, color, religion, or national origin.”² To this end, the Commission issued a Notice of Inquiry (“NOI”)³ as a first step toward an ultimate rulemaking.⁴

The NOI states that “one of the Commission’s foremost goals is to ensure that every person in the United States has equal access to high-quality, affordable broadband internet access service... Every person across our Nation deserves—and must have—equal access to this crucial technology in the increasingly digital world; a person’s zip code should not determine their destiny.”⁵

But Section 60506 of the IIJA⁶ creates a tension between the goals of encouraging greater broadband deployment and remedying alleged discrimination; indeed, some efforts to address the latter concern could result in slower investment in buildout. Importantly, the NOI does not focus on extending

¹ H.R. 3684, 117th Cong. (2021).

² 47 U.S.C. § 1754(b).

³ Notice of Inquiry, *In the Matter of Implementing the Infrastructure Investment and Jobs Act: Prevention and Elimination of Digital Discrimination*, GN Docket No. 22-69 (Feb. 23, 2022), at para. 1 [hereinafter “NOI”].

⁴ This issue brief supplements and extends the comments we submitted to the Commission as part of the NOI: *Comments in the Matter of Implementing the Infrastructure Investment and Jobs Act: Prevention and Elimination of Digital Discrimination*, GN Docket No. 22-69, INTERNATIONAL CENTER FOR LAW & ECONOMICS (2022), accessed at: <https://laweconcenter.org/resource/icle-comments-to-the-fcc-on-prevention-and-elimination-of-digital-discrimination>.

⁵ NOI, *supra* note 4, at para. 1.

⁶ 47 U.S.C. § 1754 [hereinafter “Section 60506”]

broadband deployment to the truly unserved—*i.e.*, to those who lack any broadband Internet options at all.⁷ In fact, the word “unserved” does not appear in the NOI at all, while the NOI instead declares that its target is the “underserved.”⁸ But rather than define “underserved” consumers by reference to their relative inability to access broadband Internet service, the NOI defines the set as those who are members of categories that “have been historically underserved, marginalized, or adversely affected by persistent poverty or inequality” because of their income level, race, color, religion, or national origin.⁹ The NOI therefore includes in the ranks of the “underserved” individuals who *do* have the ability to access broadband service, although potentially at slower speeds than some of their neighbors, or who have otherwise opted not to adopt broadband service.

Getting faster Internet to those who live where broadband service already exists, or assisting them in paying for access to the service that already exists, are fundamentally different problems than that faced by Americans who lack Internet access because they live in geographic areas without broadband infrastructure. Moreover, onerous or poorly implemented requirements that seek to curtail “digital discrimination” may be more likely to generally slow further broadband deployment than to speed it. An overly broad enforcement regime—one that sought to apply effects-based “disparate impact” tests or that operated from a presumption of discrimination—could force providers to constantly justify everything from decisions around actual deployment to decisions regarding whether to bid on particular deployment programs offered by governments.

Indeed, were the Commission to pursue economically ill-considered rules to curtail alleged “digital discrimination,” it could lead to intractable litigation. As we discuss below, the U.S. Supreme Court has in the recent past imposed limits on how “disparate impact” tests may be imposed by legislation.¹⁰ These limits apply even to sectors with a demonstrated history of discriminatory redlining, such as housing.

It is undoubtedly important to examine patterns of deployment to discover how best to connect underserved communities. But if we are to overcome impediments that stand in the way of reaching every potential broadband consumer, it is essential that the FCC carefully consider how and why investment decisions are made in broadband markets.¹¹

⁷ Currently defined by the FCC as 25/3 Mbps for terrestrial fixed broadband and 10/1 for mobile broadband. See *Fourteenth Broadband Deployment Report, In the Matter of Inquiry Concerning Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion*, GN Docket No. 20-269 (Jan. 19, 2021), at para. 12 (defining terrestrial fixed broadband), para. 15 (defining mobile broadband) [hereinafter “Fourteenth Broadband Deployment Report”].

⁸ NOI, *supra* note 4, at para. 2 (quoting 47 U.S.C. § 1754(b)(1)).

⁹ *Id.* at para. 3, n. 5; *id.* at para. 40 (both quoting Executive Order 13985).

¹⁰ *Texas Dept. of Housing & Community Affairs v. The Inclusive Communities Project*, 576 U.S. 519, (2015).

¹¹ See, Geoffrey A. Manne, Kristian Stout, & Ben Sperry, *A Dynamic Analysis of Broadband Competition: What Concentration Numbers Fail to Capture*, ICLC White Paper (June 2021), available at <https://laweconcenter.org/wp-content/uploads/2021/06/A-Dynamic-Analysis-of-Broadband-Competition.pdf> [hereinafter “ICLC Broadband Competition Paper”].

In short, we generally question the NOI's framing of broadband-connectivity issues as being primarily or even substantially a matter of "discrimination." Indeed, the IJA's project to eliminate "digital discrimination of access based on income level"¹² may not usefully forward efforts to connect the underserved at all. While there remains much work to be done to achieve the goal of universal connectivity, the FCC is already well-aware of the technical, economic, regulatory, and geographical issues that can impede deployment. The Commission should continue the important work it is already doing to address those issues and should ensure that its implementation of Section 60506 is focused on remedying cases where there is strong evidence of *intentional* discrimination against consumers based on protected characteristics.

In Part II, we analyze the relevant legal concerns for the Commission, should it seek to undertake a "disparate impact" rulemaking. In Part III, we discuss the theoretical and practical challenges that attend treating "income level" as a protected category. We address the economics of "access vs. adoption" and how, if not treated carefully, the issue would substantially skew any effects-based analysis of broadband-deployment patterns. We also discuss the economics of broadband deployment, including the factors that best explain deployment patterns. Part IV concludes with a brief set of policy recommendations.

II. Disparate Impact & Digital Discrimination: A Legal Analysis

Section 60506 requires that:

[T]he Commission shall adopt final rules to facilitate equal access to broadband internet access service, taking into account the issues of technical and economic feasibility presented by that objective, including... preventing digital discrimination of access based on income level, race, ethnicity, color, religion, or national origin; and... identifying necessary steps for the Commissions to take to eliminate discrimination...¹³

Pursuant to this, the FCC asks in its NOI for:

... comment on how we should understand when digital discrimination is "based on" one of the listed characteristics. Does the term "based on" require discriminatory intent? If so, how would we determine the presence or absence of discriminatory intent? Would such an approach be practicably difficult to enforce? Alternatively or in addition, should we establish a "discriminatory effects" or disparate impact test?¹⁴

Advocates who support greater FCC authority to pursue alleged digital discrimination argue that the use of impermissible factors has contributed to underinvestment in minority communities and that "digital redlining has left unserved and underserved neighborhoods on the wrong side of the

¹² NOI, *supra* note 4, at para. 2.

¹³ Section 60506, *supra* note 6, at (b)(1)-(b)(2).

¹⁴ NOI, *supra* note 4, at para. 22.

digital divide.”¹⁵ Thus, a number of comments submitted to the record have called for the FCC to employ an effects-based “disparate impact” analysis under Section 60506.¹⁶ As we discuss below, however, both the structure of Section 60506 and the Supreme Court’s established jurisprudence on disparate-impact analysis suggest that it would be much more reasonable for the Commission to construe Section 60506 as directing an analysis of intentional discrimination in deployment.

Statutes that define impermissible discrimination, such as the Civil Rights Act of 1964, can be analyzed legally either as addressed toward explicit discriminatory intent, referred to as “discriminatory treatment,” or toward behavior inferred from discriminatory effects, such as the “disparate impact” that the challenged behavior or policy has on a protected class.¹⁷ A case involving discriminatory treatment is somewhat more straightforward,¹⁸ insofar as it demands evidence demonstrating that decisions adversely affecting some protected class were made because of bias toward members of that class. In this context, where deployment decisions are made on the basis of discriminatory intent, the Commission is on much firmer legal ground to pursue them.

By contrast, were the Commission to adopt a “disparate impact” assessment as part of Section 60506, it would face an uphill legal climb. Among the primary justifications for disparate-impact analysis is to remedy those historical patterns of *de jure* segregation that left an indelible mark on minority communities.¹⁹ While racial discrimination has not been purged from society, broadband only became prominent in the United States well after all forms of *de jure* segregation were made illegal, and after Congress and the courts had invested decades in rooting out impermissible *de facto* discrimination. Any policy intended to tackle disparate impact in broadband deployment needs to take this history into account.

Moreover, there is little evidence that IJJA’s drafters intended the law to be read so broadly. The legislative record on Section 60506 is exceedingly sparse, containing almost no discussion of the provision beyond assurances that “broadband ought to be available to all Americans,”²⁰ and also that the provision was not to be used as a basis for the “regulation of internet rates.”²¹ Given that sparse textual basis, reading Section 60506 as granting the Commission expansive powers to serve as a broadband civil-rights czar could also run afoul of the “major questions” doctrine.²² That

¹⁵ Comments of the Joint Advocates on Digital Discrimination, GN Docket No. 22-69 (May 16, 2022).

¹⁶ See Comments of Public Knowledge, GN Docket No. 22-69 (May 16, 2022), pp 7-10; see also, Comments of the Multicultural Media Telecom and Internet Council, GN Docket No. 22-69 (May 16, 2022); Reply Comments of the National Digital Inclusion Alliance, GN Docket No. 22-69 (June 30, 2022).

¹⁷ *Ricci v. DeStefano*, 557 U.S. 557, 577, (2009).

¹⁸ See, *id.* (Intentional discrimination cases “present the most easily understood type of discrimination...[that] occur[s] where [a party] has treated [a] particular person less favorably than others because of a protected trait.”).

¹⁹ *Texas Dep’t of Hous. & Cmty. Affs.*, 576 U.S. at 528–29.

²⁰ 167 Cong. Rec. 6046 (2021).

²¹ 167 Cong. Rec. 6053 (2021).

²² See, e.g., *West Virginia v. EPA*, 142 S. Ct. 420, (2021).

doctrine requires Congress “to speak clearly if it wishes to assign to an agency decisions of vast ‘economic and political significance.’”²³

More specifically, it does not appear that Section 60506 can be reasonably construed as authorizing disparate-impact analysis. While the Supreme Court continues to uphold disparate-impact analysis in the context of civil-rights law, it has recently imposed some important limitations. For example, in *Texas Department of Housing & Community Affairs v. The Inclusive Communities Project, Inc.*, the Court upheld the disparate-impact doctrine, but noted that disparate-impact claims arise under statutes explicitly directed “to the consequences of an action rather than the actor’s intent.”²⁴ For example, in the Fair Housing Act, Congress made it unlawful:

To refuse to sell or rent after the making of a bona fide offer, or to refuse to negotiate for the sale or rental of, or otherwise make unavailable or deny, a dwelling to any person because of race, color, religion, sex, familial status, or national origin.²⁵ [Emphasis added.]

The Court noted that the presence of language like “otherwise make unavailable” is critical to construing a statute as demanding an effects-based analysis.²⁶ Such phrases, the Court found, “refer[] to the consequences of an action rather than the actor's intent.”²⁷ Further, the structure of a statute’s language matters:

The relevant statutory phrases... play an identical role in the structure common to all three statutes: Located at the end of lengthy sentences that begin with prohibitions on disparate treatment, they serve as catchall phrases looking to consequences, not intent. And all [of these] statutes use the word “otherwise” to introduce the results-oriented phrase. “Otherwise” means “in a different way or manner,” thus signaling a shift in emphasis from an actor's intent to the consequences of his actions.²⁸

The Court reached this holding after reviewing a number of its previous decisions developing the distinction between effects-based and intent-based interpretations of a law. Particularly relevant here, in *Univ. of Texas Sw. Med. Ctr. v. Nassar*, the Court considered statutory language that prohibited discrimination “because of ... age” and found that it only prevented *intentional* discrimination.²⁹ The

²³ *Util. Air Regulatory Group v. EPA*, 573 U.S. 302, (2014) quoting *FDA v. Brown & Williamson Tobacco Corp.*, 529 U.S. 120, (1999); see also, *West Virginia v. EPA*, 142 S. Ct. 420.

²⁴ *Texas Dep't of Hous. & Cmty. Affs.*, 576 U.S. at 534.

²⁵ 42 U.S.C. § 3604(a) (emphasis added).

²⁶ *Texas Dep't of Hous. & Cmty. Affs.*, 576 U.S. at 534.

²⁷ *Id.*

²⁸ *Id.* at 534-35.

²⁹ *Univ. of Texas Southwestern Med. Ctr. v. Nassar*, 570 U.S. 338, 350, (2013) (citing *Gross v. FBL Fin. Servs., Inc.*, 557 U.S. 167, 176, (2009)).

Court also noted that, in previous cases, it had construed “because of” to mean “‘based on’ and that ‘based on’ indicates a but-for causal relationship.”³⁰

Further, even where disparate analysis is appropriate, the Court held that it is significantly constrained by the need to ensure that the free-enterprise system continues to function:

[Supreme Court precedent] also teach[es] that disparate-impact liability must be limited so... regulated entities are able to make the practical business choices and profit-related decisions that sustain a vibrant and dynamic free-enterprise system. And before rejecting a business justification...a court must determine that a plaintiff has shown that there is “an available alternative ... practice that has less disparate impact and serves the [entity's] legitimate needs.”³¹ [Emphasis added.]

In practice, this means that lower courts are free to probe a disparate-impact claim rigorously in order to avoid such claims becoming a club to wield against regulated entities.³² It also suggests that, in a context such as Section 60506’s proscriptions against digital discrimination, they may not be so broad as to render it impossible for broadband providers to make effective decisions about which deployment projects are economically feasible.

Thus, as Section 60506 was drafted without “results-oriented language”³³ and instead frames the prohibition against digital discrimination as “*based on* income level, race, ethnicity, color, religion, or national origin,”³⁴ this would put the rule squarely within the realm of prohibitions on *intentional* discrimination.³⁵ That is, to be discriminatory, the decision to deploy or not to deploy must have been intentionally made *because of* the protected characteristic. Mere statistical correlation between deployment and protected characteristics is insufficient.

In enacting the IIJA, Congress was undoubtedly aware of the Court’s history with disparate-impact analysis. Had it chosen to do so, it could have made the requirements of Section 60506 align with the requirements of that precedent. But it chose not to do so, thereby reinforcing that it intended the FCC to have some discretion, but to err on the side caution when declaring practices an impermissible form of discrimination.

This is not to say that Section 60506 has no effect. As mentioned above, it can be reasonably read to encompass intentional discrimination, given appropriate evidence. Further, the means available

³⁰ *Id.* (citing *Safeco Ins. Co. of America v. Burr*, 551 U.S. 47, 63–64; n. 14, (2007)).

³¹ *Texas Dep’t of Hous. & Cmty. Affs.*, 576 U.S. at 533 (emphasis added).

³² *Texas Dep’t of Hous. & Cmty. Affs.*, 576 U.S. at 521–22 (“Courts should avoid interpreting disparate-impact liability to be so expansive as to inject racial considerations into every housing decision. These limitations are also necessary to protect defendants against abusive disparate-impact claims.”).

³³ *Id.*

³⁴ Section 60506, *supra* note 6 (emphasis added).

³⁵ *See, e.g., Ricci*, 557 U.S. 557.

to the FCC to remedy undesirable patterns of deployment are manifold. The only options rendered off the table would be requirements that are technologically or economically infeasible, such as an unfunded mandate that providers deploy at maximum speeds to all households simultaneously. As discussed further below, the FCC also has broad authority over various funding programs that it could use to generate both user subsidies and provider incentives to deployment, which could go a long way toward closing the digital divide.

III. Using Income as a Measure of Digital Discrimination

Evaluating digital discrimination based on race, ethnicity, color, religion, or national origin should be relatively straightforward. But Section 60506 adds income level as a protected class. This presents what we call the “income conundrum.” It is virtually impossible to disentangle the factors affecting economic feasibility from factors correlated with membership in this particular protected class.

The expected profitability of any given broadband-deployment decision will hinge on a range of cost and demand factors. On the cost side, providers must consider a given territory’s population density and terrain, as well as such factors as state and local rules and taxes. On the demand side, the propensity of consumers who would be served by the deployment to both adopt and purchase broadband are key factors. Thus, the general willingness within a given territory to adopt broadband weighs heavily in providers’ deployment decisions. Where there is insufficient willingness to purchase broadband service, deployment may not be profitable.

As we explain below, economic feasibility is essentially synonymous with return on investment. While income may be correlated with some factors that drive decisions to deploy, animus against potential customers with protected characteristics is almost certainly not an important factor in deployment decisions. Thus, even if the Commission engages in an intent-based analysis under Section 60506, there are many economic-feasibility factors it needs to take into consideration, which we set forth below.

A. Access vs. adoption

The text of Section 60506 refers to discrimination in the provision of broadband *access* and not to levels or rates of broadband *adoption*. While access is a necessary precondition to adopt broadband services, policymakers should be cautious not to infer that lack of adoption is necessarily caused by lack of access. Research finds that consumer income and the affordability of broadband services are key factors influencing whether those who enjoy broadband access will ultimately adopt broadband service. Other factors that may be broadly correlated with income—such as age, educational attainment, and home-computer ownership and usage—similarly influence broadband-adoption decisions. Thus, comparing relative levels of income in territories that are, or are not, chosen for broadband deployment is a poor heuristic to determine whether providers’ deployment decisions are discriminatory. Local income will influence consumer decisions to adopt broadband, which in turn affects whether it will be economically feasible for providers’ to deploy to a given area.

The Commission therefore should not summarily conclude that deployment patterns correlated with income are a form of impermissible discrimination. As explained above, in order to run afoul of Section 60506, the Commission should insist that challenged deployment decisions are directly attributable to an intentional choice not to serve consumers who are members of a protected category. To apply analysis that ignores intent and instead looks at whether members of such categories are impacted disparately by deployment decisions would threaten to create an unmanageable and open-ended legal standard that ultimately slows deployment overall.

Broadband access alone also may not be sufficient to drive greater rates of broadband adoption. For example, Brian Whitacre and his co-authors found that, while the reduced levels of broadband access in rural areas explained 38% of the rural-urban broadband-adoption gap in 2011, differences in other general characteristics—such as income and education—explain “roughly half of the gap.”³⁶ A report by the U.S. Government Accountability Office concluded that “even where broadband service is available ... an adoption gap may persist due to the affordability of broadband and lack of digital skills.”³⁷ The GAO report notes that nearly one-third of those with access to broadband do not subscribe to it and that “lower-income households have lower rates of home broadband subscriptions.”³⁸

The price of broadband services is another significant factor that affects adoption. A National Telecommunications and Information Administration survey of Internet use identified “affordability as a driving factor around why some households continue to remain offline, confirming that cost of service is an essential part of increasing Internet adoption.”³⁹ The survey reported that the average price that offline households wanted to pay for Internet access was approximately \$10 per month, and about 75% of households gave \$0 or “none” as their answer. Kenneth Flamm and Anindya Chaudhuri’s empirical research finds that broadband price is a “statistically significant driver” of broadband demand.⁴⁰ They conclude that broadband-price

³⁶ Brian Whitacre, Sharon Strover & Roberto Gallardo, *How Much Does Broadband Infrastructure Matter? Decomposing the Metro–Non-Metro Adoption Gap with the Help of the National Broadband Map*, 32 GOV’T INFO. Q. 261 (2015).

³⁷ U.S. Gov’t Accountability Off., GAO-22-104611, *Broadband: National Strategy Needed to Guide Federal Efforts to Reduce Digital Divide* (May 31, 2022) [hereinafter “GAO-22-104611”].

³⁸ *Id.* See also, *How Do Speed, Infrastructure, Access, and Adoption Inform Broadband Policy?*, PEW RESEARCH CENTER (Jul. 7, 2022), <https://www.pewtrusts.org/en/research-and-analysis/fact-sheets/2022/07/how-do-speed-infrastructure-access-and-adoption-inform-broadband-policy> (“nearly 1 in 4 Americans do not subscribe to a home broadband connection, even where one is available”).

³⁹ Michelle Cao & Rafi Goldberg, *New Analysis Shows Offline Households Are Willing to Pay \$10-a-Month on Average for Home Internet Service, Though Three in Four Say Any Cost is Too Much*, NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION (Oct. 6, 2022), <https://www.ntia.doc.gov/blog/2022/new-analysis-shows-offline-households-are-willing-pay-10-month-average-home-internet>.

⁴⁰ Kenneth Flamm & Anindya Chaudhuri, *An Analysis of the Determinants of Broadband Access*, 31 TELECOMM. POL’Y. 312 (2007).

declines in the early 2000s explain “some portion” of increased broadband adoption.⁴¹ Victor Glass and Stela Stefanova’s empirical study indicates that higher prices “depress” demand for broadband.⁴²

Price sensitivity is closely tied to income. Christopher Reddick and his co-authors concluded that “[i]ncome is a major factor that is likely to influence broadband adoption especially where technology is available.”⁴³ Glass and Stefanova find broadband service to be a normal good, which means that increased incomes are associated with increased broadband adoption—a finding consistent with previous research.⁴⁴ Similarly, the GAO reports: “A recent nationally representative survey by Consumer Reports reported that nearly a third of respondents who lack a broadband subscription said it was because it costs too much, while about a quarter of respondents who do have broadband said they find it difficult to afford.”⁴⁵ Alison Powell and her co-authors report that a significant number of low-income Americans engage in a cycle of broadband adoption and “un-adoption,” in which they adopt broadband and then drop it for financial or other reasons, and then re-adopt when circumstances improve for them.⁴⁶

In addition to price and income guiding a household’s broadband-adoption decisions, other factors are also relevant. Tonny Oyana’s empirical research concludes that income, the share of a population who are senior citizens, and the share with some college education are the “three most important demand-side factors” affecting both access and adoption.⁴⁷ The GAO reports that “[o]ther barriers include lack of digital skills,” citing a 2016 Pew Research Center report finding that “about half of American adults were hesitant when it comes to new technologies and building their digital skills.”⁴⁸

It can be argued that the gap between broadband access and adoption may present the real digital divide. That is, large numbers of American who have access to broadband do not adopt it, and some who do may “un-adopt” it. While income is a key factor in a household’s adoption choice, it is only one of several important factors, which also include age, educational attainment, and home-computer ownership and usage—each of which is, in turn, also correlated with income. As discussed below, deployment decisions are based on many factors, including a territory’s projected broadband adoption. If firms do not expect sufficient levels of adoption, then deployment may be unprofitable.

⁴¹ *Id.*

⁴² Victor Glass & Stela K. Stefanova, *An Empirical Study of Broadband Diffusion in Rural America*, 38 J. REG. ECON. 70 (Jun. 2010).

⁴³ Christopher G. Reddick, Roger Enriquez, Richard J. Harris & Bonita Sharma, *Determinants of Broadband Access and Affordability: An Analysis of a Community Survey on the Digital Divide*, 106 CITIES 102904 (2020).

⁴⁴ Victor Glass & Stela K. Stefanova, *supra*, note 42 at 70.

⁴⁵ GAO-22-104611, *supra* note 37.

⁴⁶ Alison Powell, Amelia Bryne & Dharma Dailey, *The Essential Internet: Digital Exclusion in Low-Income American Communities*, 2 POL’Y & INTERNET 161 (2010).

⁴⁷ Tonny J. Oyana, *Exploring Geographic Disparities in Broadband Access and Use in Rural Southern Illinois: Who’s Being Left Behind?*, 28 GOV’T. INFO. Q. 252 (2011).

⁴⁸ GAO-22-104611, *supra* note 37.

It would be a mistake to infer that income discrimination in deployment causes low rates of broadband adoption in low-income communities when low income itself—and other factors correlated with income—may be a primary cause of low rates of broadband adoption.

B. Equal access and economic feasibility

Section 60506 requires the Commission to take account of “issues of technical and economic feasibility.” There is broad consensus that “economic feasibility” here refers to profitability.⁴⁹ More precisely, a project is economically feasible if it provides an adequate return on investment (ROI). Like all firms, broadband providers have limited resources with which to make their investments. While profitability is a necessary precondition for investment, not all profitable investments can be undertaken. Among the universe of potentially profitable projects, firms are likely to give priority to those that promise greater returns on investment relative to those with lower ROI. Thus, any evaluation of potential digital discrimination must examine not only whether a given deployment is likely to be profitable, but also *how* its expected returns compare to other investment opportunities.

Returns on investment in broadband depend on several factors. As noted earlier, population density, terrain, regulations, and taxes are all important cost factors, while a given consumer population’s willingness to adopt and pay for broadband are key demand-related factors.

In addition to these cost and demand factors, the timing of both investment and adoption affect the ROI of a deployment investment. Consider two hypothetical investments, shown in Table I below. Both Deployment A and Deployment B require the same initial investment of \$100 million and both ultimately generate the same income of \$44 million a year. However, Deployment B has a slower adoption rate. Not only does Deployment B generate lower income over the hypothetical 20-year life of the investment, but its ROI is less than half that of deployment A. While both deployments are profitable and both eventually generate the same annual income, *relative to deployment A*, deployment B is unprofitable.

⁴⁹ Notice of Inquiry, *Implementing the Infrastructure Investment and Jobs Act: Prevention and Elimination of Digital Discrimination*, GN Docket No. 22-69 (2022) (“If underlying cost or geographic hurdles exist in conjunction with demand in an area that makes it unprofitable, how should the Commission address such a situation?”).

Table 1: How Timing Affects ROI in Hypothetical Deployments A and B

	A	B
Investment	(\$100)	(\$100)
Year 1 income	10	5
Year 2 income	15	10
Year 3 income	27	25
Year 4 income	44	35
Year 5 income	44	44
Years 6-20	660	660
Total income, net of investment	\$700	\$679
ROI	9.7%	4.6%

Source: Authors

Because the timing of investment returns is critical in a firm's deployment decisions, local regulations that slow broadband buildout can have significant effects on a deployment investment's ROI.

C. Density in broadband deployment

By far, population density is widely acknowledged to be the most important cost factor driving broadband-deployment decisions. For example, the GAO reports that population density is the "most frequently cited cost factor" and "a critical determinant of companies' deployment decisions."⁵⁰

Academic research supports the GAO's conclusions. For example, Brian Whitacre and Roberto Gallardo describe population density as one of "the main determinants of Internet availability."⁵¹ Similarly, Oyana—citing earlier research—concludes that "[l]imited broadband access is common in rural communities because of geographic remoteness and low population density."⁵² Juan Schneir and Yupeng Xiong identify that firms are more likely to deploy broadband in urban and suburban areas, rather than rural areas, due to both cost and demand factors. They note this is "because of the high density of users willing to pay for high-speed broadband services and the relatively low network rollout costs in urban and suburban areas."⁵³ Consistent with Schneir & Xiong's conclusion, the

⁵⁰ U.S. Gov't Accountability Off., GAO-06-426, *Telecommunications: Broadband Deployment Is Extensive Throughout the United States, but It Is Difficult to Assess the Extent of Deployment Gaps in Rural Areas* (May 2006), <https://www.gao.gov/assets/gao-06-426.pdf>. [hereinafter "GAO-06-426"].

⁵¹ Brian Whitacre & Roberto Gallardo, *State Broadband Policy: Impacts on Availability*, 44 TELECOMM. POL'Y. 102025 (2020).

⁵² Tonny J. Oyana, *supra* note 47 at 252.

⁵³ Juan Rendon Schneir & Yupeng Xiong, *A Cost Study of Fixed Broadband Access Networks for Rural Areas*, 40 TELECOMM. POL'Y. 755 (2016).

GAO also finds that population density is an important factor on the demand side of deployment decisions. In particular, the GAO concludes that it is more difficult to “aggregate sufficient demand” to pay for broadband service in low-density rural areas.⁵⁴

Several other factors also affect the profitability of broadband-deployment investments. The GAO identifies terrain as an important factor, concluding that “it is more costly to serve areas with low population density and rugged terrain with terrestrial facilities than it is to serve areas that are densely populated and have flat terrain.”⁵⁵ The GAO also reports that the cost of “backhaul” can affect broadband deployment to rural areas. “Backhaul” is the cost of routing Internet traffic from rural areas to larger cities in order to connect to a major Internet backbone provider.⁵⁶ Whitacre & Gallardo find that state-level broadband-funding programs are associated with a modest increase (1.2–2.0 percentage points) in broadband availability.⁵⁷ On the demand side, the GAO reports that “demand will be greater in areas where potential customers are familiar with computers and broadband.”⁵⁸

Population density is also correlated to varying degrees with such demographic factors as income, race, age, educational attainment, and home-computer use. Thus, one should be cautious about inferring digital discrimination based on such factors from deployment decisions that are likely to be based on population density.

D. The income conundrum

As noted above, the evaluation of digital-discrimination claims based on income level is complicated by the fact that income is a key factor—and perhaps *the* key factor—affecting broadband *adoption*. Moreover, it is also correlated with race, ethnicity, national origin, age, education level, and home-computer ownership and usage. Adoption of Section 60506 rules that do not recognize this “income conundrum” will invite costly and time-consuming disparate-impact litigation alleging digital discrimination, both where no such discrimination exists and where it is excused by economic-feasibility considerations. The threat of litigation from injudicious rulemaking also may hinder, rather than foster, further broadband deployment.

Randolph Beard and George Ford report:⁵⁹

⁵⁴ GAO-06-426, *supra* note 50.

⁵⁵ *Id.*

⁵⁶ *Id.*

⁵⁷ Brian Whitacre & Roberto Gallardo, *State Broadband Policy: Impacts on Availability*, 44 TELECOMM. POL’Y. 102025 (Oct. 2020).

⁵⁸ GAO-06-426, *supra* note 50.

⁵⁹ T. Randolph Beard & George S. Ford, *Digital Discrimination: Fiber Availability and Speeds, by Race and Income*, PHOENIX CTR. FOR ADVANCED LEGAL & ECON. POL’Y STUD., Phoenix Ctr. Pol’y Paper No. 58 (September 2022).

Survey evidence and empirical research on broadband adoption show that income has a demonstrable effect on demand. Also, empirical research and survey evidence show that some racial minorities—in particular, Hispanic, Black, and Native Americans—are less likely to adopt fixed-service broadband services in the home. Moreover, income is correlated with many factors that affect demand including, among other things, employment, education levels, and housing stability, which makes the determination of “income discrimination” extremely difficult since it is the discriminatory treatment of low-income households, and not these other correlated factors, that is mentioned in the statute. Minority population shares and income levels are also correlated with population density, which affects the cost of network deployment and upgrades. Quantifying “digital discrimination” is, therefore, an *extremely* challenging endeavor.

In addition to the factors identified by Beard & Ford, income is correlated with several factors associated with broadband adoption. For example, Pew reports that, among lower-income adults:⁶⁰

- 41% do not have a desktop or laptop computer and a majority are not tablet owners. Pew indicates that each of these technologies is “nearly ubiquitous” among adults in households earning more than \$100,000 annually.
- 13% of adults with annual household incomes below \$30,000 do not have access to any of these technologies at home (*i.e.*, home-broadband services, a smartphone, a desktop or laptop computer, or a tablet); by contrast, only 1% of adults from households making more than \$100,000 a year report a similar lack of access.
- 27% of adults living in households earning less than \$30,000 annually are smartphone-only Internet users, meaning they own a smartphone but do not have broadband Internet at home.

Some argue that broadband has become more of a necessity over time,⁶¹ akin to utilities for home heating, cooling, and cooking.⁶² According to Ryan Finnigan and Kelsey Meagher, low-income households spend approximately half their monthly income on housing and another 10-20% on utilities.⁶³ The incidence of utility disconnections can provide an indication of ability or willingness to pay for broadband. If a household is more likely to experience a utility disconnection, the household is likely to have a lower ability to pay for a broadband connection. In this sense, broadband disconnections for non-payment can be seen as an extreme form of “un-adoption,” as described by Powell, *et al.* Diana Hernández and Jennifer Laird’s empirical research on utility

⁶⁰ Emily A. Vogels, *State Broadband Policy: Impacts on Availability*, PEW RESEARCH CENTER (Jun. 22, 2021), <https://www.pewresearch.org/fact-tank/2021/06/22/digital-divide-persists-even-as-americans-with-lower-incomes-make-gains-in-tech-adoption>.

⁶¹ Victor Glass & Stela K. Stefanova, *An Empirical Study of Broadband Diffusion in Rural America*, 38 J. REG. ECON. 70 (2010) (“The low price elasticity found in the 2009 study indicates that broadband access has become more of a necessity than it used to be in 2005.”).

⁶² Meredith Whipple & Aden Hizkias, *We Already Knew Broadband Should Be a Public Utility. The Pandemic Made It Obvious*, PUBLIC KNOWLEDGE (Mar. 15, 2021), <https://publicknowledge.org/we-already-knew-broadband-should-be-a-public-utility-the-pandemic-made-it-obvious>.

⁶³ Ryan Finnigan & Kelsey D. Meagher, *Past Due: Combinations of Utility and Housing Hardship in the United States*, 62 SOCIOLOGICAL PERSP. 91 (2018).

disconnections finds that disconnections are correlated with income, education, and home-ownership status, as well as race.⁶⁴

Disconnections are disproportionately high among households with low incomes, a Black head of household, a head who does not have a high school diploma, mobile homes, older homes, poorly insulated homes, rentals, rural homes, and homes in the Northeast. Among those households with an income less than \$20,000, nearly 8% have experienced a disconnection—a rate about 2.5 times as high as those with incomes between \$20,000 and \$59,999.

If a broadband provider determines a given territory is likely to have a low adoption rate or a high “un-adoption” rate, it is likely to conclude that deployment to that locality is less economically feasible than other territories. Empirical evidence suggests that race and income are among the factors associated with broadband adoption and un-adoption. Other factors like population density, education, age, familiarity with computers, and computer ownership are also known to be correlated with race and income and, indeed, race and income are widely known to be correlated with each other. For example, Beard & Ford show that U.S. Census blocks with higher population densities are associated with a higher share of minority residents and lower average incomes. They also report that blocks with a higher share of minority residents have lower fixed-broadband adoption rates and a higher share of mobile-only broadband use.⁶⁵

Beard & Ford attempt to statistically untangle the income conundrum.⁶⁶ Their empirical model includes four demand factors for each Census block: fixed-broadband adoption rate, mobile-broadband adoption rate, the share of persons with a tertiary education, and the share of homes with a computer. The model also includes five cost factors: population density, the share of rural blocks within the Census-block group, and three cost categories from CostQuest. Using this information, they evaluate: (1) fiber deployment by race, (2) fiber deployment by income level, (3) download speeds by race, and (4) download speeds by income level. Beard & Ford conclude from their statistical analysis that there is “no meaningful evidence of digital discrimination in either race or income for fiber deployments or for download speeds.” But Beard & Ford is just a single study looking at the possibility of nationwide discrimination. While their approach is rigorous and provides compelling results, it would be challenging to “scale down” the approach to evaluate digital discrimination by firms or locality.

Consider a hypothetical FCC rule mandating that broadband providers must completely exclude income level, race, ethnicity, color, religion, and national origin from their deployment calculus. Instead, firms must rely on their estimates of deployment costs—including population density,

⁶⁴ Diana Hernández & Jennifer Laird, *Surviving a Shut-Off: U.S. Households at Greatest Risk of Utility Disconnections and How They Cope*, 66 AM. BEHAV. SCI. 856 (2022).

⁶⁵ T. Randolph Beard & George S. Ford, *Digital Discrimination: Fiber Availability and Speeds, by Race and Income*, PHOENIX CTR. FOR ADVANCED LEGAL & ECON. POL’Y STUD., Phoenix Ctr. Pol’y Paper No. 58 (2022).

⁶⁶ *Id.*

terrain, local regulations, and local taxes—and non-protected demand factors, such as population density, education, age, utility-disconnection rates, and rates of computer ownership and usage. This would be one plausible implementation of an intent-based test of digital discrimination under Section 60506. So long as providers' deployment decisions are not made "because of" any of the protected characteristics, then they would not be found to be practicing digital discrimination. Whether these other factors—education, age, population density, computer usage—are sufficient on their own to determine the economic feasibility of a deployment project is a separate empirical question beyond the scope of this brief.

But because each of these other factors are correlated with income level—and with other protected characteristics—applying an effects-based statistical analysis is likely to produce a false positive concluding the presence of digital discrimination, even when there was an explicit effort to avoid such discrimination. This is a version of Nobel laureate Ronald Coase's well-known quote: "If you torture the data long enough, it will confess."⁶⁷

IV. Conclusion

The economics discussed above underscore that the FCC must be particularly cautious when promulgating rules under Section 60506. In particular, the Commission should adopt an intent-based *discriminatory-treatment* standard, rather than one that opens the doors to *disparate-impact* claims. The high risk of false positives under a disparate-impact standard would stifle broadband deployment through additional costs, delays, and risk of litigation. Similarly, FCC rules should articulate a presumption of non-discrimination in which allegations of digital discrimination must be demonstrated, rather than a presumption of discrimination that must be rebutted for each deployment decision. Otherwise, given the economic realities discussed above, there is an unacceptably high chance that every one of a provider's decisions will be subject to challenge, wasting the resources of both the Commission and the providers.

The largest takeaway is that *adoption* matters quite a bit. Indeed, one of the biggest issues affecting economic feasibility is consumers' willingness to pay. Moreover, Congress has recognized this reality in its recent legislation. The IJA's Broadband Equity and Access program provides more than \$42 billion in grants to state programs to help them support providers and give assistance directly to users.⁶⁸ The Affordable Connectivity Program provided another \$14 billion in funding to help users pay for devices and broadband connections.⁶⁹

⁶⁷ Garson O'Toole, *If You Torture the Data Long Enough, It Will Confess*, QUOTE INVESTIGATOR (Jan. 18, 2021), <https://quoteinvestigator.com/2021/01/18/confess>.

⁶⁸ *Broadband Equity, Access, and Deployment Program*, BROADBANDUSA, <https://broadbandusa.ntia.doc.gov/resources/grant-programs/broadband-equity-access-and-deployment-bead-program> (last visited Oct. 23, 2022).

⁶⁹ *Affordable Connectivity Program*, FEDERAL COMMUNICATIONS COMMISSION, <https://www.fcc.gov/acp> (last visited Oct. 23, 2022).

If the Commission has good evidence of intentional discrimination in the deployment of broadband, it has a role to play in preventing it. But without strong, compelling evidence of intentional discrimination, the FCC will waste scarce resources chasing bogeymen.