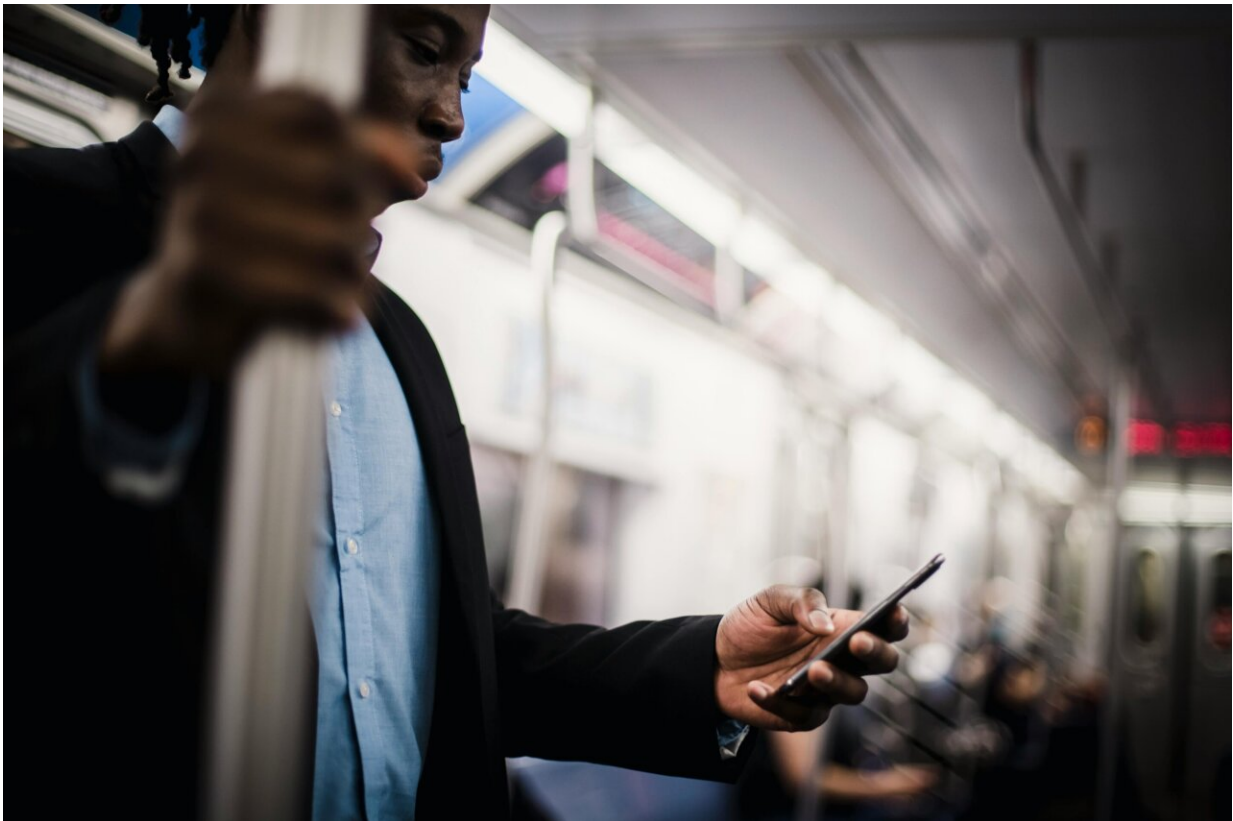


# New research shows that improving mobile internet service can reduce digital inequality

June 26 2024

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Credit: Ketut Subiyanto from Pexels

New research shows removing data caps to cell phone usage may not only reduce digital inequality but might increase education data consumption by disadvantaged populations.

More than 90% of the U.S. population has internet access. However, many [households](#), particularly those of low socioeconomic status, are "smartphone-dependent," meaning they rely purely on their smartphone for internet access. As a result, their connection may be unstable or slow, and they may be constrained by data caps that limit how much they can use the internet.

This puts them at a disadvantage compared to households with internet access through smartphones and other broadband connections at home and work, perpetuating digital inequality between disadvantaged and advantaged households.

The smartphone dependence of many disadvantaged households begs the question: If mobile internet service was better—e.g., if it was faster, more reliable, and/or didn't come with data constraints—could that reduce digital inequality and level the playing field? Researchers from the Georgia Tech Scheller College of Business and Southern Methodist University Cox School of Business studied this question and found the answer is "yes."

The [research paper](#) is forthcoming in *Management Science* and is [available](#) on the SSRN site.

Karthik Kannan, assistant professor of IT and Operations Management at the Cox School of Business and Georgia Tech Ph.D. graduate, led the project. "I was interested in the effect of data caps. For example, when you have 10GB of data per month and use more, you are charged extra, or your connection is throttled," said Kannan.

"So, I partnered with a large telecommunications provider to study what happens when their subscribers switched from capped to unlimited data plans. I was particularly interested in differences between high-income and low-income households."

Kannan, along with Eric Overby, Catherine and Edwin Wahlen Professor of Information Technology Management, and Sri Narasimhan, Gregory J. Owens Professor of Information Technology Management, at the Scheller College of Business, found that while all households increased their [data use](#) after switching to an unlimited plan, the increase was significantly larger for families of [low socioeconomic status](#).

"That was our initial finding: that improving mobile internet service by removing the data cap had disproportionately large benefits for disadvantaged households," said Overby. "But that didn't mean much in and of itself. If those households weren't using the additional data for 'enriching' purposes like accessing educational, [health care](#), or career-related data, the additional data [consumption](#) wouldn't translate into positive social benefits.

"Indeed, years of research on digital inequality have consistently shown a 'usage gap' in which advantaged households take fuller advantage of internet access improvements than disadvantaged households. The result is that internet improvements often exacerbate inequality. So, we dug deeper."

Specifically, the researchers leveraged the telecommunication provider's data categorization system to study changes in the consumption of educational data. They found that disadvantaged households experienced disproportionate increases in education data consumption (as well as in overall data consumption) after switching to unlimited mobile data.

Although advantaged households increased their education data consumption by approximately 15MB (or about three digital textbooks) per month after switching to unlimited data, disadvantaged households increased their education data consumption by approximately 24MB (or about five digital textbooks) per month.

"We can't be sure that these disproportionate increases in education data consumption will help disadvantaged households narrow gaps in educational outcomes. However, this is clearly a step in the right direction," said Kannan.

The research is directly relevant to the Federal Communications Commission's 2023 inquiry into the effects of data caps on disadvantaged households. Narasimhan explains, "Let's say that based on their inquiry, the FCC decides to limit the use of data caps. A logical question is: will that do any good? In other words, will disadvantaged households take advantage of their improved [mobile internet service](#) in a way that can reduce digital inequality? Prior to our research, we didn't really know. But based on our research, the answer is yes."

**More information:** Karthik Babu Nattamai Kannan et al, Can Improvements to Mobile Internet Service Help Address Digital Inequality and the Homework Gap? An Empirical Analysis, *SSRN Electronic Journal* (2022). [DOI: 10.2139/ssrn.4173558](https://doi.org/10.2139/ssrn.4173558)

Provided by Georgia Institute of Technology

Citation: New research shows that improving mobile internet service can reduce digital inequality (2024, June 26) retrieved 29 June 2024 from <https://phys.org/news/2024-06-mobile-internet-digital-inequality.html>

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