Regarding Request for Comment on Local Estimates of Internet Adoption, Docket Number NTIA-2024-0003.

To Whom it May Concern:

I write to make suggestions for potential improvements to NTIA's Local Estimates of Internet Adoption (LEIA). My comments request more detail on model selection, suggest additional variables to consider, and suggest an additional response variable to model.

NTIA Should Provide More Detail about Model Selection

The LEIA Feasibility Report contains little information about how the final regressors were selected from the covariate pool. It would be helpful to see goodness-of-fit measures for alternative models.

While the selected model appears to fit the data reasonably well, it looks like there is substantial room for improvement. Figure 2(b) in the feasibility report shows that the selected model tends to estimate local adoption rates closer to the overall mean, tending to under-predict adoption rates in counties with high adoption rates and to over-predict adoption rates in counties with low adoption rates. Additional regressors could capture some of the variation in the data not explained by the model.

NTIA Should Consider Additional Variables

An additional regressor to consider should be the percentage of households that are of advanced age, such as over 65. The internet is still a relatively new technology. Households who have developed habits that don't rely on the internet may be slower to adopt new technologies.[1] In places where that group is a significant portion of the population, there may not be network effects that would encourage the adoption of the internet.

Similarly, it could be useful to look at a county's economic growth. Counties with more recent growth may have newer infrastructure that would make high-speed internet adoption easier, while counties with less recent growth may have not replaced or upgraded infrastructure yet. Census' Business Dynamics Statistics has data on firm age and related statistics by county.[2]

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[1] Anderson, Monica and Andrew Perrin. "Technology Use Among Seniors." Pew Research Center: Internet & Technology. Last modified May 17, 2017. Accessed October 9, 2024. https://www.pewresearch.org/internet/2017/05/17/technology-use-among-seniors/.

[2] U.S. Census Bureau. "Business Dynamics Statistics (BDS) Datasets." Last modified 2023. Accessed October 9, 2024. https://www.census.gov/data/datasets/time-series/econ/bds/bds-datasets.html.

It could be useful to include information about each county's share of high-tech industries. One approach could identify a county's share of employment in industries with a high concentration of Science, Technology, Engineering, and Mathematics jobs.[3]

NTIA Should Extend LEIA Estimates to Satellite Internet

NTIA and Census should consider modeling the adoption of satellite internet in addition to broadband. Satellite internet is increasingly an option for high-speed internet in rural communities that may have limited availability of wired connections.

The ACS technology question also has responses for satellite internet use. It should be straightforward to fit a model using satellite service as the dependent variable. The industry is growing rapidly, so while responses in 2022 data may be a small portion of the total, this will be an important option to measure internet adoption in the future.

Thank you for your consideration.

Sincerely,

Parker Sheppard, Ph.D.
Director, Center for Data Analysis
The Heritage Foundation[4]

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[3] Roberts, Brian, and Michael Wolf. "High-Tech Industries: An Analysis of Employment, Wages, and Output." Beyond the Numbers. U.S. Bureau of Labor Statistics, May 2018. Accessed October 9, 2024. https://www.bls.gov/opub/btn/volume-7/high-tech-industries-an-analysis-of-employment-wages-and-output.htm.
[4] Affiliation is provided for identification purposes only.