



Beyond Access: Broadband Affordability and Adoption

Presented by: Ms. Jodi Kuhn, Executive Director &
Dr. Arpit Gupta, Assoc. Professor, University of California Santa Barbara

- Study Overview
- Background
- Summary of key findings
- Policy recommendations

Timeline	8-10 months
Source material	Literature review, subject matter expert interviews, & original data collection
Scope	Focus: aspects of the digital divide in Virginia beyond access and infrastructure (deployment) alone, with a particular emphasis on affordability.
Partnership	University of California, Santa Barbara; University of California, Berkeley
Advisory Group	Dr. Christopher Ali, Penn State (fmr. UVA), Dr. John Horrigan, Benton Institute for Broadband & Society Dr. David Nemer, UVA Dr. Bianca Reisdorf, UNC Charlotte

Broadband Subscription

95% of adults with an annual income >\$100,000

57% of adults with an annual income <\$30,000

Reliance on a smartphone for internet access

28% of adults with an annual income of <\$30,000

4% of adults with an annual income of >\$100,000

Pew Research Center
2024 US Survey

Affordability Barriers



Subscription costs	- Broadband subscription may cost more than low-income households can reasonably afford - Reported “lack of interest” in broadband in surveys may mask cost as a factor
Device access	- Low-income households disproportionately rely on smartphones to get online - There may be only one device available to access the internet and/or household members may share devices
Geography	- The rural/urban divide is increasingly defined by differences in type of deployment technology (e.g. satellite vs. fiber), with implications for consumer costs - Tribal lands also continue to lag behind in broadband access and face higher costs - Broadband costs can vary by location, even in well-connected urban areas, disproportionately penalizing households in historically underserved neighborhoods
Competition/Market dynamics	- Monopoly markets often result in higher price - Subsidized infrastructure initiatives may create monopoly conditions
Broadband literacy/Dark patterns	- Shopping for broadband plans and pricing can be confusing, despite FCC-mandated broadband labels - There may be hidden fees or discounts, and low-cost plans may be hard to find
Life circumstances	- Subscription vulnerability describes condition where people have broadband but struggle to pay bills - Changes in life circumstances, like losing a job, could result in digital exclusion

How do we define broadband
affordability in Virginia?

Key Terms and Metrics

- **Low-cost Plans**

Minimum quality requirements for affordable plans

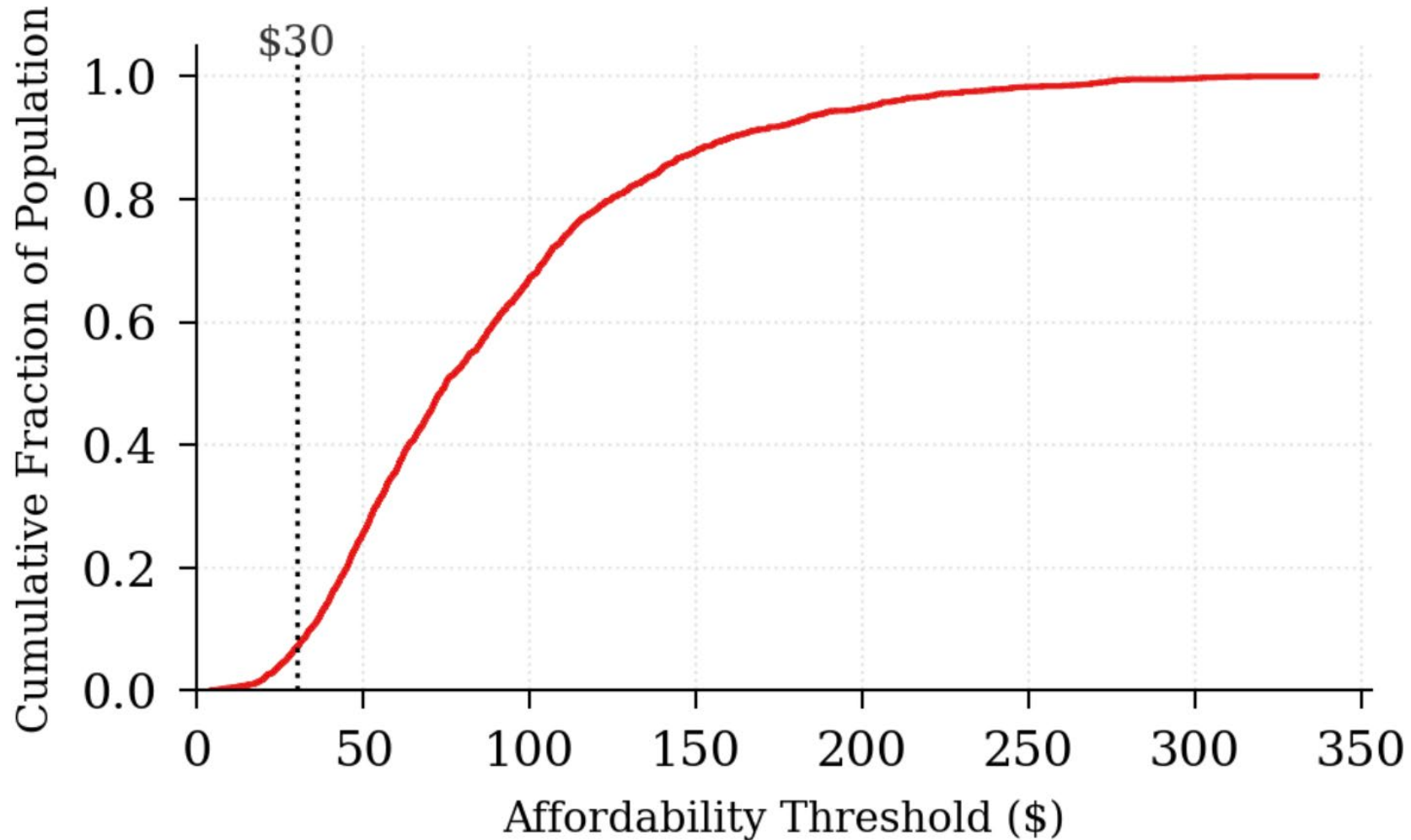
Select the broadband plan with download speed closest to 100 Mbps

- **Affordability Threshold**

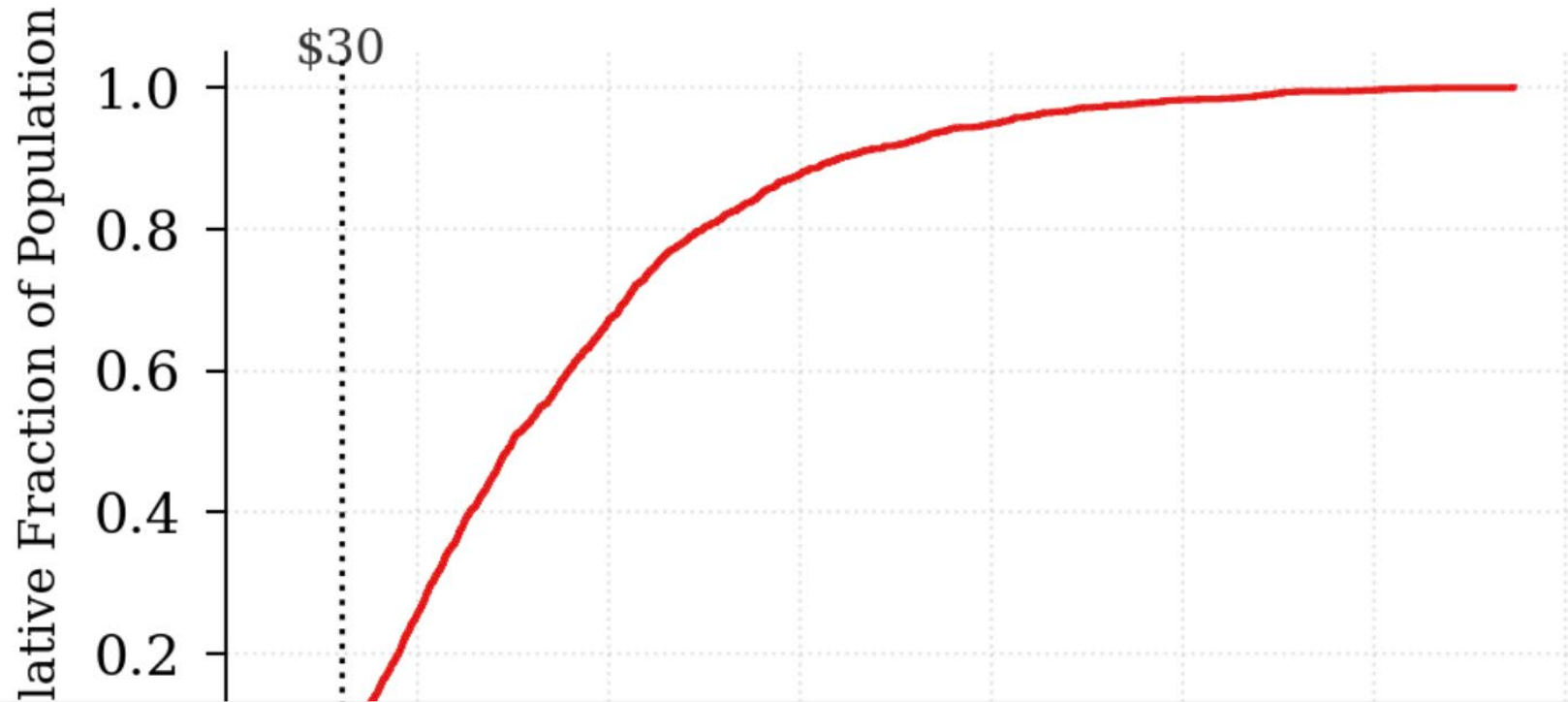
Income-based threshold

Computed for every census block group, 2% of the disposable household income at the 20th percentile within a census tract

Select Affordability Target Price

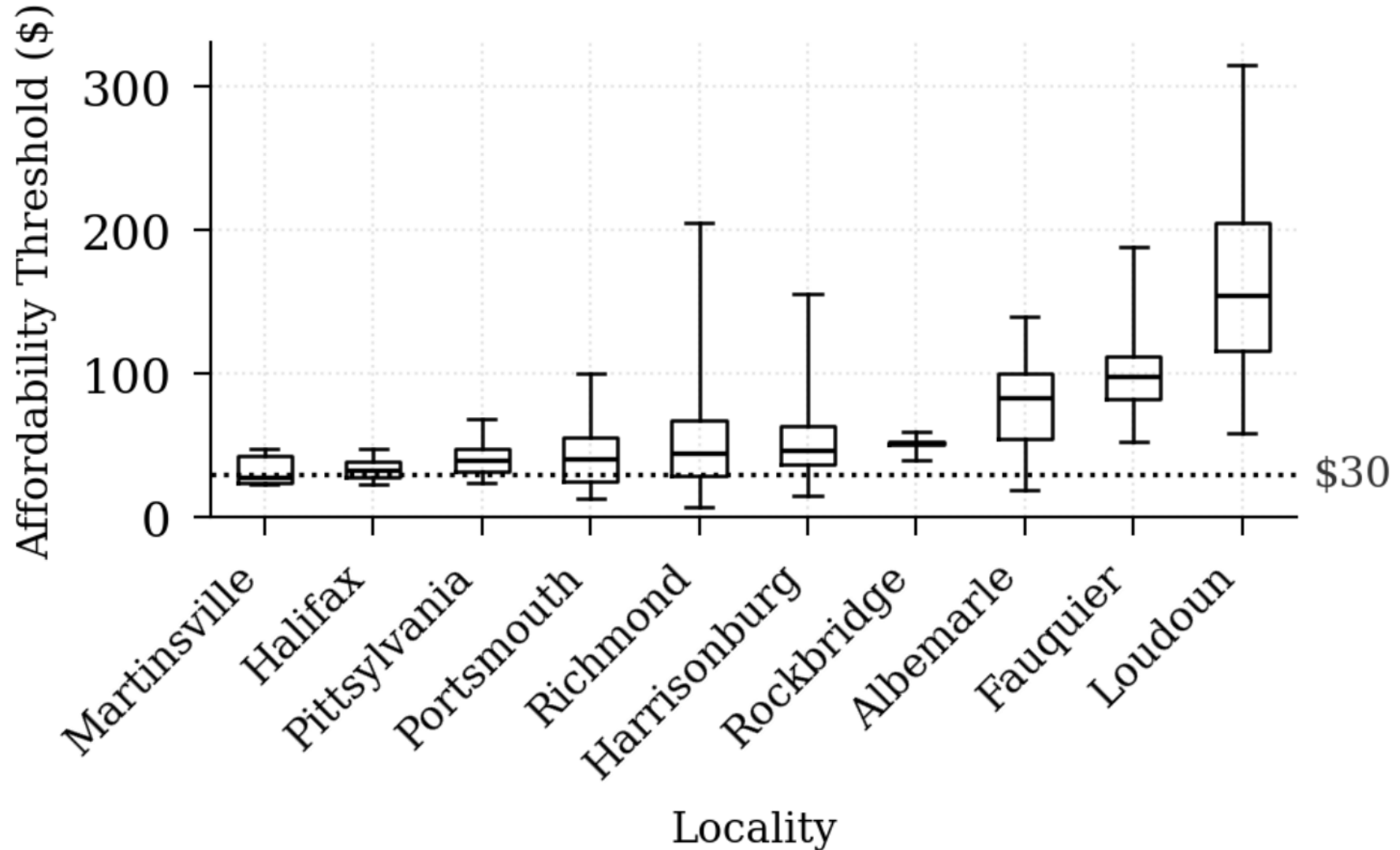


Select Affordability Target Price

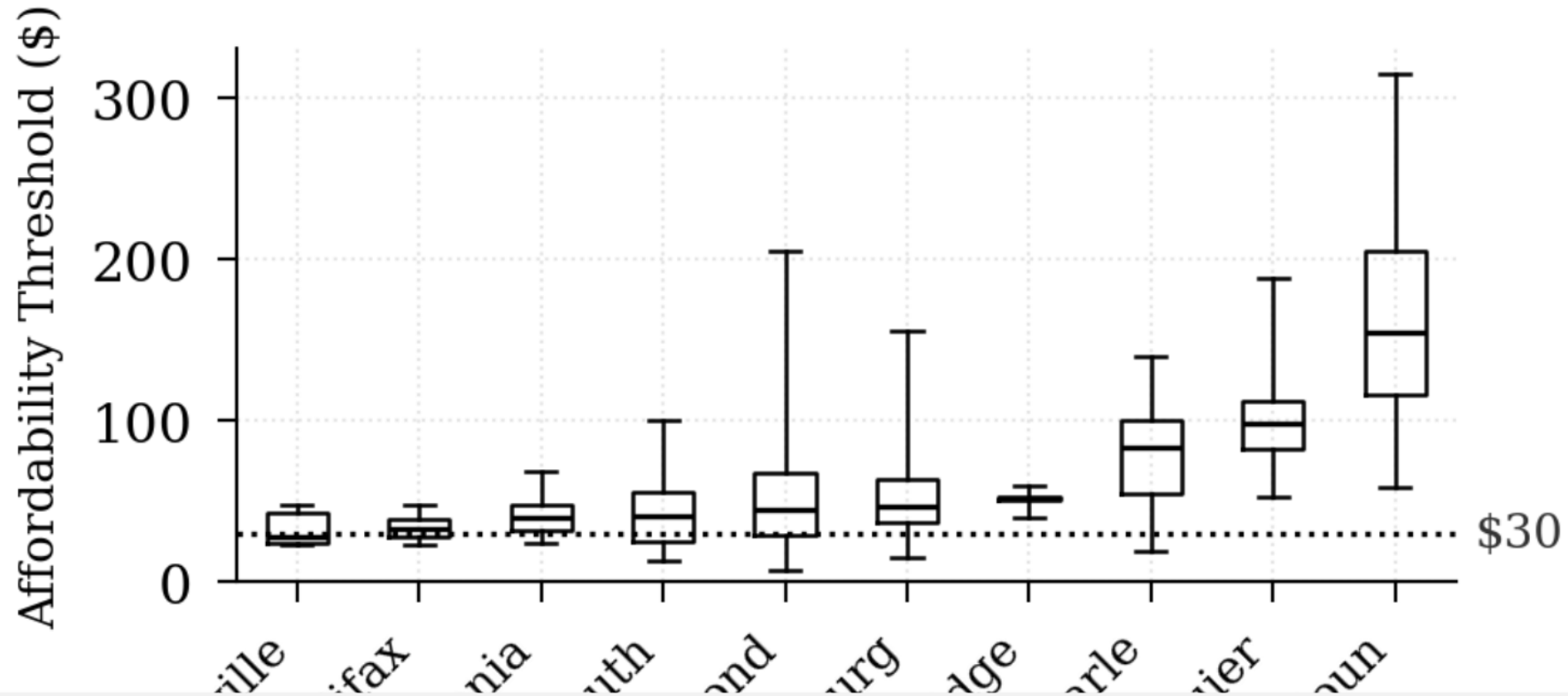


\$30/month plans are affordable for ~93% of population

Effect of Affordability Target Price



Effect of Affordability Target Price

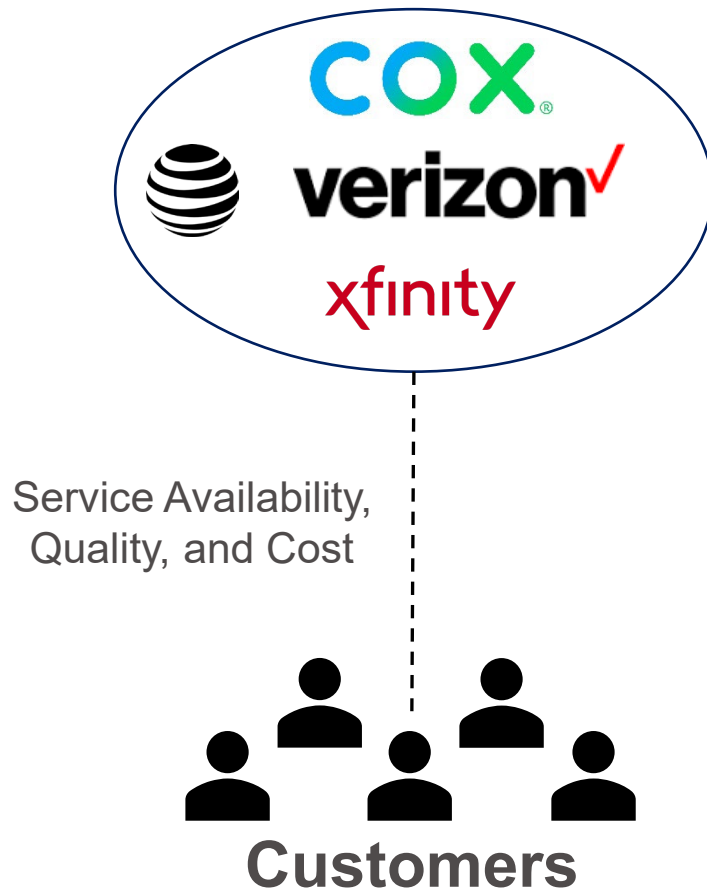


The effect of \$30/month plans transcend across the state

What are consumers paying
for low-cost plans in VA?

How to Collect the Data?

Accurate information readily available to potential customers at street address granularity



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Cost

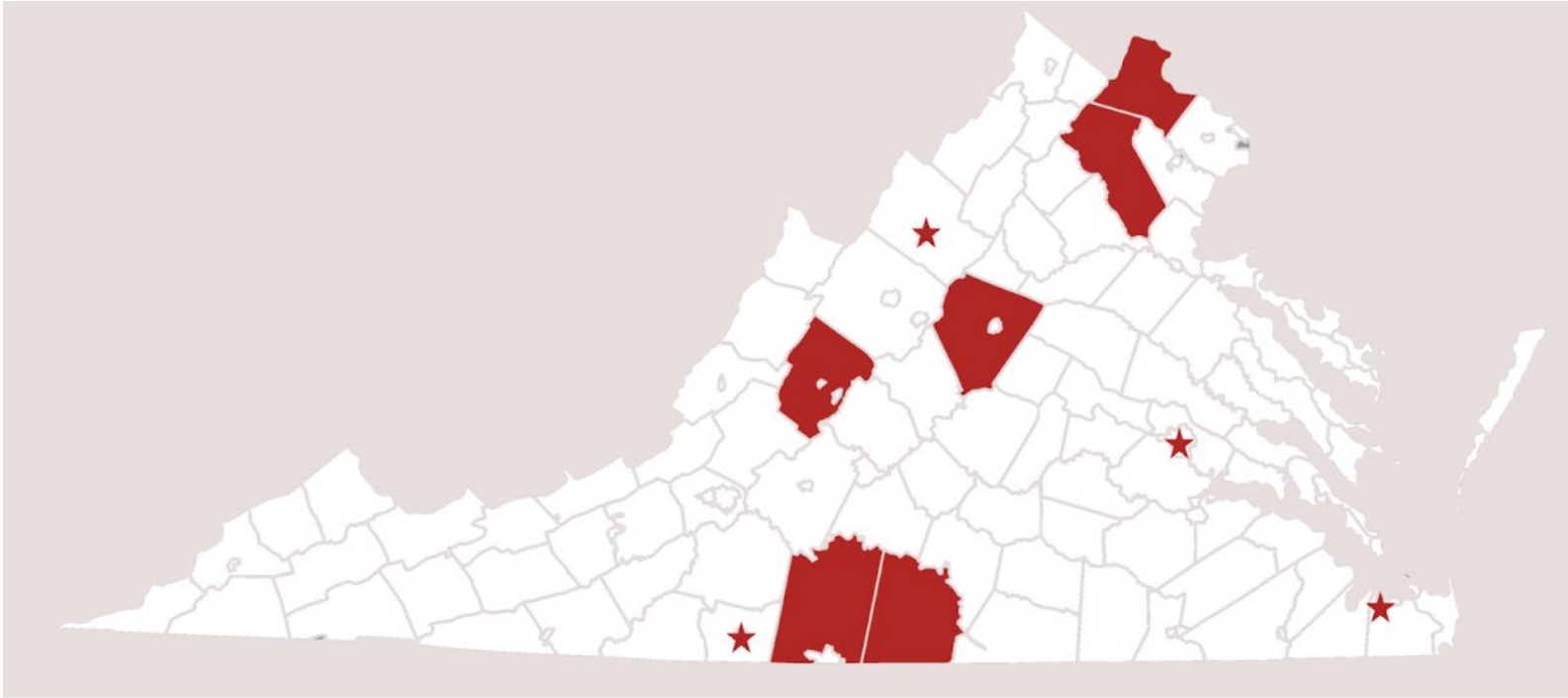
BQT: Broadband Plan Querying Tool

Automates querying ISPs' web interfaces to extract advertised broadband speeds and prices at street addresses granularity---mimicking a real user



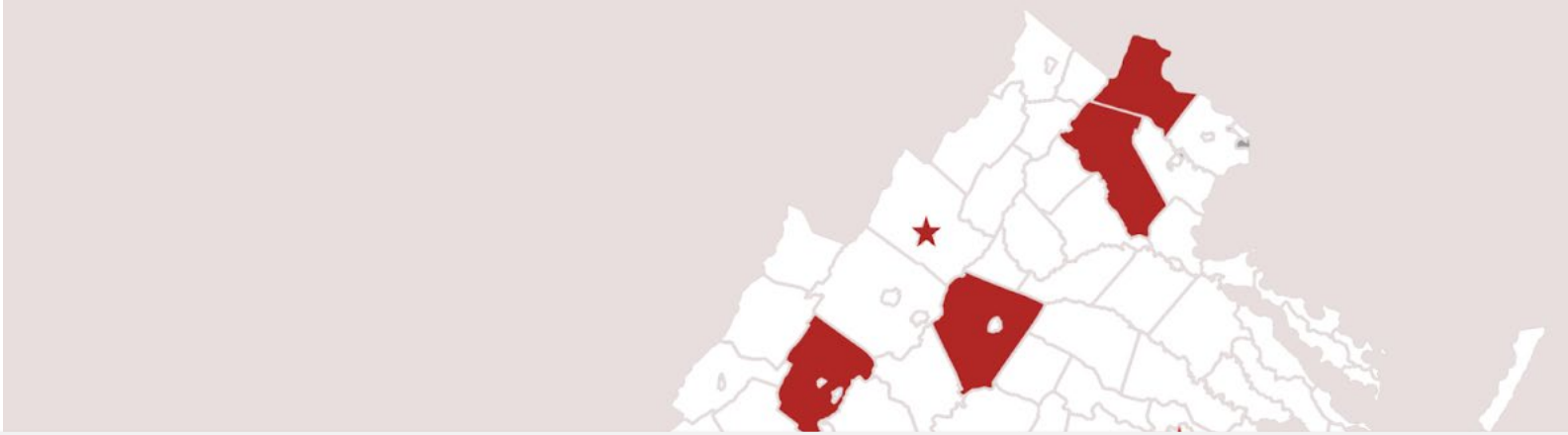
Enabled querying 1M+ addresses for 50+ ISPs

From Where to Collect the Data?



	Pittsylvania	Halifax	Rockbridge	Loudoun	Fauquier	Albemarle	Portsmouth	Martinsville	Harrisonburg	Richmond
<i>% served by connectivity^a</i>	50	43	76	93	62	79	100	99	99	100
<i>% rural population^b</i>	89.06	78.21	90.08	11.95	57.46	40.37	0	0.08	0.62	0
<i>% below poverty line^c</i>	15	17.9	8	4	6.1	6.8	17.6	21.8	25.6	18.8
<i>% nonwhite^d</i>	25.6	39.7	10.4	44.6	19	23.4	63.1	56.9	33.5	56.8
<i># of ISPs^e</i>	10	10	9	22	9	11	4	4	5	7

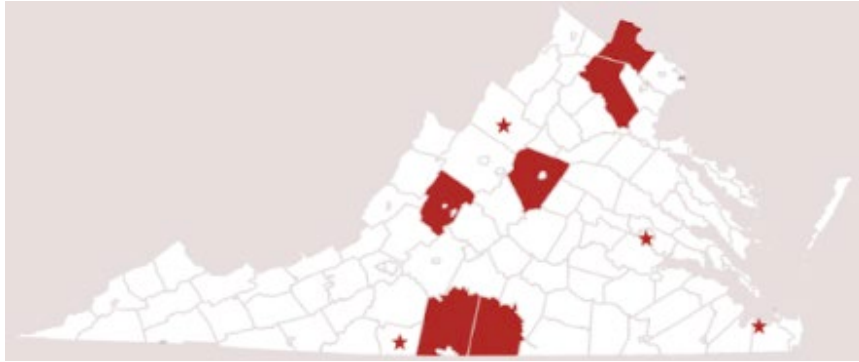
From Where to Collect the Data?



Prioritized capturing diversity in key socioeconomic metrics and broadband connectivity & coverage

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How to Collect Representative Samples?



10 localities



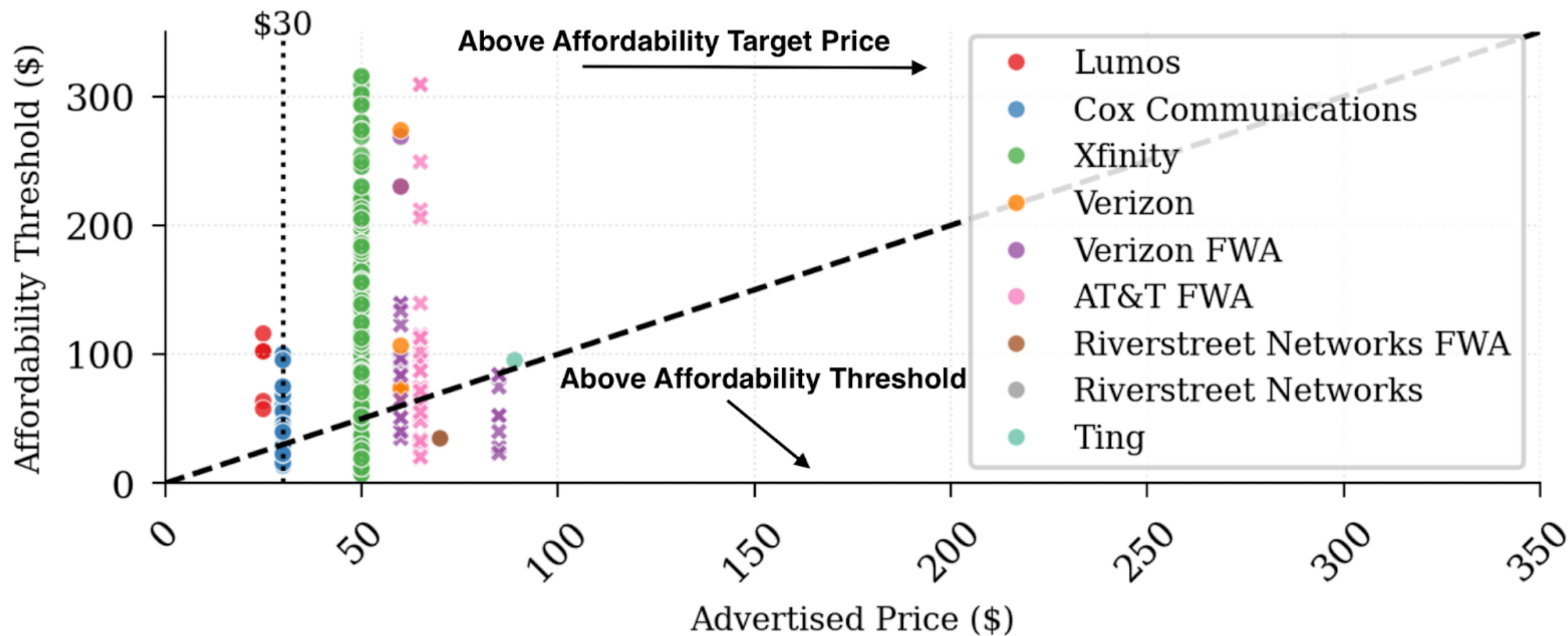
~900 Census Block Groups
10 Wired & Fixed Wireless ISPs



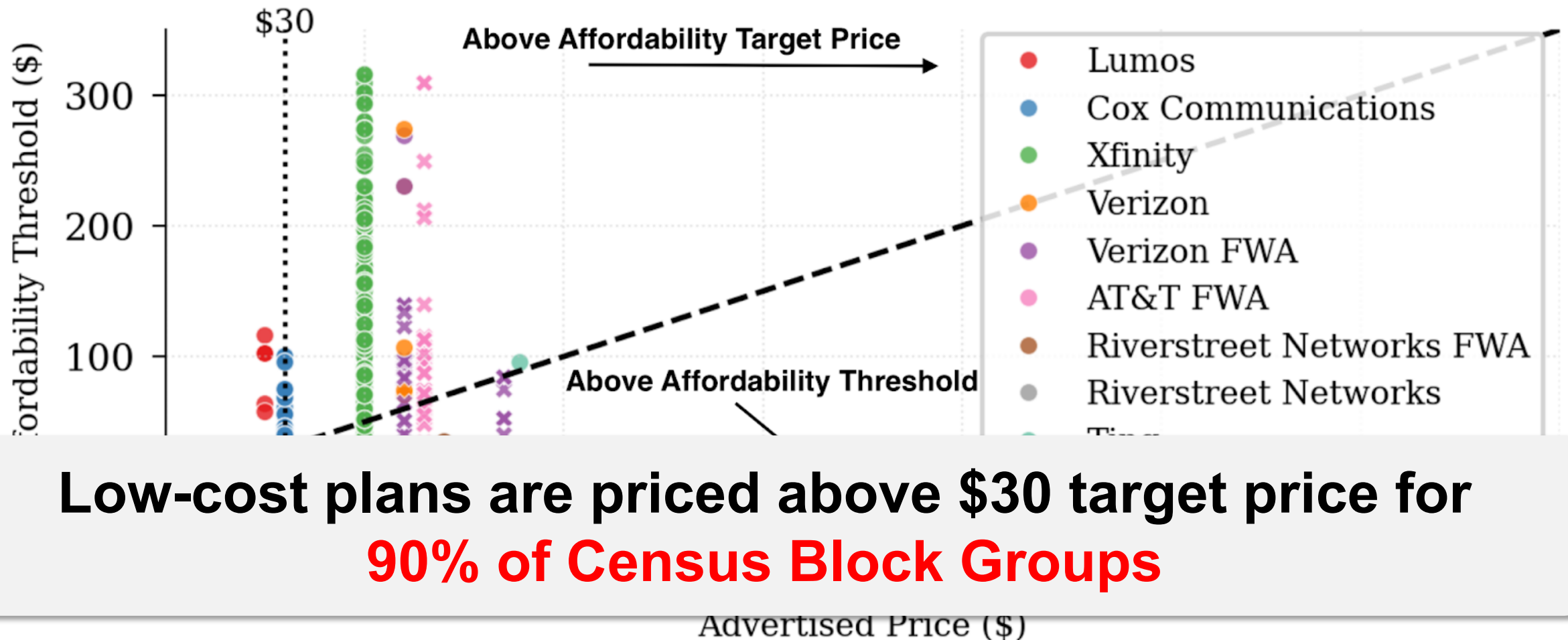
~62k samples

Sampled 30 addresses for each active ISP across all CBGs

Observation



State of Broadband Affordability in Virginia



Noteworthy Observations

- Low-cost plans are not readily accessible on ISP's websites
- Xfinity is the **most affordable** provider (80% CBGs), yet its plans start at **\$50**
- AT&T and Verizon have extensive **fixed wireless** coverage but are rarely most affordable (5.5 and 3.5 %, respectively)
- Verizon (wired) shows the greatest variation in low-cost plans (\$60-85)

- **Target Price**

Around 93% of population could benefit from a \$30 target price for low-cost plan

- **Data Collection using BQT**

Collected advertised speed tier and pricing information across 62k addresses, served by 10 different (wired + fixed wireless) ISPs in 10 diverse localities

- **Key Observations**

Accessing low-cost plans is non-trivial; low-cost plans exceed target price for 90% of the ~900 census block groups studied in 10 localities

Policy Recommendations

Recommendation 1: Require mobile-responsive websites for essential services, starting with public sector and publicly funded services.

Recommendation 2: Require accessibility for low-cost internet plans.

Recommendation 3: Require ISPs to offer a basic 100 Mbps plan for \$30 per month.

Recommendation 4: Offer targeted tax credits to help ensure near-universal affordability.

Recommendation 5: Establish a grant funding program to replace lost BEAD non-deployment and Digital Equity Act funding.

Recommendation 6: Require independent longitudinal data collection on broadband quality (speeds) and pricing.

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