BROADBANDUSA

Leveraging National Data to Jumpstart Your Broadband Plan

February 15, 2017

BroadbandUSA Practical Conversations

Leveraging National Data to Jumpstart Your Broadband Plan

Speakers:

- **Rafi Goldberg**, Policy Analyst, Office of Policy Analysis and Development, National Telecommunications and Information Administration
- **Steven Rosenberg**, Chief Data Officer, Wireline Competition Bureau, Federal Communications Commission
- **Robert Ballance**, Presidential Innovation Fellow, Lead Architect, Community Connectivity Initiative Application

Moderators:

- **Karen Archer Perry**, Senior Policy Analyst, BroadbandUSA
- **Emy Tseng**, Senior Policy Analyst, BroadbandUSA

Using Computer and Internet Use Survey Data

Current Population Survey Computer and Internet Use Supplement and American Community Survey

February 15, 2017

Rafi Goldberg

Policy Analyst

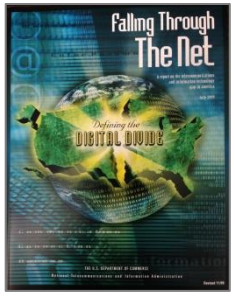
Office of Policy Analysis and Development

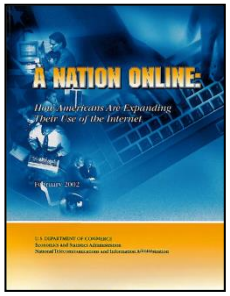
Two Sources of Federal Survey Data

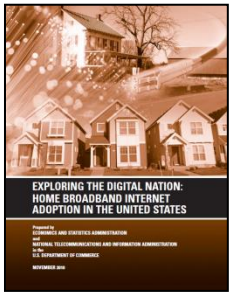
- Current Population Survey Computer and Internet Use Supplement
  (CPS Supplement)
- American Community Survey
  (ACS)

Current Population Survey

- 40 million interviews (so far)
- > 50,000 interviews per cycle
- Survey includes people ages 3 and over
- Statistically significant at state and national level







Oct 1984 — Oct 1989 — Oct 1993 — Nov 1994 — Dec 1998 — Oct 1997 — Sep 2001 — Aug 2000 — Oct 2003 — Oct 2007 — Oct 2009 — Oct 2010 — Jul 2011 — Oct 2012 — Jul 2013 — Jul 2015 — Nov 2017

Computer use questions in School Enrollment Supplement

NTIA Computer and Internet Use Supplement

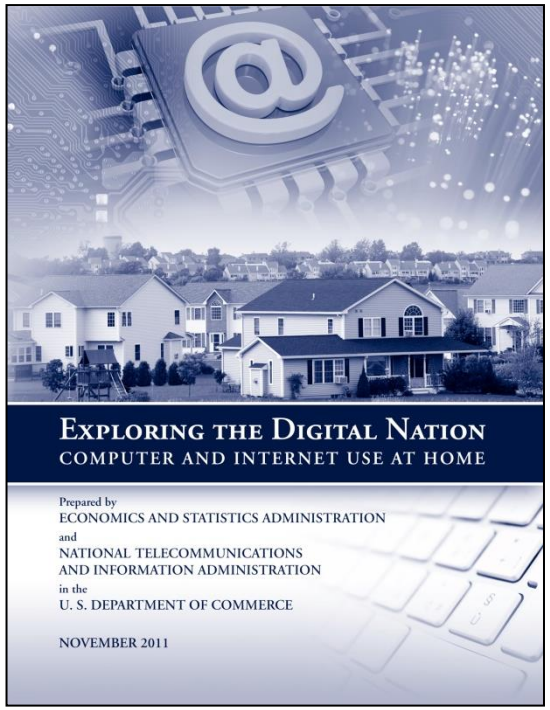
Next Survey Scheduled

Some 2015 CPS Supplement Questions

- What about a laptop or notebook? [Do you/Does anyone in this household] use a laptop or notebook computer? *(If yes & is multi-person household)* Who is that?
- [Do you/Does anyone in this household, including you,] use the Internet at home? *(If yes & is multi-person household)* Who is that?
- What about searching for a job? *(If needed)* [Do you/Does NAME] use the Internet to search for a job?
- During the past year, [have you/has any member of your household] been affected by an online security breach, identity theft, or a similar crime?
- Would [you/your household] buy home Internet service if it were offered at a lower price?

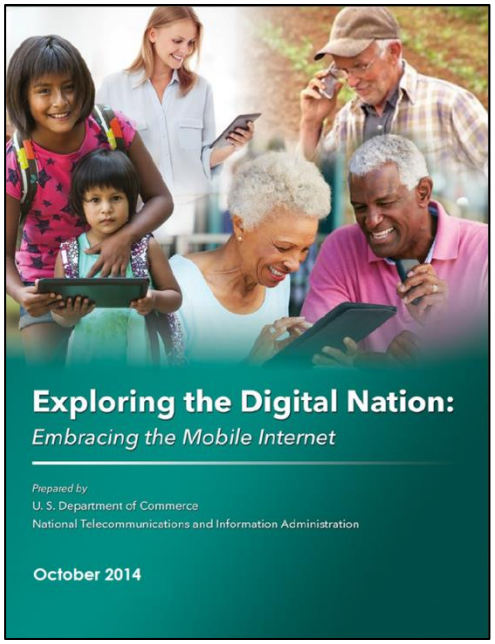
	hrhhid	huinttyp	hulensec	huprscnt	huresp1i	hufinal	huspnish	hetenure
1	00044796109	1	353	1	0	248	-1	-1
2	00465191999	1	98	1	0	246	-1	2
3	00465192147	1	842	1	1	201	-1	1
4	00465192147	1	842	1	1	201	-1	1
5	00465999434	1	807	1	2	201	-1	1
6	00465999434	1	807	1	2	201	-1	1
7	00466199210	2	1424	-1	1	201	-1	1
8	00469593551	1	106	1	0	226	-1	-1
9	00490595512	1	1735	1	2	201	-1	1
10	00490595512	1	1735	1	2	201	-1	1
11	00490595512	1	1735	1	2	201	-1	1
12	00490595512	1	1735	1	2	201	-1	1
13	00490595512	1	1735	1	2	201	-1	1
14	00490595512	1	1735	1	2	201	-1	1
15	00493093456	1	749	1	1	201	-1	1
16	00494391101	1	1305	2	2	201	-1	1
17	00494391101	1	1305	2	2	201	-1	1
18	00494391101	1	1305	2	2	201	-1	1
19	00494391101	1	1305	2	2	201	-1	1
20	00494391101	1	1305	2	2	201	-1	1
21	00495696459	2	490	2	1	201	-1	1
22	00497794019	1	384	1	1	201	-1	1
23	00594349360	1	1430	1	1	201	-1	1
24	00594349360	1	1430	1	1	201	-1	1
25	01069047043	1	3678	1	2	201	-1	1
26	01069047043	1	3678	1	2	201	-1	1
27	01069047043	1	3678	1	2	201	-1	1
28	01069047043	1	3678	1	2	201	-1	1
29	01069047043	1	3678	1	2	201	-1	1
30	01104626900	2	1723	-1	1	201	-1	1
31	01614039460	1	768	1	1	201	-1	1
32	01709456698	1	991	1	1	201	-1	1
33	01709456698	1	991	1	1	201	-1	1
34	03194999990	2	616	-1	1	201	-1	1
35	03194999990	2	616	-1	1	201	-1	1
36	03194999990	2	616	-1	1	201	-1	1

```
260     foreach q in isPerson isAdult $personVars {
261         * pull overall numbers
262         svy: mean `q'
263         matrix temp = e(b)
264         local theStat = temp[1,1]
265         local varStats "(`theStat')"
266         matrix temp = e(V)
267         local theStat = sqrt(temp[1,1])
268         local varStats "`varStats' (`theStat')"
269         svy: total `q'
270         matrix temp = e(b)
271         local theStat = temp[1,1]
272         local varStats "`varStats' (`theStat')"
273         matrix temp = e(V)
274         local theStat = sqrt(temp[1,1])
275         local varStats "`varStats' (`theStat')"
276         foreach z in `demographics' {
277             * pull var by each demographic
278             if `disabilityInDatasetRC' != 0 & "`z'" == "disabil
279                 local varStats "`varStats' (.) (.) (.) (.) (.)
280             }
281             else if `incomeInDatasetRC' != 0 & "`z'" == "income
282                 local varStats "`varStats' (.) (.) (.) (.) (.)
283             }
284             else {
285                 if "`z'" == "ageGroup" {
286                     count if `q' != . & ageGroup == 0
287                     if r(N) == 0 {  // this is an age 15+ varia
288                         local varStats "`varStats' (.) (.) (.)
289                     }
```

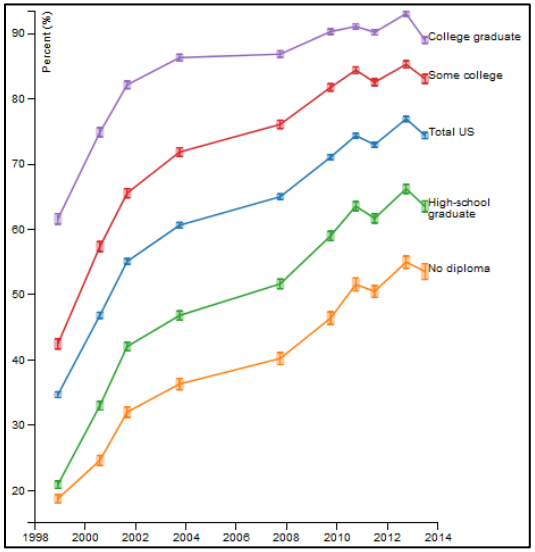


NTIA Data Central

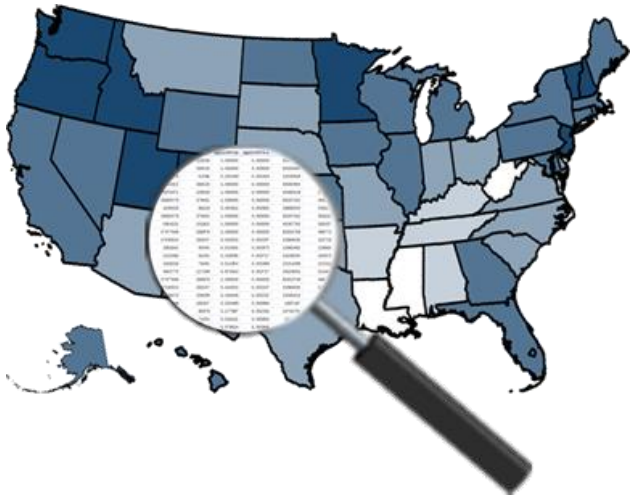
https://www.ntia.doc.gov/data



Digital Nation Blog



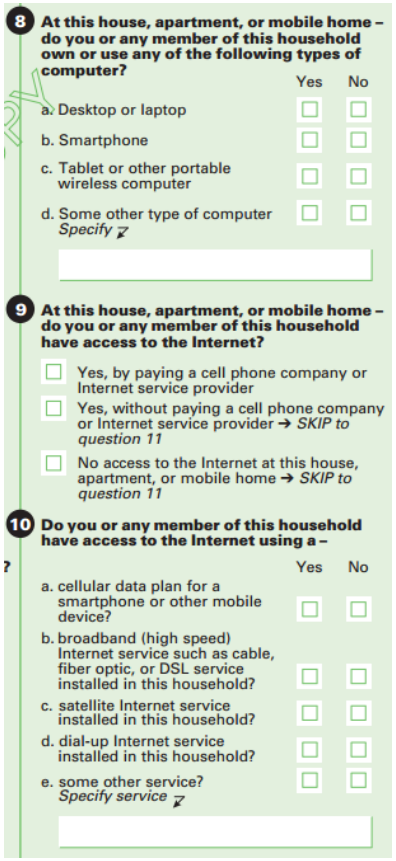
Data Explorer



Research Center

Another Data Source: The American Community Survey

- If you thought the CPS was large…
- Best for (relatively) small populations
- Only a few questions
- More information:
  https://www.census.gov/acs
  https://factfinder.census.gov/



8 **At this house, apartment, or mobile home – do you or any member of this household own or use any of the following types of computer?**

	Yes	No
a. Desktop or laptop	☐	☐
b. Smartphone	☐	☐
c. Tablet or other portable wireless computer	☐	☐
d. Some other type of computer *Specify*	☐	☐

9 **At this house, apartment, or mobile home – do you or any member of this household have access to the Internet?**

- ☐ Yes, by paying a cell phone company or Internet service provider
- ☐ Yes, without paying a cell phone company or Internet service provider → *SKIP to question 11*
- ☐ No access to the Internet at this house, apartment, or mobile home → *SKIP to question 11*

10 **Do you or any member of this household have access to the Internet using a –**

	Yes	No
a. cellular data plan for a smartphone or other mobile device?	☐	☐
b. broadband (high speed) Internet service such as cable, fiber optic, or DSL service installed in this household?	☐	☐
c. satellite Internet service installed in this household?	☐	☐
d. dial-up Internet service installed in this household?	☐	☐
e. some other service? *Specify service*	☐	☐

NTIA Data Central: https://www.ntia.doc.gov/data

Mailing List: https://www.ntia.doc.gov/data-central-news-and-announcements

Data Help: data@ntia.doc.gov

Website: NTIA.DOC.GOV

Twitter: @NTIAgov

Facebook: Facebook.com/NTIAgov

Using FCC Form 477Broadband Data

February 15, 2017

Steven Rosenberg
Chief Data Officer, Wireline Competition Bureau
Steven.Rosenberg@fcc.gov

Overview of FCC broadband-data collection via Form 477

Data type	What we collect	Characteristics of data collected	
		Fixed broadband	Mobile broadband
Deployment data	Areas where providers can or do offer service	• Public • Census block • Consumer vs. business • Technology deployed • Max. advertised down/up	• (Mostly) Public • Geospatial polygons (mapping data) • Technology deployed • Min. advertised down/up • Spectrum
Subscription (connection) data	The number of connections	• (Mostly) confidential • Census tract • Consumer vs. business • Technology in use • Subs per advertised speed	• (Mostly) Confidential • State • Subs per advertised speed

FCC Form 477 broadband-data resources

Form 477 resources (including data specification, FAQ and glossary of terms)	https://www.fcc.gov/general/form-477-resources-filers
Fixed-broadband deployment data	https://www.fcc.gov/general/broadband-deployment-data-fcc-form-477
Mobile-broadband deployment data	https://www.fcc.gov/mobile-deployment-form-477-data
Internet Access Services Report (including links to maps)	https://www.fcc.gov/reports-research/reports/internet-access-services-reports/internet-access-services-reports
Aggregated fixed-broadband connection data: Additional Form 477 data	https://www.fcc.gov/general/fcc-form-477-additional-data
Broadband Progress Report	(go to website to find the latest)
FCC Maps	https://www.fcc.gov/maps/

BROADBANDUSA

BroadbandUSA Connectivity Initiative: Data

February 15, 2017

Robert A. Ballance, Ph.D.
BroadbandUSA/NTIA
White House Presidential Innovation Fellow

All visualizations shown in this slide deck have been prepared for use in the BroadbandUSA Connectivity Initiative

Cooking With Data

Bread

- Flour
- Water
- Yeast
- Salt
- Technique and Practice
- Menu Planning

Data Analysis & Visualization

- Data
- Base Maps or Charts
- Geographical Boundaries
- Judgement
- *Data means little without the story it tells*

It's Best if you Have Good Ingredients and Friends

- Many sources of Open Data relevant to Broadband Planning
  - US Census (Statistics and Geographic Information)
  - FCC (477, Adoption, Cellular, …)
  - Digital Nation (Digital usage from a biennial survey)
- Lots of folks have the basic knowledge, or want to learn the basics, of data visualization and GIS. Look to:
  - Community Anchor Institutions
  - Meetups
  - Maker Spaces
  - High Schools

And a Well-equipped Kitchen

- Excel and Access allow early explorations, but might not scale
- Free and Open Source Tools support "industrial-strength" ideas
  - R
  - PostGIS
  - Web Libraries (e.g. the Leaflet package)
- Map Sources
  - Google, Stamen, Open Street Map, …
- Commercial Services allow you to trade cost for ease of use
  - ArcGIS

Data Sources used in the CCI Tool

- Federal Communications Commission 477 provider data (June 2015)
- FCC 477 data, summarized to adoption levels by FCC
- U.S. Census Digital Nation Supplement to Current Population Survey with additional Internet questions (NTIA, July 2015)
- U.S. Census Current Population Estimate (2015)
- U.S. Census American Community Survey (ACS 5-year data)
- U.S. Census American Community Survey (ACS 1-year data, contains Internet usage information for selected communities)
- U.S. Census Business Survey (2012, latest)
- U.S. Census 2010 Survey

Sometimes Tables are Sufficient

Speed Down/Up	Number of Consumer Providers
Any/Any	16
4/1	11
10/1	10
25/3	5
10/10	6
100/10	3

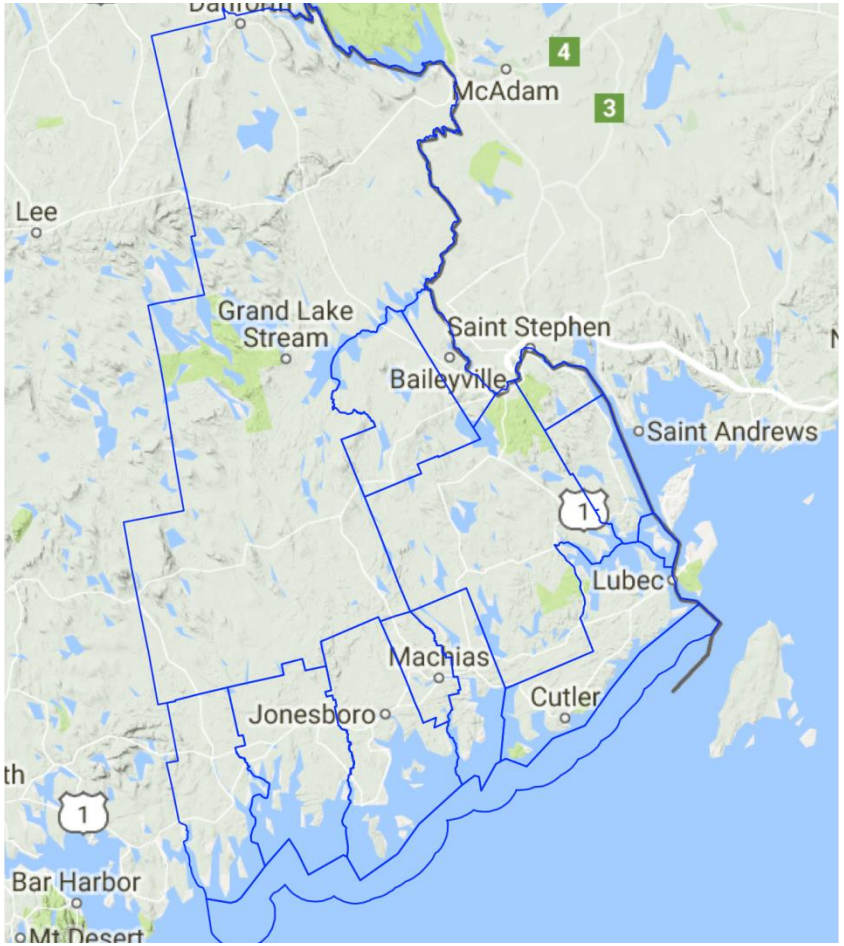
Number of providers in Washington County, ME
FCC 477 Data

Sometimes a Map is Best

- Washington County, Maine
- Base Map: Google Maps

  +

- Boundaries: Census "TigerLine" GIS data



Working from Home

- Base Map: Google Maps

+

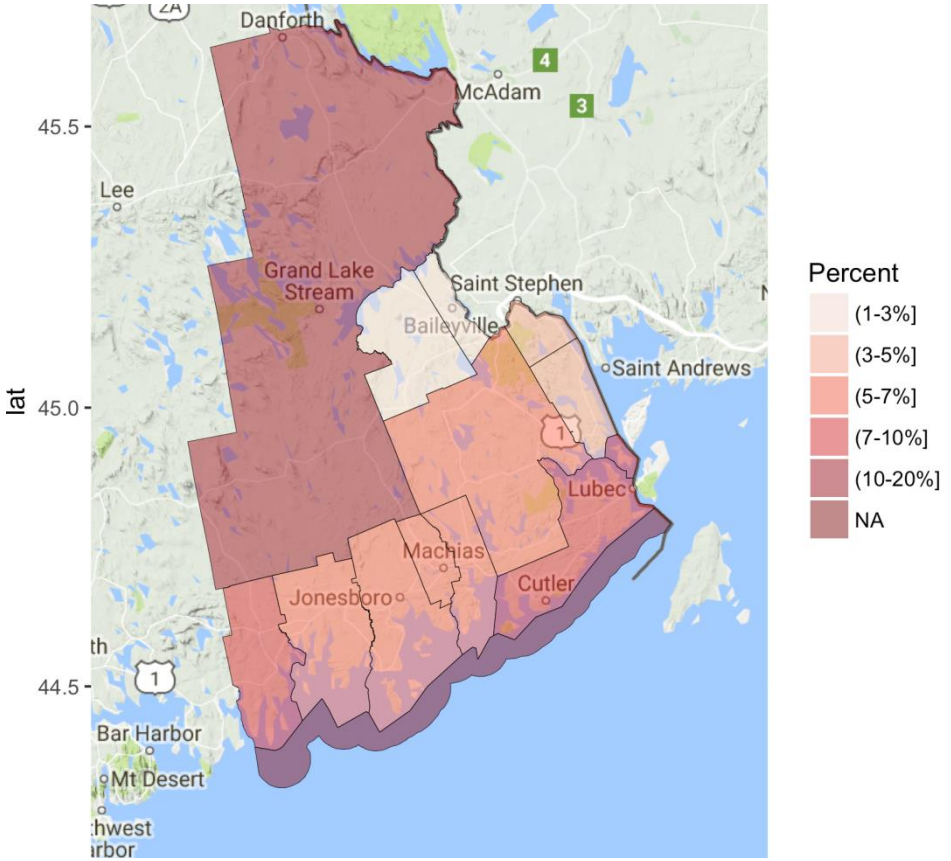
- Boundaries: Census "TigerLine" Tract Boundaries

+

- Data: Census API Call

+

- Match Data to Tract Boundaries



Inside a Web API Call – just a long phone number…

- *http://api.census.gov/data/2010/sf1?get=P0010001&for=tract:*&in=state:23+county:029&key=yourkey*

Census Key – It's Free!

- When I past the API URL into my browser, I see:

- [["P0010001","state","county","tract"],
  ["2679","23","029","955100"],
  ["1566","23","029","955300"],
  …

Population

API: Application Program Interface

Subscription at 10/1

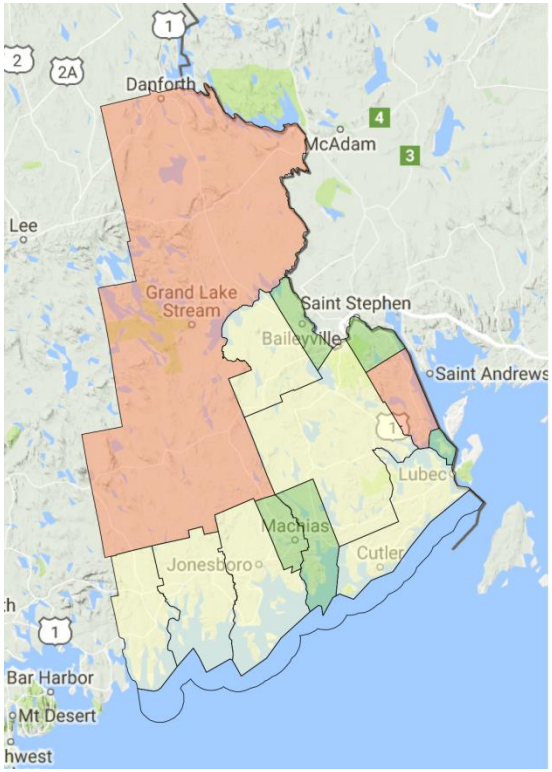
- Base Map: Google Maps

  +

- Boundaries: Census "TigerLine" GIS data

  +

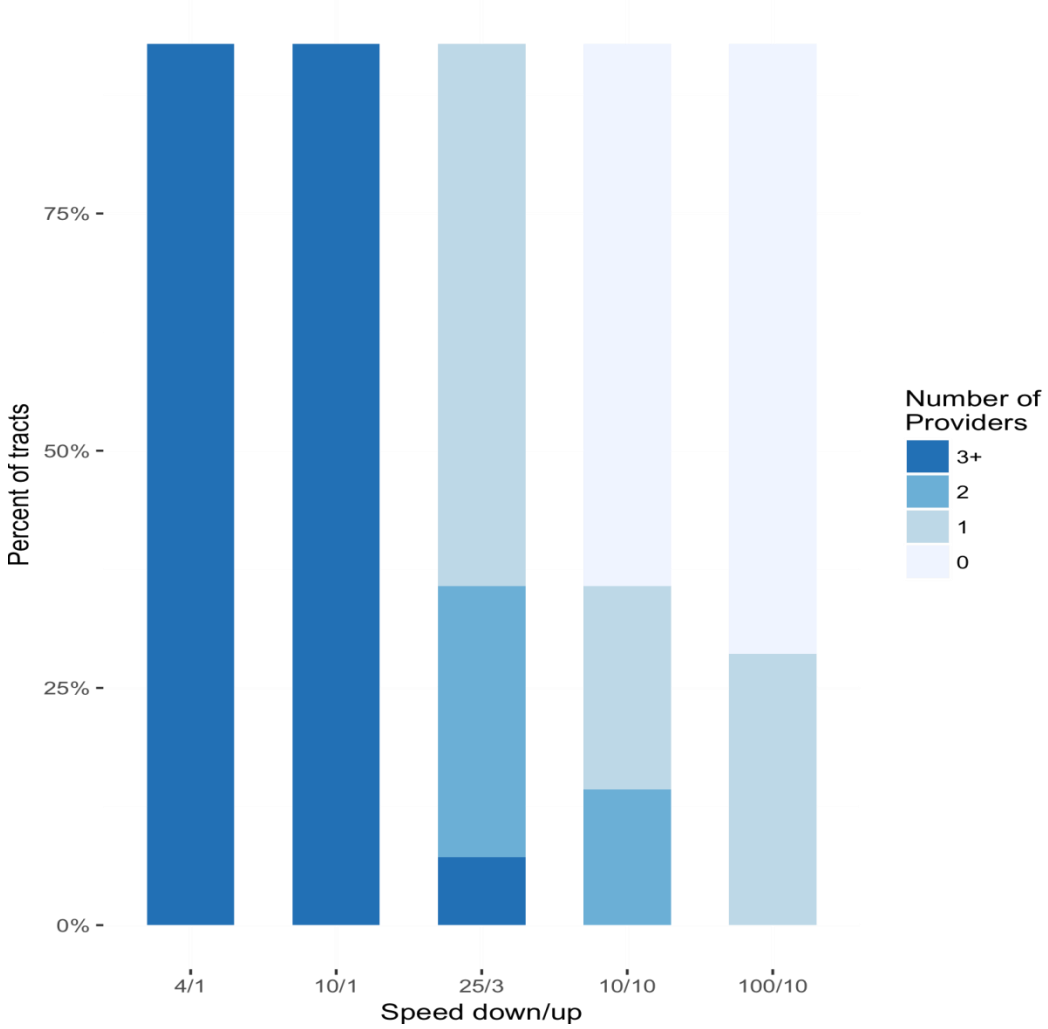
- Data: FCC Subscription Data
  - These can get BIG!



Deployment

- **Tract Level**
- Percent of tracts having 0, 1, 2, or 3+ providers at selected speeds

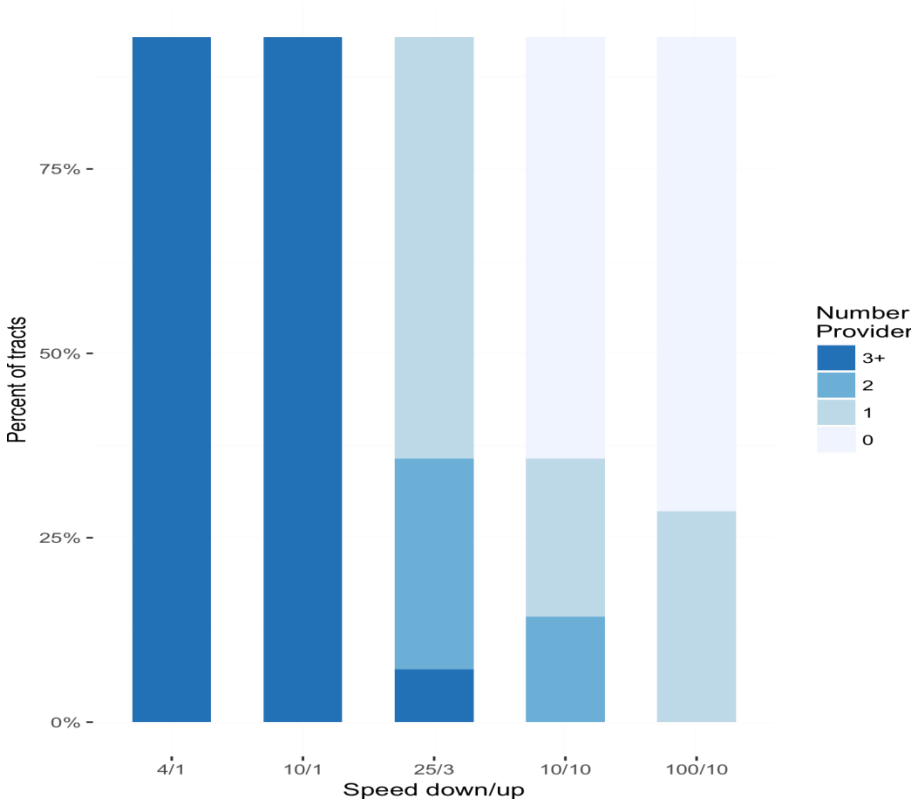
- FCC 477 Data



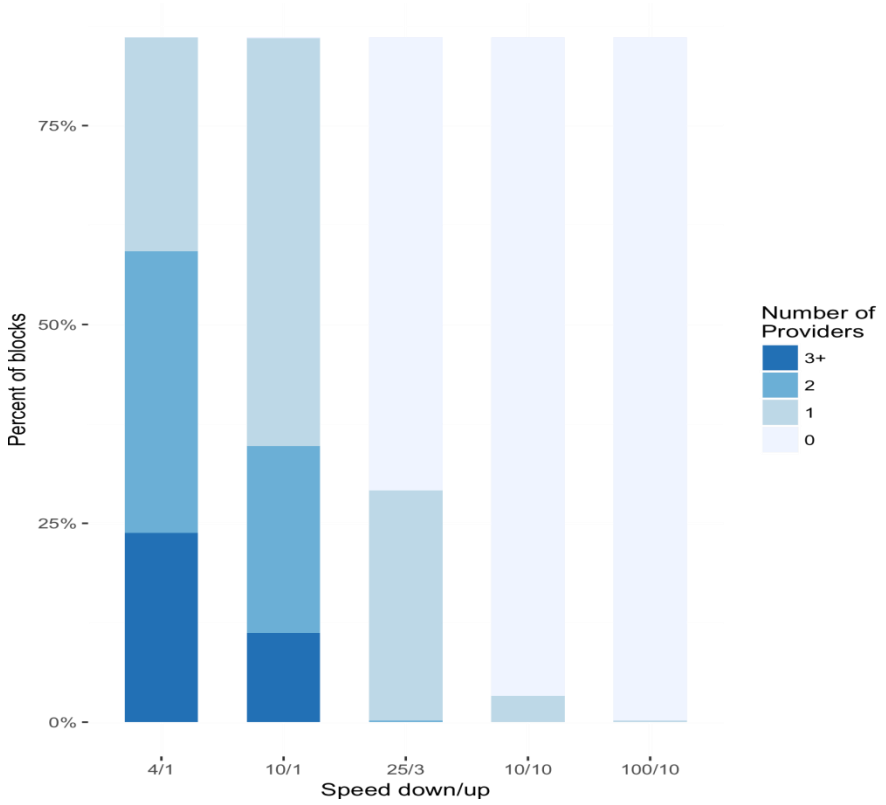
Context is important!

A Census tract consists of many blocks. Service to one block in a tract indicates service to the tract.

Tract Level



Block Level



Tips for Cooking with Data

1. Start small
2. Do one example from the web
3. Learn as you go
4. Find friends: schools, maker spaces, meetups
5. Get more adventuresome!

There's a world of data waiting for you!!

Census Key: http://api.census.gov/data/key_signup.html

And all those links from Rafi or Steve!

Leveraging National Data to Jumpstart Your Broadband Plan

Speakers:

- **Rafi Goldberg**, Rgoldberg@NTIA.doc.gov
- **Steven Rosenberg**, Steve.Rosenberg@FCC.gov
- **Robert Ballance**, Robert.Ballance@PIF.gov

Moderators:

- **Karen Archer Perry**, Kperry@NTIA.doc.gov
- **Emy Tseng**, Etseng@NTIA.doc.gov

BroadbandUSA Practical Broadband Conversations: Overview of Federal Funding For Your Broadband Needs

- March 15, 2:00 pm – 3:00 pm ET
- This webinar will provide an overview of the federal programs that provide funding for broadband planning, infrastructure deployment, research, public computer access and digital literacy programs.
  - **Scott D. Woods**, Broadband USA, Director of Technical Assistance
  - **Don Williams**, BroadbandUSA, Senior Broadband Development Officer
  - **Sandeep Taxali**, BroadbandUSA, Senior Broadband Development Officer
- https://attendee.gotowebinar.com/register/1065633853917153026