

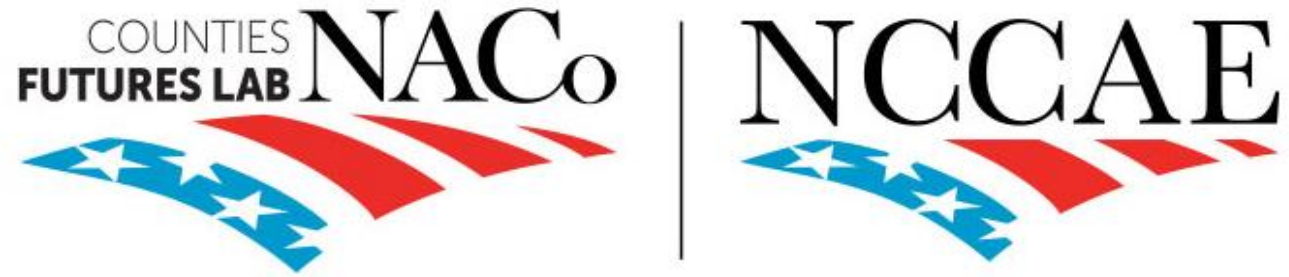


NATIONAL COUNCIL
of COUNTY ASSOCIATION
EXECUTIVES

NACo-NCCAE Knowledge Management Forum

August 28-29, 2017

NACo-NLC Conference Center



Rural Deployment of Broadband

Joshua Seidemann

August 29, 2017

Rural Broadband Deployment: Challenges and Opportunities in Building Network Values

Joshua Seidemann
NTCA-The Rural Broadband Association

NACo-NCCAE Knowledge Management Forum
Washington, DC – August 29, 2017

Outline

- Introduction to NTCA and U.S. Rural Broadband
- Broadband as an Economic Generator
- Interdependencies Among Rural and Urban Places
- Smart Rural CommunitySM Case Studies
- Discussion

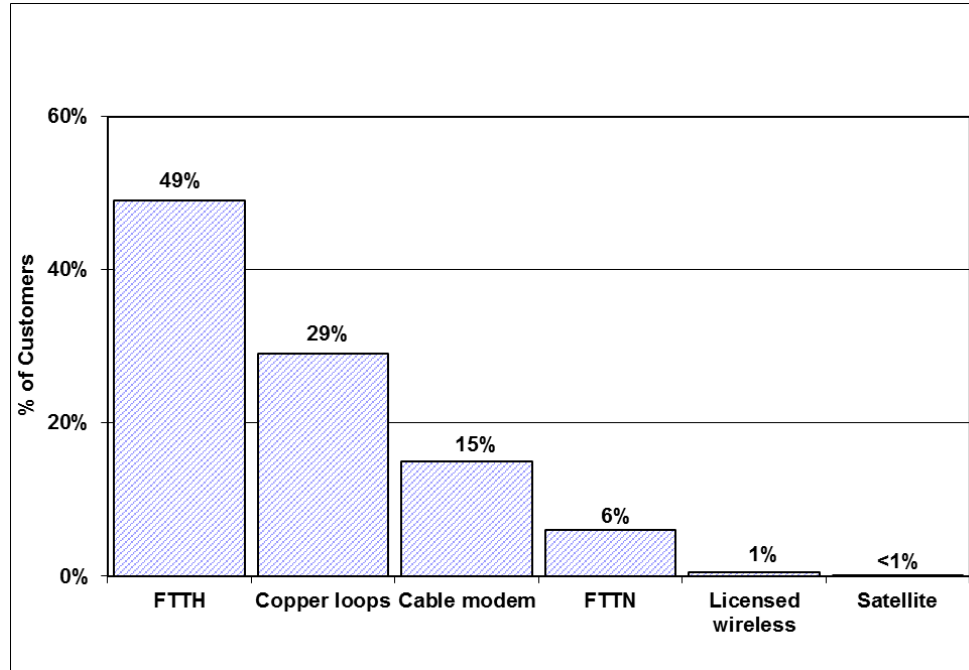
Questions Presented

- Does broadband stimulate economic activity?
- Does rural economic activity affect urban regions?
- How do counties identify their potential impacts?

Introduction

- NTCA-The Rural Broadband Association
- Members provide:
 - Wireline and wireless voice
 - Broadband
 - Video

NTCA 2016 Annual Survey



Factors in Rural Deployment

- Capital intensive network
- Population density
- Geography and terrain
- Regulatory inputs

“In the global economic competition, we really need to make sure that we play with our full team . . . And the only way they will be able to do that is if they have access to broadband access.”

Norman Jacknis, ICF

Broadband as a Generator

- Direct and indirect impacts
- Expands supply networks, customer bases, access to information
- Difficulties in quantifying

Broadband as a Utility*

“ . . . in the long-run, public infrastructure investment is positively correlated with input demands and output supply.”

Richard A. Krop

** literally, not legally*

Metcalfe's Law

The Systemic Value of Compatibly Communicating Devices Grows as the Square of Their Number:

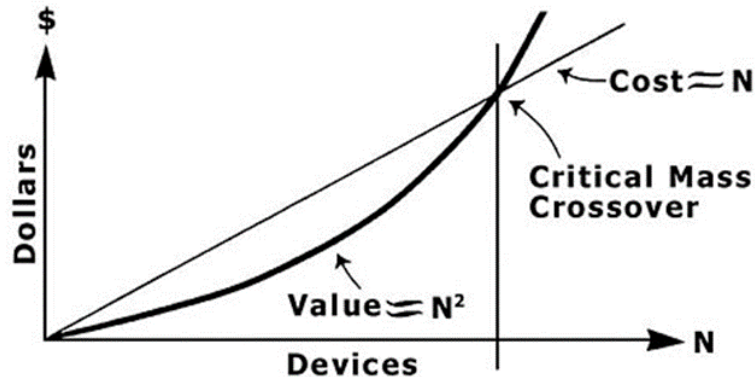


Image: Andrew Chen

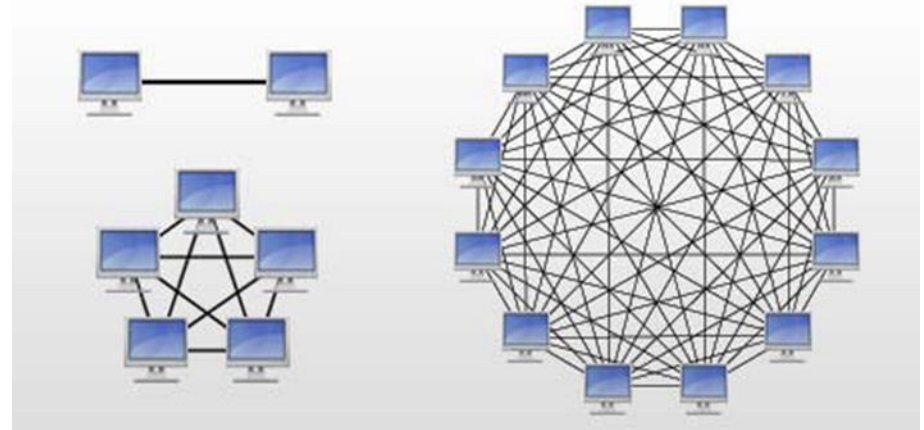


Image: tingilinde.typepad.com

Quantification

- Nascent industry, rapid geographic expansion
- Separate impact of broadband from other factors
- Percentage point increase in state deployment yields 0.2 – 0.3 employment growth (Crandall)*

QED Approach

- Quasi-Experimental Design
- Used for: airport, highways, military base impacts
- USDA: selected 228 rural counties for treatment, and a “twin” for each (Stenberg)

Analysis (USDA ERS)

- Farm sector: mostly unaffected, but broadband embedded in productivity
- Growth in construction and wholesale trade
- Growth in private income

Findings

“Wage and salary jobs, as well as the number of proprietors, grew faster in counties with early broadband access.”

USDA ERS (2014)

Other reports

- Whitacre, Gallardo, Strover (2015)
 - Reviewed “economic health variables”
 - Causal positive effects to income and causal negative effects to unemployment
 - Adoption is crucial to obtaining results

Other numbers

- Broadband/ICT contributed \$945.5B to U.S. private industries in 2014 (Hassett)
- Spillovers calculated to be \$692B (Hassett)

Some more numbers

- Impact on smaller firms takes longer to measure because they need to restructure (ITU)
- 10 percent increase in broadband penetration associated with 3.6 percent increase in efficiency (Thompson and Garbacz, Ohio U., 2008)

“[W]hile broadband will not bring immediate transformation to rural America, regions that lack broadband will be crippled.”

Center for Rural Strategies (2011)

“Businesses that depend on information technology largely avoid being in areas where they cannot get what they need.”

Center for Rural Strategies (2011)

“ . . . purchasing ICT is not the only requirement for increasing productivity. In fact, both management and economic literature have shown that it is necessary to modify business practices in order for information technology [to] impact firm efficiency. Accordingly, independent from the pace at which ICT is being adopted, the impact on efficiency and productivity is driven by what has been called ‘accumulation of intangible capital’ ”

- ICT (fn. 19)

Beyond GNP

- Does GNP impart well-being?
- Stiglitz and GNH (Gross National Happiness)
- Education, health care, community (stay tuned!)

Recap

- The economic impact of broadband can be measured quantitatively
- The difficulty of early measurements has been mitigated by QED approach

U.S. stats

- 1970-2000 – US pop +38 percent
- Projecting to 2030: +29 percent from 2000
- 1910 – 2010 – rural population steady, but proportion to total U.S. population decreases from 54.4% to 19.3%

- 1990 –50 percent of Americans live in metropolitan areas > 1M
- 1992 –Majority votes for president cast from suburban districts
- 1994 –Suburban reps occupy top five positions in the U.S. House
- 1996—76 of the 435 Congressional districts predominantly rural
- 2001 –Census shows that America in a suburban nation

Stauber, Karl, "Why Invest in Rural America – And How? A Critical Public Policy Question for the 21st Century," Economic Review, Second Quarter 2001, Federal Reserve Bank of Kansas City (2001).

State economic studies

- Undertaken in 2011 to address proposed changes to Federal regulations
- Conducted by academic institutions
- Measured direct and indirect impacts

Rural telecom impact

- CO: \$45.5M direct, \$18.2M indirect
- ND: \$18M Fed tax revenues; \$31M state
- KS and NM examined adverse impacts of reduced investment

National impact study

- Varying definitions of rural, yet acknowledgment that rural is different
 - Including various definitions among Federal agencies
- Different types of rural

An evolving national relationship



“Breadbasket of the world”

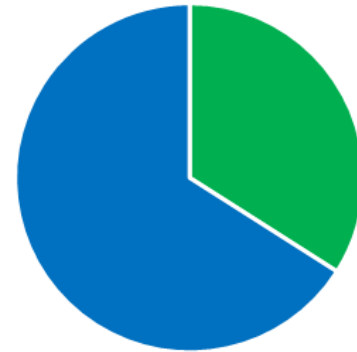


Third stage: broadband

- Rural broadband supports \$24.1B U.S. activity
 - \$8.2B in rural areas (34%)
 - \$15.9B in urban areas (66%)

Hudson Institute (2016)

U.S. Economic Activity
(2015)

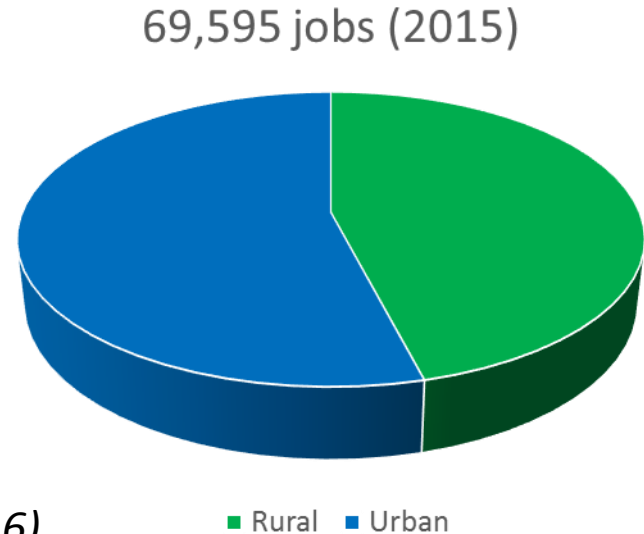


■ Rural ■ Urban

Employment and e-commerce

- Rural broadband supports
 - 69,595 jobs
 - 46% rural (32,013)
 - 54% urban (37,582)
 - \$100B e-commerce

Hudson Institute (2016)



Smart Rural CommunitySM

- Rural broadband to support:
 - Commerce
 - Education
 - Health care
 - Public utilities



Case studies

- Perham, MN: mobile app for fire department
- Alpine, TX: optical telescope and U.S. border security
- Hawkinsville, GA: connected school health cart



Telehealth

- National telehealth savings projections (per facility, annually):
 - Travel expense: \$5,718
 - Lost wages: \$3,431
 - Hospital costs: \$20,841
 - Increased local and pharm revenues: \$11,523 - \$46,121



ANTICIPATING ECONOMIC RETURNS OF RURAL TELEHEALTH

March 2017

Rick Schadelbauer
Manager, Economic Research and Analysis
NTCA-The Rural Broadband Association



Conclusions

- Broadband/ICT is an economic generator
- Relationships among urban and rural spaces enable benefits to cross “borders”
- Broadband enables opportunities to secure rural and, therefore, regional urban futures

Next steps

- Community inventory
- Finding the best assistance
- www.partnersinbroadband.com

Discuss!

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