

# Mobile Broadband: Where We Are and Where We Could Go

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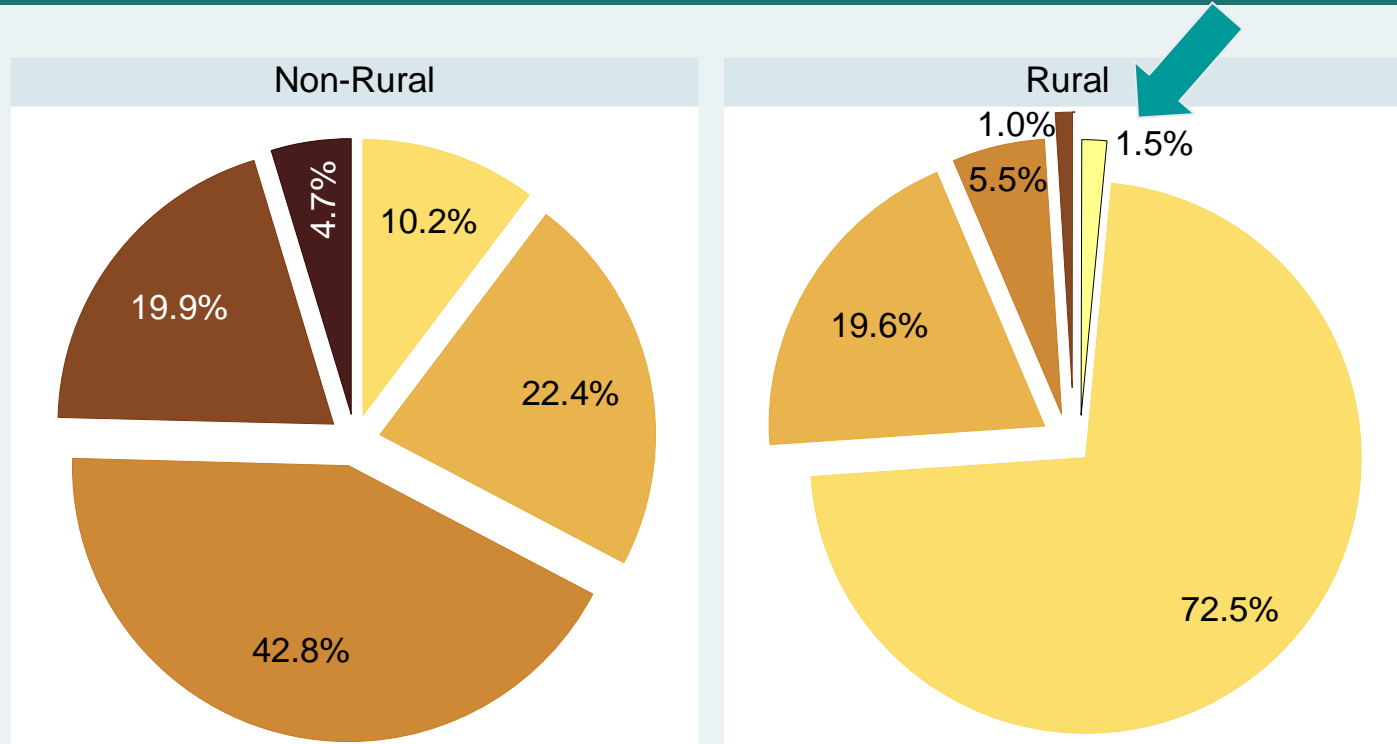
# Introduction

- ◆ Plan of talk
  - An update on mobile BB availability and usage
  - The economic importance of mobile BB for rural areas
  - The importance of mobile BB for minorities.
- ◆ The work presented here:
  - Prieger, J. (2013), "The Broadband Digital Divide and the Economic Benefits of Mobile Broadband for Rural Areas," *Telecommunications Policy*, 37:483-502.
  - Prieger, J. (2013), "The Broadband Digital Divide and the Benefits of Mobile Broadband for Minorities," *Pepperdine University, School of Public Policy Working Papers*. Paper 45. (Undergoing peer review)

# I. Mobile BB Availability and Usage

- ◆ Statistics from recent official sources.
- ◆ Mobile BB availability: there is still a rural/urban divide

# Mobile BB Availability, Start of 2011

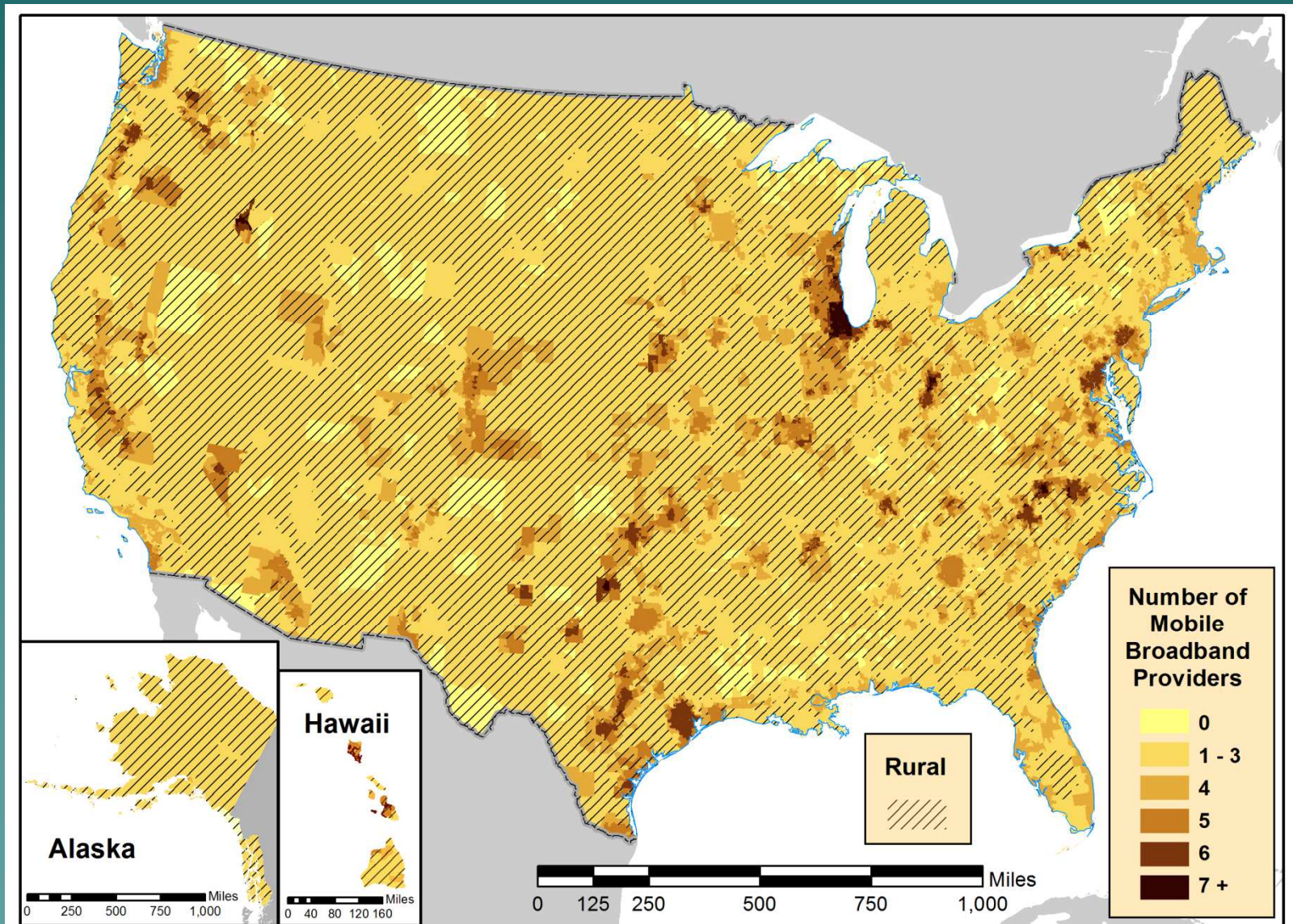


Number of Mobile Broadband Providers (200 kbps at least one way)



Data sources: FCC Form 477, USDA ERS. Figures are weighted by population.

# Mobile BB Availability, Start of 2011



# Mobile and Fixed BB Availability

- ◆ Mobile BB helps to fill in gaps in fixed BB availability

		Mobile Broadband Providers					
Residential Fixed Broadband Providers		0	1-3	4	5	6+	Total
	0		3.4%	33.4%	30.4%	22.9%	9.9%
1-3		0.1%	11.4%	22.3%	41.9%	24.3%	100%

Notes: Figures are population weighted. Geography is the Census tract. Data from FCC Form 477, Dec 31, 2010. FCC definition of BB.

# Mobile BB Usage

- ◆ After controlling for demographics, rural location *does* not affect residential *usage* of mobile BB.
  - Even without controlling for availability!
  - Rural residents want and use BB just as much (if not more) as their urban counterparts
  - (Results are from a logit estimation of CPS data for Oct. 2010)
- ◆ Rural residents using mobile BB are more likely than urban users to rely solely on mobile BB



## II. Mobile BB as an Engine of Rural Economic Development

- ◆ *As a general purpose technology,* broadband has tremendous potential to transform economic activity.
- ◆ A GPT is characterized by:
  - Pervasiveness
  - Potential for technical improvements
  - Usefulness to businesses
  - Potential to increase the productivity of R&D in downstream sectors
- ◆ A GPT spreads throughout all aspects of the economy and creates productivity gains in many industries.

# BB and the US Economy

- ◆ Greenstein and McDevitt (2009) tackle the task of finding broadband's net contribution to US GDP.
- ◆ They find:
  - The net impact of broadband's deployment was approximately \$8.3 to \$10.6 billion of new GDP in 2006.
  - They also find an additional \$4.8-6.7 billion in new consumer surplus created by broadband, which does not show up in GDP.

# BB and Economic Development

- ◆ A growing literature shows BB has a real impact on economic development (although it is hard to quantify).
  - Crandall, Lehr, and Litan (Litan (2007): BB is positively associated with US employment growth.
  - Gillett, *et al.*(2006): BB is positively associated with US employment growth, business formation, and property values.
  - Kolko (2010): BB is correlated with economic growth in US, 1999-2006.
- ◆ Each of these studies controls for confounding factors (in different ways).

# Particular Benefits for Rural Areas

- ◆ Some examples: increased community involvement, telework, distance learning, and telemedicine.
- ◆ Overall impact of BB on rural economic growth (Stenberg *et al.*, 2009):
  - Early BB adopting rural counties had more growth in jobs, population, and personal income
  - (compared to a control group of otherwise similar rural counties)

# Mobile BB and Development

- ◆ Thompson and Garbacz (2011) estimate the impact of BB diffusion on national economies in a cross-country study.
- ◆ Mobile BB usage has a positive effect on GDP per household
  - The highest impact is in less developed countries. Analogy: rural areas in the US.
- ◆ Mobile BB usage reduces the gap between potential and actual GDP.
  - Again, the highest impact is in less developed countries.

# III. Mobile BB and Particular Benefits for Minorities

- ◆ Broadband has particular promise for some minority users
  - Jobs: When looking for employment, African Americans and Hispanics are more likely than whites to say that a lack of BB access is a “major disadvantage.”
  - Education: African Americans are more likely to take online classes than whites
  - Civic engagement: Minorities are more likely than whites to view government outreach using social media as important
  - Healthcare: African Americans who use mobile phones are more than twice as likely as whites to use mobile health applications on their phones.

# The Link to Mobile BB

- ◆ Mobile BB plays a special role in fulfilling the promise of BB for some minority groups.
- ◆ While African Americans and Hispanics use BB overall less...

# Minority BB Usage Gap – Fixed BB

		African Americans vs. Non-Hispanic Whites		Hispanics vs. Non-Hispanic Whites	
Home Broadband Usage of Any Kind		Difference (in % points)	95% Confidence Interval	Difference (in % points)	95% Confidence Interval
	Raw comparison	-18.6	[-20.1, -17.0]	-22.1	[-23.5, -20.6]
	Matched estimate	-11.9	[-13.4, -10.5]	-13.6	[-14.9, -12.3]



# The Link to Mobile BB

- ◆ Mobile BB plays a special role in fulfilling the promise of BB for some minority groups.
- ◆ While African Americans and Hispanics use BB overall less...
- ◆ ...but African Americans use *mobile* BB *more* than similar whites.
- ◆ Hispanics use mobile BB no less than similar whites.

# Minority BB Usage Gap – Mobile BB

		African Americans vs. Non-Hispanic Whites		Hispanics vs. Non-Hispanic Whites	
Access Internet on Mobile Phone		Difference (in % points)	95% Confidence Interval	Difference (in % points)	95% Confidence Interval
	Raw comparison	-1.4	[-2.8,0.03]	-5.6	[-6.8,-4.4]
	Matched estimate	1.5	[0.2,2.8]	-2.5	[-3.6,-1.4]

# Wrap up

- ◆ Mobile BB is less available in rural areas, but used no less in rural areas.
- ◆ BB in general and mobile BB in particular can be a driver of growth for rural areas
- ◆ BB in general and mobile BB in particular can be of great importance for minority users.