Missed Economic Opportunity: Broadband in Mississippi

MISSISSIPPI STATE UNIVERSITY EXTENSION

As the digital age continues to unfold, broadband applications are becoming more and more important for residents, businesses, and government agencies. In this context, broadband is any type of high-speed internet access. From accessing vast amounts of information to applying for jobs, broadband is a critical technology, and those not taking advantage of it are being left behind. The digital divide—defined as those who can afford broadband and know how to use it versus those who don't—is a key issue that policymakers at the national, state, and local levels should address.

Broadband access in Mississippi is the lowest in the nation. According to the Federal Communications Commission, in 2015, approximately 1 million Mississippians, or 36 percent of the total population, lacked access to fixed broadband (does not include mobile wireless) of at least 25 Mbps download and 3 Mbps upload (25/3 for short). For comparison, 10.1 percent of the U.S. population lacks access to fixed broadband 25/3.

Lack of access in the state was much higher in the most rural counties (those without an urban core of at least 10,000 people or those with less than 25 percent of their workers commuting to a neighboring larger county; see **Figure 1**). Approximately 68 percent of Mississippians in the most rural counties do not have access to fixed broadband 25/3.

With our world being so dependent on technology, it is necessary to consider the economic benefits lost when so much of Mississippi lacks access to broadband. To discover the impact, we need to shift gears from individuals to households.

A recent study by Ohio State University (Rembert, Feng, & Partridge, 2017) analyzed two articles regarding the economic benefits of those who subscribe to broadband. One article determined a benefit of $1,500 per household per year, while the second study determined a benefit of $2,200 per household per year. These figures were calculated looking at customer surplus—what a consumer is willing to pay for a service compared to what they are actually paying. In other words, consumer surplus is the average amount of value a consumer receives from Internet service above and beyond the price charged. The Ohio State study settled at $1,850 as the average annual household benefit of broadband subscribers. However, this average is a conservative amount, since it assumes that consumer surplus remains constant over time, disregarding an increase in the value of broadband service and a decrease in actual cost.

Since broadband deployment is highly sensitive to density, it is important to categorize Mississippi counties into three types. The first type consists of metropolitan counties with an urban core of at least 50,000 people or with at least 25 percent of the workforce commuting to a larger neighboring county. The second type consists of small-city counties with an urban core between 10,000 and 49,999 people or with at least 25 percent of the workforce commuting to a larger neighboring county. The third type is made up of rural counties without an urban core of at least 10,000 people or without at least 25 percent of the workforce commuting to a larger neighboring county. **Figure 1** shows Mississippi counties by type. Dark gray counties are metropolitan, light gray counties are small cities, and green counties are rural.

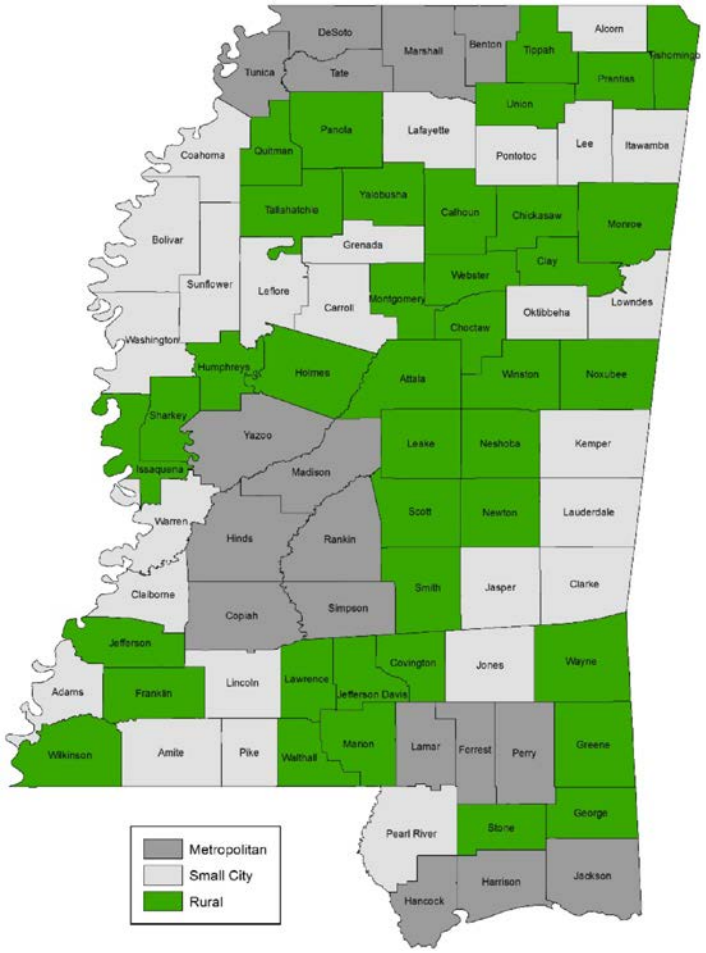

Figure 1. Mississippi counties by type.
Source: 2013 Office of Management and Budget Core-based typology

Data regarding the percent of individual people without access to 25/3 fixed broadband is available. However, the economic contribution of broadband is based on households. For this reason, the average household size was obtained from the U.S. Census, and it was used to estimate the number of households without access to 25/3 fixed broadband. Once the approximate number of households without access to 25/3 fixed broadband was calculated, it was multiplied by the average economic benefit ($1,850) discussed above.

However, assuming all households would subscribe to 25/3 fixed broadband if available is unrealistic. Age, income, and educational attainment are known to impact broadband adoption. Therefore, multiple adoption scenarios of currently unserved households (100, 74, 45, and 15 percent adoption rates) were included in **Table 1**, showing the economic benefits overall and by county type in Mississippi.

Likewise, since these are annual estimates and the assumption is made that households will subscribe to broadband for many years, it is useful to project these economic benefits 15 years into the future to better visualize the total economic benefits. This projection included a 7 percent discount rate to take off any future value based on opportunity costs or technical changes that could make a broadband investment today obsolete in the future. Therefore, **Table 1** also shows the 15-year economic benefits.

Reaching 100 percent 25/3 fixed broadband coverage and adoption today would generate approximately $750 million in economic benefits per year and approximately $2 billion over 15 years. This takes into consideration that 405,000 Mississippi households, or 36 percent of total occupied housing units, currently lack access to 25/3 fixed broadband. About 43 percent, or $895 million, of these benefits would go toward people in rural Mississippi counties (green counties in **Figure 1**) over 15 years.

Furthermore, in these rural counties as of 2015, 28.6 percent of those ages 25 to 54 were not in the labor force, and, as a group, they had a 6.6 percent unemployment rate. Because broadband is critical to improving skills and searching and applying for jobs, access to affordable broadband would generate larger economic benefits in these counties.

In the most conservative scenario, if only 15 percent of currently unserved households adopted the technology, the economic benefits would still be significant. Annual statewide broadband economic benefits would total $112 million, and, in 15 years, the benefits would amount to $310 million. Of these benefits, $81 million would be in metropolitan counties, $94 million would be in small-city counties, and $134 million would be in rural counties. In other words, each of the 39 rural counties in the state would receive an average broadband economic benefit of $3.4 million over the 15-year period, or about $229,000 per year.

Table 1. Broadband economic benefits in Mississippi by county type.

	No. of households w/o access to 25/3	Annual economic benefits	15-year economic benefits
Mississippi			
100 percent	405,681	$750 million	$2 billion
75 percent	304,261	$562 million	$1.5 billion
45 percent	182,556	$337 million	$931 million
15 percent	60,852	$112 million	$310 million
Metropolitan			
100 percent	107,077	$198 million	$546 million
75 percent	80,308	$148 million	$409 million
45 percent	55,453	$102 million	$245 million
15 percent	16,062	$29 million	$81 million
Small City			
100 percent	123,229	$227 million	$628 million
75 percent	92,422	$170 million	$471 million
45 percent	55,453	$102 million	$283 million
15 percent	18,484	$34 million	$94 million
Rural			
100 percent	175,375	$324 million	$895 million
75 percent	131,531	$243 million	$671 million
45 percent	78,919	$145 million	$402 million
15 percent	26,306	$48 million	$134 million

Sources: FCC Form 477; U.S. Census Bureau; Ohio State University
Note: Figures may not add up due to rounding; 15-year figure includes a 7 percent discount rate.

The 15-year economic benefit of broadband at the very conservative 15 percent adoption rate by county varies as shown in **Figure 2**. During this period of time, Hancock County would see a $9.9 million benefit, while Issaquena County would see only a $500,000 economic benefit.

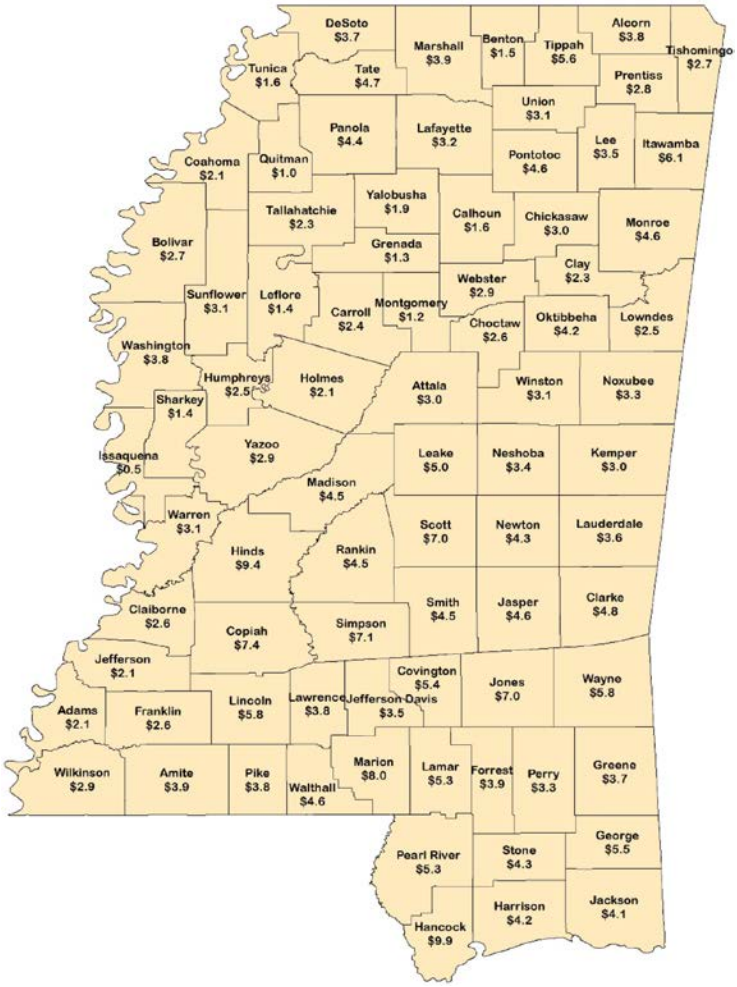

Figure 2. 15-year broadband economic benefits using a 15 percent adoption rate, millions of dollars.

In conclusion, broadband applications can be leveraged for community economic development. With a "traditional" economic development effort of pursuing industry attraction, which is closely tied to a density of workers and markets, rural areas suffer. Broadband applications, on the other hand, are not tied to density (assuming, of course, broadband is available and affordable) and provide an opportunity for rural communities to develop and grow. More importantly, broadband applications empower residents. With a "broadband" economic development effort, which does not require more workers and markets, existing businesses have the potential to become more competitive.

However, a lack of access is undermining this potential. As this analysis has shown, significant economic benefits are being lost because of the lack of access to 25/3 fixed broadband in the state. Existing carriers, local governments, and public-private partnerships must work together to resolve this complex issue.

To increase adoption rates, carriers and local governments should deploy a targeted educational and digital literacy strategy. The Extension Service can be an important part of this strategy, partnering with libraries, schools, and churches. Extension has more than 100 years of experience spreading knowledge to and making connections with Mississippians, including those in rural communities.

As adoption increases, the potential economic benefits increase, and the investment becomes more attractive to carriers and governments alike.

References

Rembert, M., Feng, B., & Partridge, M. (2017). *Connecting the Dots of Ohio's Broadband Policy.* Ohio State University. Retrieved from https://aede.osu.edu/about-us/publications/connecting-dots-ohios-broadband-policy

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